THE MACHINE AND ITS PLACING

The Thompson Typecaster occupies a floor space of twenty seven by thirty inches; when the Lead Slug & Rule Equipment is attached an additional space of twenty four inches is required on the left hand side of the machine The weight of the complete machine fully equipped is 750 pounds.

It is important that the machine be placed near a window in such position that the light will fall on it from either the right or left side of the operator as he faces the machine; if placed so the operator must work with his back to the window he is obstructing the light If he works with the machine between himself and the window the light will not fall upon the Mold Matrix Carrier and other working parts which it is necessary to watch at all times in order to insure perfect material The light on a bright day falling into the operator's eyes will affect his efficiency

When artificial light is used (whether gas or electric) it should be so placed that it will fall directly upon the mold and Matrix Carrier from overhead, but low enough to well light up the working parts without shining into the operator's eyes

The machine should be placed upon a solid level surface and firmly fastened to the floor.

WATER CONNECTIONS

Make water connections as shown on "Installation Sheet" on preceding page.

The Thompson Mold is water cooled which quickly cools the metal after it has entered the mold chamber. It is important that all water connections be made so that the flow of water may be easily regulated.

The water supply pipe to the machine need be no larger than quarter inch iron pipe. A good lever handle stop cock which will not leak should be provided and connected to the end of the supply pipe so that it will be

convenient for the operator to regulate the flow of water as required without leaving his position in front of the machine. A piece of good rubber tubing should be used to connect the stop cock on the end of supply pipe with the large inlet pipe on the mold.

The quarter inch waste water drain pipe, that extends about three inches beyond the back of the machine top base, should be connected directly with a three eighth inch iron pipe. This should be run into a drain so the waste water will run out without any attention from the operator.

When casting type of the small bodies only a little water is required to keep the mold cool but when casting the larger sizes of type a good flow of water is necessary to keep the mold sufficiently cool to insure a maximum casting speed.

The speed of casting type on the Thompson Typecaster is limited only by the length of time required to fill the mold solidly with metal and cool it sufficiently so that it may be discharged easily.

ELECTRIC CONNECTIONS

The motor, which is installed in the base of the machine, when direct current, is wired to the snap switch and rheostat which are located on the right hand side of the machine.

When alternating current single phase motor is used it is wired to the snap switch only, no rheostat is required for alternating current.

When motor is two or three phase alternating current it is placed in position in the machine base, but all electrical wiring must be done by the customer when the machine is installed.

In making the electrical connections, a standard knife switch with a cutout for "no arc" fuses should be placed on the wall near the Typecaster, so that the current may be cut off from the machine whenever it is not in use.

The local Underwriters' or Insurance Rules for wiring should always be complied with in making electrical connections

GAS BURNER AND CONNECTIONS

Gas Connections with the machine should be made as shown on Installation Sheet

The Gas Burner (H 599) for heating the metal is so constructed that the flame will spread thus heating the metal evenly with a minimum amount of gas; the flame should be blue. If it is red it will deposit soot on the bottom of the Melting Pot (H 571) which prevents the metal from becoming properly heated. The air supply regulator on the lower end of the air mixer may be turned to the right or left to open or close the holes through which air passes into the mixer. Too much air will cause the gas to ignite in the mixing chamber. If that occurs the gas must be turned off and the air holes closed up a little more before again lighting the gas. When the flame is blue it generates the most heat, once adjusted it requires no further attention unless the gas pressure should vary greatly.

A good supply of gas is essential. Nothing smaller than a three eighths inch gas pipe should be used to supply the Burner; the gas cock should be large enough to supply a free flow of gas through it to the burner. After the metal is melted the gas may be turned down so the metal will not be overheated but kept at an even temperature.

The average amount of gas consumed to heat and keep the metal at the proper temperature is 275 cubic feet in eight hours

GASOLINE BURNER AND CONNECTIONS

A Gasoline Burner (H 844) is furnished for use where gas is not available. This outfit consists of a Gasoline Pressure Tank (H 844 B) Pump (H 844 C), Burner (H 844) and 10 feet of hollow wire (H 844 X).

Place the Tank as far away from the Burner as the length of the hollow wire will permit. Fasten one end of hollow wire to tank valve marked "Gas" and the other end to connection on Gasoline Burner. Close Gas Valve with hand wheel on Burner and valve marked "Gas" on Tank, now remove the Filling Plug from the Tank and after filling the latter one-half full with gasoline, screw the plug back tightly. Open valve on tank marked "Air" and pump air into Tank to about 10 pounds pressure, then close air valve.

Now open Tank Valve marked "Gas"; then open Gasoline valve in Burner, allow gasoline to drip until it fills Generator Pan underneath the Burner. When Pan is full shut off gasoline at the Burner. Light gasoline in the pan, allow it to burn until flame dies out, then open Gas Valve and light Burner. The flame must be blue to generate the most heat; if the flame is not blue it proves that the proper mixture is not being obtained; in that case, the Needle Valve, the head of which projects below the bottom of the Generator Pan, must be adjusted until the flame burns blue.

In case the Burner "back fires" it indicates that the Needle Valve is open too wide and needs adjusting.

KEROSENE OIL BURNER AND CONNECTIONS

To successfully burn kerosene for the greatest amount of heat it is necessary that the fuel be changed into a vapor, then mixed with a sufficient amount of air and finally burned so that the flame is distributed over the surface to be heated. Properly generated and mixed with the proper amount of air, the fuel burns with a blue flame and gives off intense heat. The Ozaukee Burner developes this intense heat when used in accordance with instructions.

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Attach the Burner to the Bracket provided for it under the Metal Pot.

Attach the handle to end of needle valve and lock with lock nut by holding the lock nut with plier and turn handle to right until tight.

Attach one end of the hollow copper wire to the end of the Generator and the other end to the valve on the Tank marked "Oil".

Unscrew the filler cap on the tank and fill about three-fourths full. Close all valves and filler cap.

Attach pump and open air valve. Pump air into the tank until the gauge registers 35 to 40 pounds. You are now ready to generate gas.

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When the burner is cold the generator must be heated by application of outside heat. For this purpose you will find two generating cups, a small one fastened to the heel of the generator and a large one directly under the generator. Fill the cups two-thirds full of denatured alcohol and ignite. Under no circumstances use gasoline in place of denatured alcohol.

CAUTION

Be sure to have the needle valve on burner open four or five turns while generating. This valve is used to regulate flame and clean out jet orifice only.

After alcohol in large cup has almost burned out, burner is ready to light. The flame from the cups will ignite the vapor as it comes through the top of the burner. Turn on oil valve on tank very slowly, not over a quarter turn or less to start with until the burner has caught itself, as opening valve too wide permits too much cold oil to rush into the generator, thus chilling the generator and causing the burner to burn with a yellow flame. The burner should light up with a blue flame. If it burns with a yellow flame it proves that your generator is not hot enough and you should shut off the oil valve at the tank and generate a little more with alcohol.

If you desire more heat increase the pressure on the tank, but never more than 40 pounds.

TO TURN OUT BURNER

To turn out the burner close the oil valve at the tank. Do not use the needle valve at the burner for this purpose.

To replace any part of the burner order from the party from which you ordered this burner or direct from Reliance Equipment Corporation, at Saukville, Wisconsin, U. S. A. If there is any doubt as to the exact description of the part or parts needed we advise that you return to us the part that is to be replaced.

SPEED OF MAIN SHAFT OF THE MACHINE

When the machine is motor driven, the motor furnished installed in the base is so arranged that the main shaft, which extends about four inches beyond the rear of the machine (on the inner end of which the friction disc is mounted) will run at the proper speed.

If the machine is equipped for belt drive, the speed of the pulley mounted on the extending end of the main shaft should run 245 revolutions per minute.

THE CAMS

Facing the front of the machine and counting from left to right, the cams on the cam shaft have the following actions:

First is the Choker Cam (C-413) which operates the Choker Cam Lever (C-523) through which the Choker Lever Link (C-527), Choker Lever (C-854), Choker Fork (C-534) and Choker (C-531) are actuated.

Second is the Pump Cam (P-510) which operates the Pump Cam Lever (P-524) through which the Pump Lever Link (P-526), Pump Lever (P-537) and Pump (P-572) are actuated.

Third is the Vertical Mold Blade Cam (V-509) which operates the Vertical Mold Blade Cam Lever (V-525) that is attached to the Vertical Mold Blade Lever (V-512) which moves the Vertical Mold Blade (V-612) for Linotype Matrices and (V-613) for Thompson wide or narrow Matrices; up and down at the type discharge end of the Mold Chamber.

Fourth is the Matrix Carrier Cam (N-513) for operating the Matrix Carrier Cam Lever (G-925) and Matrix Carrier Lever (G-924) through which the Matrix Carrier is actuated.

Fifth and sixth are the Mold Body Auxiliary Cam (M-516) and Mold Body Cam (M-515) respectively, for operating the Mold Body Cam Lever (M-521) and Mold Body Lever (M-520) through which the Mold Body Plate (M-942) and Mold Body (M-894) are actuated.

CLEANLINESS

Cleanliness is absolutely essential in a machine required to do the exact work of typecasting. Small particles of metal, grit or dirt of every description must be kept away from the mold parts especially. A soft, clean rag should be used to wipe body pieces, etc., carefully before putting them into the mold, and the matrices and mold faces should be wiped and all metal brushed away when matrices are changed, and if the run is a long one on a matrix, remove the carrier occasionally and wipe the parts. The entire mold should be removed occasionally and drenched with gasoline or benzine and wiped clean; then thoroughly oiled and replaced. Keep the oil grooves in the mold free from accumulations of metal, and run a wire through the oil hole connecting the oil pad with the front end of the mold.

When mold bodies and similar parts are stored away, coat them with Vaseline, this is better than oil as a rust preventative.

Wipe the interior faces of the cams to remove grit and do not allow oil to run over the machine surfaces. Keep machine clean always and covered when not running.

OILING MOLD PARTS

The most important thing in the operation of any machine is proper lubrication. If bearings and surfaces which move in contact are not oiled, the parts soon become heated, and carbon is formed, which seizes the metals and causes deep cuts in their surfaces. A rapidly moving part lacking oil will be ruined in a few minutes.

In a machine of this class, it is absolutely essential that the mold parts be kept amply lubricated, and because of the intense heat near these parts, the task is the more difficult. We have solved the problem with an adequate oiling system, but all our efforts will be set at naught unless the operator puts oil into the cups provided for that purpose.

Oil should be supplied at least once an hour while running. An oil cup is located on the back wall of the mold stand near the water tubes and another one above the type-receiving shoe. The sight feed oiler should be kept full and adjusted to feed about one drop a minute. A high-grade spindle oil should be used. We recommend the mixing of "Oildag" with the oil. We can furnish it. It will save the mold from cutting. Do not use a heavy, thick or cylinder oil.

Be sure to get the oil into the bearings. Oil on the outside of the machine does no good. It only collects dust and dirt and is an indication of a careless operator. Be sure the oil flows freely into the oil-holes and bearings, and, after oiling, wipe off all oil that may run out of them. There are thirty four oil holes and two grease cups on the machine, be sure none are overlooked.

CAM ROLLERS

Next in importance are the cam rollers. If these do not revolve freely on their studs (and they will not unless oiled), they soon wear a flat surface at one or more points. This causes the cast-iron cams to wear rapidly, and the result is that all cam-lever movements are affected and their time and accuracy destroyed.

Each of the Cam Levers (G-925) and V-525) has oil holes near the Cam Rollers. The oil hole for the Pump Cam Lever Roller is in the rear end of the Lever (P-524) and can be seen only from the back just above the Base Top when the Metal Pot is swung back and the Pump Stop (P-682) is in position under the Pump Cam Lever (P-524). This Pump Cam Lever Roller must be oiled frequently through the oil hole to prevent the roller from wearing flat and consequently cutting the Pump Cam. The Mold Body Cam Lever Roller has an oil hole to lubricate both rollers on the Lever (M-521). Do not neglect these rollers. Oil frequently.

CAM SHAFT

There is one oil hole in each Cam Shaft Bearing (K-504 and K-505) both outside the Base.

FRICTION PLATE SHAFT

The grease cup above the bearing at the rear of the machine must be given a turn every day or two. "Gredag" is recommended as a lubricant for the grease cups.

FRICTION WHEEL SHAFT

This Shaft carries the fibre-faced Friction Wheel, and the bearings at each end must be oiled frequently. This Shaft requires ample lubrication.

Inside the Base, and mounted on the lower side of the Friction Wheel Shifter Yoke, will be found a grease cup for lubricating the Yoke. It should be kept filled with cup grease and the cap should be screwed down a little every two or three days. This grease cup can be reached only through the lower base front door.

SPEED CHANGE GEARS

Two oil tubes lead to the Shaft on which the speed changing gears are mounted. They are covered by the swinging plate marked "Oil" seen when the top base door is lowered. There is one oil hole also outside the base on the right hand side for the Speed Change Gear Shaft.

CAM LEVERS

One oil hole for each of the six levers mounted on the Mold Stand, the Choker Cam (C-523); Pump Cam Lever (P-524); Vertical Mold Blade Lever (V-525); Matrix Carrier Lever (G-924); Mold Body Cam Lever (M-521) and two for the Mold Body Lever (M-520), need a drop of oil. The segments between the two last named Levers should also be oiled.

MATRIX CARRIER

The Matrix-carrier slides (G-670 and G-671) can be oiled through the two oil holes above them.

SMALL BEARINGS

One oil hole in the top of the pot-yoke stud (H-834).

One oil hole in the square end of adjusting screw (M-674) connecting with the mold-body plate, and one oil hole in the top of the mold-body lever (M-520).

METAL POT LEVERS

Oil should not be used on any of the melting Pot Levers as it will burn off and cause the parts to stick or cut. For Lubricating the Pot Levers take two parts mutton tallow and one part very fine graphite; heat the mutton tallow and mix the graphite with it; when cold, a small amount of this mixture used daily on the Metal Pot Levers will keep them in good working order. If fine graphite and mutton tallow is not available "Gredag" which can be purchased from us may be used.

The following are the parts on which the above lubricant should be used: Two oil holes at the rear end of the Pump Lever (P-537) and one in the center of upper end of the Pump Stem (P-572). One oil hole in each end of the Choker Lever (C-854). A small quantity on the Pump Link Pin (P-706) and the Pump Connecting Pin (P-549) where these pass through the Pump Links (P-705); also a small quantity on the connecting Pins (P-544) for the Pump and Choker Lever Links (C-526 and C-527).

If motor-driven, oil the bearings at each end of the armature shaft.

Oil all holes once each day. Mold parts and matrix-carrier slides must be attended to every hour.

ELECTRIC POT

The Electric Pot can be fitted to any Thompson Typecaster except Model "E", and it follows closely the design of the Gas Pot.

The electric method for heating is the most modern, its advantages are many and important. It is clean, safe, quick, easily controlled and uniform. The temperature is automatically controlled by the Dynamic Thermometer and the Magnetic Switch which act jointly. The necessity for exhaust pipes to carry off the gas fumes is eliminated, and there is an absence of open flames and the resultant products of combustion.

The output of the Thompson Typecaster is increased and the life of the metal is conserved by the close and accurate regulation of temperature, preventing the burning out of tin, which is the most expensive element that enters into Type Metal. The metal is delivered to the casting point at the exact temperature registered in the Pot. This insures more perfect type and faces, and better welds at the joints in strip material, as well as increased production.

The electrical equipment consists of the Electric Metal Pot with its heating units incased in the solid iron of the outer wall and bottom of the Pot; the Dynamic Thermometer which is attached to the Pot; the Control panel and the Rheostat for controlling the throat heating units. There are three heaters in the Pot; one in the right side, one in the left side and one in the bottom. These heating units are made of "Nicrome" alloy which will not melt below 2800 degrees Fahrenheit. They therefore have a factor of safety far in excess of any requirements.

DYNAMIC THERMOMETER

The Dynamic Thermometer which automatically controls the heating of the type metal in the pot, is adjusted at the factory to maintain the metal within 15 degrees Fahrenheit of any predetermined temperature. It consists of a metal bulb, tube and spring which are filled with mercury and absolutely airtight.

The bulb, the capillary tube, and operating coil are filled with mercury and sealed. The expansion of the mercury causes the operating coil to move a lever toward a contact, upon touching which the magnetic switch reduces the current. As the temperature decreases the mercury contracts and the operating coil swings the lever back, increasing the current. Thus the heating current is automatically varied, and the temperature of the metal held within correct operating limits.

To change the temperature, place the Mercury Thermometer (H-991) into the Metal Pot (H-571) and leave it there long enough until the temperature of the metal is accurately registered thereon. Then, with a small screw driver turn the screw, the head of which is located inside the hole on the right hand side of the Dynamic Thermometer Housing, to the right to increase the temperature, and to the left to decrease it.

Care should be exercised when dropping cold metal into the Pot that the pigs do not strike against the Mefcury Bulb of the Dynamic Thermometer, as that might damage it.

RHEOSTAT

The Rheostat controls the throat and nozzle heater circuit only. Turning the Rheostat Knob in a clock-wise (to the right) direction will increase the heat at the Nozzle, turning the Knob in a counter clock-wise (to the left) direction will decrease the heat.

After operating the Electric Pot a short time the operator will know in which position the Rheostat Knob gives him the correct temperature at the Nozzle, once he has ascertained this he should mark the Knob and the Rheostat so that

he can always set the Rheostat Knob in the correct position to give him the desired Nozzle temperature.

CONTROL PANEL

The Control Panel consists of a slate panel mounted in a sheet metal cabinet supporting the following parts of the control: The main line fuses which protect the entire system from overloads; the Snap Switch which connects the outside line to the equipment through the fuses and terminals; the Resistance coil and wiring and the Magnetic Switch.

COST OF OPERATING THE ELECTRIC POT

To arrive at the cost per hour for operating the Electric Pot the following data, which is the result of tests made, may be used. The size type cast during the test was 30 point; operating temperature 700 degrees Fahrenheit; time consumed in bringing cold metal to operating temperature 45 minutes; electric power consumed 2-1/4 Kilowatt hours; average quantity of power consumed while machine was casting type = 2.03 Kilowatt hours per hour; average quantity of electricity consumed while metal was kept at operating temperature but no type being cast = 1-1/5 Kilowatt hours per hour.

Using the foregoing data as a basis, the value of the unit used in any given locality can be easily computed and the cost of the operation thus determined.

WIRING DIAGRAMS

A wiring diagram will be found on the inside of the Control Panel Door. All wiring should be enclosed in flexible conduit and the Local Underwriters' or Insurance Rules should be complied with in making electrical connections. When disconnecting any wiring be sure to mark it properly so it may be reconnected exactly as it was. When fuses are replaced care must be taken that they are of the same ampere rating as the ones removed.

DEFINITIONS

The CIRCUIT is that part of the equipment which is intended to carry electric current such as copper wires, resistance wires, switches, etc. They are all insulated from the frame of the pot.

The CURRENT is the electricity passing through the equipment.

AMPERES is the volume of current passing through.

VOLTS is the strength of pressure of the current.

A WATT is the product of the volts multiplied by the amperes.

A KILOWATT is 1,000 watts

A KILOWATT HOUR is one Kilowatt of current used for one hour

A GROUND is a bare part of the electric circuit accidently touching the frame of the pot.

A SHORT CIRCUIT is one or more grounds which allow the current to take a shorter path.

AN OPEN is an interruption in the electric current, such as a broken wire, etc.

RESISTANCE is an obstruction in the electric circuit retarding the flow of current

SERIES Connection means that two or more units are connected in line with each other. Current enters one terminal, passes through the windings, out of the other terminal and directly into the next unit, through its windings and out to the opposite side of the line.

PARALLEL OR MULTIPLE Connections means that two or more units are wired in such a way that each makes a complete circuit of itself. Current enters a unit, passing through its windings and directly back to the line.

An electrical circuit carrying current can best be simply explained by considering an iron pipe through which water is flowing under pressure.

The pipe represents the circuit and water passing through it represents the current.

The volume of the water flowing represents the amperes and the pressure of the water represents the volts.

A leak that allowed the water to escape would represent a short circuit and a valve in the pipe partially closed would represent resistance.

I M P O R T A N T

When a Thompson Typecaster is shipped from the factory, the Metal Pot contains a very small amount of metal. The first operation is to melt down enough metal to fill the Pot. On this first heating the Pot should be filled with old type or small pieces of metal. These will lay closer to the inside of the Pot than large ingots or pigs and melt down quicker with less danger of overheating the heating units, which are not designed for operation in air, but should always be covered with type metal when the current is on.

While operating the machine always keep the Metal Pot as nearly full of metal as possible, to prevent dross and oxides being drawn from the surface of the metal into the Choker Channel and the Pump Well.

TYPE MOLD ADJUSTMENTS

The Mold is equipped with eleven body Pieces and

three Jet Ejectors for casting type, borders, ornaments and high and low quads and spaces in the following sizes: 6 point; 8 point; 10 point; 12 point; 14 point; 18 point; 24 point; 30 point; 36 point; 42 point and 48 point. Special sizes are made when ordered.

The entire Mold should be wiped absolutely clean and must be thoroughly oiled and free from accumulation of dirt or metal. All Body Pieces and Jet Ejectors, before every insertion into the Mold, should be carefully wiped with a clean rag.

There are three sizes of Jet Ejectors, the smallest, No. 1 designed to use when casting type from 5 to 18 point, inclusive, the medium or No. 2, when casting type from 24 to 36 point inclusive, and the No. 3 is used from 42 to 48 point, inclusive.

TO CHANGE JET EJECTORS

For Machine part numbers see plates 1, 2, 3 and 4. Mold part numbers plates 6 and 7.

Press the Pump Stop (P-682) under the Pump Cam Lever (P-524) while turning the machine by hand. Unlock Pot by turning Pot Yoke Lock Handle (H-763) and swing Pot away from Mold. Remove Matrix Carrier (A-8) and the Nozzle Plate (H-639) and Type Receiving Shoe (A-14). Loosen the knurled head Jet Block Adjusting Screws (J-650 and J-691) that pass through the Mold Stand Cap at both ends of Jet Block (A-12) until ends are even with the underside of the Mold Stand Cap (N-910). Insert the large end of the Pin Wrench (E-981) in the hole in the Jet Block Adjusting Eccentric (J-897) and turn to the right until the Jet Block touches the Mold Stand Cap (N-910). This lifts the Jet Block Assembly (A-12) so that the Jet Ejector may be removed. To remove Jet Ejector turn Hand Wheel (S-541) until Jet Ejector is at extreme right hand position, then raise Jet Ejector by inserting sharp end of Body Lifting Tool (M-982) in groove on underside of right hand end of Jet Ejector, raising it by a slight downward pressure on the end of Mold Body Lifting Tool. Then take hold of Jet Ejector with fingers and remove. To insert another Jet Ejector reverse above operation. Never change Body Pieces unless a Jet Ejector is in place. If Jet Ejector or Body Piece is clamped too tightly the parts will slide with difficulty and the Body Piece or Jet Ejector may become scored; if clamped too loose metal will collect between the Ejector and the upper and lower Jet Blocks,

and the type cast will be large in body and have a burr. Make the adjustment so there is just enough pressure to insure the casting of smooth type and jets. The pressure of the Knurled Screws (J-650 and J-691) must be slackened as soon as a few casts have been made and the mold is hot to prevent the Jet Ejector from becoming scored.

TO CHANGE MOLD BODY PIECES

For Machine part numbers see plates 1, 2, 3 and 4. Mold part numbers plates 6 and 7.

Be sure the Metal Pot is swung away from Mold and the Matrix Carrier, the Nozzle Plate and Type Receiving Shoe have been removed as in the case of changing Jet Ejectors. Then loosen knurled head Mold Block Adjusting Screws (M-683 and M-693) that pass through the Mold Stand Cap at both ends of the Mold Top Block (A-11) until ends are even with the underside of Mold Stand Cap (N-910). Insert large end of the Pin Wrench (E-981) in the hole in Mold Top Block Adjusting Eccentric (M-898) and turn it to the right until the Mold Top Block (A-11) is brought up against the Mold Stand Cap (N-910). Now insert the sharp end of the Body Lifting Tool (M-982) in groove on underside of right hand end of the Mold-Body (M-894) raising it by a slight downward pressure on the end of the Mold Body Lifting Tool, then push the Mold Body forward toward the left, take hold of it with the fingers and remove it from the Mold. Wipe new Body Piece and mold cavity carefully and insert the Body Piece from left hand end of the Mold, pushing it back until it catches into the Mold Body Plate (M-942). Before seating the Body Piece, be sure that no dirt or metal remains in the mold or prevents the Body Piece engaging the Mold Body Plate (M-942). Turn the Mold Top Block Adjusting Eccentric (M-898) until the Mold Top Block (A-11) is snugly seated on the new Body Piece, and then bring the Mold Block Adjusting Screws (M-683 and M-693) to a light bearing on top of the Mold Top Block (A-11). Turn the machine slowly backwards and forwards by hand to test the adjustment. It should be snug but must not bind. Do not make it too tight. The pressure must be slackened, as soon as a few casts have been made. Never change a Body Piece unless the Jet Ejector is in place.

FELT OIL PADS

To carry oil direct to the Body Blade and Jet Ejector the Thompson Mold is provided with three Oil Pads;

one of these is located in the Mold Bottom Block, one in the Mold Top Block and one in the Upper Jet Block.

When through long and constant use these Oil Pads shrink so they are no longer in contact with the Body and Jet Ejector they will not properly lubricate the parts and the mold may become scored or cut.

To remedy this the old Pads should be replaced by new ones. If new thick Felt is not obtainable remove the old Pads, clean them in gasoline or turpentine and place a little clean waste in the bottom of the opening where these pads belong and put the old Pads back into place.

TO CHANGE FOOT FLOW

When the Jet Ejector (J-893) is changed it is necessary to change the Foot Flow (T-974). Three thicknesses of Foot Flows are furnished corresponding to the different thicknesses of Jet Ejectors. Be sure the Foot Flow-Bracket (T-976) is perfectly clean so the Foot Flow will be in proper position for grooving the type. The Foot Flow (T-974) should be adjusted to cut no deeper than just enough to remove the rough portion left on the foot end of the type where the jet was removed.

TO REMOVE THE TYPE MOLD

For Machine part numbers see plates 1, 2, 3 and 4. Mold part numbers plates 6 and 7.

First remove Matrix Carrier (A-8), Nozzle Plate (H-639) and Type Receiving Shoe (A-14). Then loosen the Vertical Mold Blade Adjusting Screw, the head of which, in some models, is located in the end of the Mold Stand (N-502) immediately under the Type Stick; while in other models it is located on the front of the Mold Stand immediately to the left of the Matrix Carrier Slide (G-670). Now loosen the Hexagon Nut on the knurled head Upper Adjusting Screw (V-684) that passes through the top of Vertical Mold Blade Cam Lever (V-525), then raise the Vertical Mold Blade Lever Yoke (V-511) and slide the Vertical Mold Blade Lever (V-512) to the left as far as it will go, this draws the Vertical Mold Blade Lifting Block (V-615) out of the recessed portion of the Vertical Mold Blade (V-612 or V-613), and lift out the Vertical Mold Blade. CAUTION: On the right hand end of the Mold Stand (N-503) immediately under the Mold (A-13) is the Mold Locating Screw (M-983). This screw is NOT to be disturbed when the Mold is removed from the Mold Stand as it is adjusted at the factory to hold the Mold in its correct position in relation to the Matrix Carrier. Next loosen the small screw

that passes downward through the back right hand end of the Mold Body Plate (M-942) and withdraw the Mold Body Plate Connecting Pin (M-933), this disconnects the Mold Body Plate Adjusting Screw (M-674).

Now loosen the knurled head Mold Block Adjusting Screws (M-683 and M-693) and the Jet Block Adjusting Screws (J-650 and J-691), that pass through the Mold Stand Cap, until the ends of these Adjusting Screws are even with the underside of Mold Stand Cap. Insert large end of Pin Wrench (E-981) in the hole in Mold Top Block Adjusting Eccentric (M-898) and Jet Block Adjusting Eccentric (J-897) and turn each Adjusting Eccentric to the right until the Mold Top Block and the Jet Block are brought up against the Mold Stand Cap. Now insert the sharp end of the Body Lifting Tool (M-982) in the groove on underside of Mold Body (M-894) raising it by a slight downward pressure on the outer end of the Mold Body Lifting Tool, push the Mold Body forward toward the left, take hold of it with the fingers and remove it from the Mold; now remove the Jet Ejector in the same manner.

Remove the Mold Body Plate (M-942) by drawing it to the right out of its bearings in the Mold. With the small screw driver remove the four Mold and Jet Block Lifting Stud Nuts (M-939), next take out the four Mold Stand Cap Screws (M-872) and lift the Mold Stand Cap (M-910) with the left hand, high enough to enable you to remove the Mold and Jet Block Lifting Yokes (J-937).

The Mold can now be lifted out of the Mold Stand. Should the Mold fit very tight in the Mold Stand care must be exercised in removing it, use only a piece of brass rod or a hard wood stick for a lever to raise the Mold out of its position. Place the Mold on the bench and lift out the Mold Top Block (A-11) and the Jet Block (A-12). Be very careful not to damage any of the parts in doing this, use only a piece of brass rod or a hard wood stick for a lever to raise the parts out of the Mold. Flush all the Mold Parts with benzine or gasoline and wipe them clean, also run a piece of wire into the oil hole that runs from the front of the Mold Bottom Block (A-9) through it to the lower felt pad, to be sure oil will flow freely through it to lubricate the side of the Vertical Mold Blade (V-612 or V-613) and the end of the Mold (A-13) where they come in contact one with the other.

After thoroughly cleaning all the Mold parts wipe them with a piece of clean cloth dipped in fine Lubricating oil and assemble the Mold ready to put it on the machine.

TO REPLACE THE MOLD.

Before replacing the Mold, after cleaning, be sure that all surfaces of the Mold (A-13) and that part of the Mold Stand, (N-502 and N-503) into which the Mold fits, is absolutely clean and free from metal or dirt. There is no allowance for dirt and a slight amount will throw the Mold out of position. Take care, also, before replacing the Mold that the Mold-Top Block (A-11) and the Jet Block (A-12) are not raised so high that they prevent the Mold Stand Cap (N-910) being screwed down firmly.

Place the Mold into the Mold Stand, press it down firmly and push it to the right until the lower right hand edge of the Mold comes firmly against the inner side of the head of Mold Locating Screw (M-983), put the Mold Stand Cap (N-910) in position, put the four Mold Stand Cap Screws (N-872) in place and screw the Mold Stand Cap (N-910) down firmly.

After wiping it with a clean cloth saturated with clean oil, insert the Vertical Mold Blade and press it down to its lowest position; now release the Mold Cap Screws just a trifle and then tighten the Vertical Mold Blade Adjusting Screw so as to press the Vertical Mold Blade firmly against the end of the Mold (A-13) thereby forcing the Mold snug against the Mold Locating Screw at the right hand end of the Mold Stand, now again tighten the Mold Stand Cap Screws (N-872) down firmly.

Release the Vertical Mold Blade Adjusting Screw just a trifle, push the Vertical Mold Blade Lever (V-512) to the right until the Vertical Mold Blade Lifting Block (V-615) is in the recessed portion of the Vertical Mold Blade; press the Vertical Mold Blade Lever Yoke (V-511) down into its locked position.

Now with the Pin Wrench (S-981) tighten the Upper Adjusting Screw (V-684) that passes through the top of Vertical Mold Blade Cam Lever (V-525) until it holds the Vertical Mold Blade Lever (V-512) firmly in position; then turn the machine by hand and adjust the pressure of the Vertical Mold Blade Adjusting Screw so the Vertical Mold Blade, in its up and down motion, will be seated snugly against the end of the Mold without too much pressure but tight enough to prevent metal from being forced between them.

ADJUSTING VERTICAL MOLD BLADE

For Machine part numbers see plates 1, 2, 3 and 4. Mold part numbers plates 6 and 7.

It is absolutely essential that the Vertical Mold Blade is positioned correctly in relation to the inner left hand side of the Matrix Carrier against which the Linotype or Intertype Matrix rests when in its casting position, so the character will be cast in correct setwise position on the type. This adjustment, as already explained in a preceding article under the caption "TO REMOVE THE TYPE MOLD", is made at the factory, if however for any reason it was changed by moving the Mold Locating Screw (M-983) it will be necessary to correct it, to do this proceed as follows;- Remove the Type Mold, have the Linotype Vertical Mold Blade (V-612) in its place in the Mold Stand with the Vertical Mold Blade Lifting Block (V-615) in the recessed portion thereof, turn the Hand Wheel (S-541) until the Vertical Mold Blade (V-612) is in its highest position.

Insert a 48 point quad matrix of 12 point set in the Matrix Carrier (A-8) and hold it in position firmly against the Matrix Carrier Wall by locking it in place with the Linotype Matrix Block (C-721). Put Matrix Carrier in place on the machine and push it forward by hand until the Matrix Carrier almost touches the Vertical Mold Blade (V-612). Now bring the Vertical Mold Blade against the side of the Quad Matrix by turning the Vertical Mold Blade Adjusting Screw (V-646) until the Vertical Mold Blade (V-612) rests against the Quad Matrix; it must touch the 48 point Quad Matrix evenly at both ends to be sure the Vertical Mold Blade is exactly square with the mold surface of the Mold Stand, so as to insure even contact with the end of the Type Mold (A-13).

Remove the Matrix Carrier and place the Mold (A-13) in the Mold Stand, being sure that all parts are perfectly clean, and tighten Mold Stand Cap Screws sufficiently to

slightly hold the Mold. Now tighten the Mold Locating Screw (M-983) until it brings the Mold (A-13) against the Vertical Mold Blade (V-612), then tighten the Mold Cap Screws (N-872) down tight.

IMPORTANT: It is necessary now to adjust the Vertical Mold Blade Supporting Plug Set Screw (V-984); this screw is located under the right hand arched portion of the Mold Stand (N-502 and N-503); proceed as follows: Loosen the hexagon nut that locks the screw in position and loosen the screw enough to be sure its end is not in contact with the brass Vertical Mold Blade Supporting Plug (V-960). Now tighten the screw slowly with the fingers of the hand, (Use no wrench while doing this), until the screw gently presses the Vertical Mold Blade Supporting Plug (V-960) against the lower right hand side of the Vertical Mold Blade; be very careful not to force the Brass Plug too tight against the Vertical Mold as that will push it too far to the left and force the Vertical Mold Blade away from the lower half of the Mold, thereby casting a fin on the type and allowing metal to collect between the Vertical Mold Blade and the Mold; if the screw is too loose it will allow the lower end of the Vertical Mold Blade to shift too far to the right and throw the upper end out of contact with the upper half of the Mold and cause the casting of a fin on the type.

When you are sure the pressure of the Vertical Mold Blade Supporting Plug Screw (V-984) is exactly right, tighten the hexagon nut to lock it in position, insert the Pin Wrench in one of the holes in the head of the screw and hold it to prevent it from moving while tightening the lock nut.

If all adjustments are correctly made the Vertical Mold Blade will lay flat against the end of the Mold and the type bodies cast will be sharp and without any burr or fin on the Vertical Mold Blade side.

When it is desired to cast type from either the wide or narrow Thompson matrices, remove the Linotype Vertical Mold Blade (V-612) and replace it with the Vertical Mold Blade (V-613) for Thompson Matrices.

VERTICAL ADJUSTMENT OF THE VERTICAL MOLD BLADE

There is an adjustment for the Vertical Mold Blade (V-612 and V-613) to regulate its up-and-down stroke. If the type is ejecting strikes the upper end of the Vertical Mold Blade it will be bruised and the end of the Mold Body (M-894) will be damaged, or the Mold Body Lever (M-520) may be broken;

therefore care must be taken that the Vertical Mold Blade (V-612 and V-613) as well as the Vertical Mold Blade for Trimming Attachment is adjusted so its upper end is about the thickness of a sheet of paper below the lower edge of the Mold Body (M-894). If the Vertical Mold Blade is set too low the type will strike the edge of the Type Receiving Plate (R-630).

When it is necessary to adjust the up-and-down stroke of the Vertical Mold Blade, swing back the Metal Pot, remove the Matrix Carrier, turn the machine by hand until the Vertical Mold Blade is in its highest position. Then loosen the Clamping Screw (X-104-1) in the bottom lug of the Vertical Mold Blade Cam Lever (V-525); now with the Pin Wrench (E-981) lower the lower Adjusting Screw (V-685) just a trifle; then loosen the Locknut (X-102-3) on the Upper Adjusting Screw (V-684) and tighten this Adjusting Screw until it brings the lug on the side of the Vertical Mold Blade Lever (V-512) firmly down against the upper end of the Lower Adjusting Screw (V-685) so there will be no lost motion of the lug on the Vertical Mold Blade Lever (V-512) between the upper and lower adjusting Screws in the Vertical Mold Blade Cam Lever (V-525). Then tighten the Locknut (X-102-3) on the upper Adjusting Screw (V-684) and the Clamping Screw (X-104-1) in the lug of the Vertical Mold Blade Cam Lever (V-525).

Turn the machine over by hand to move the Vertical Mold Blade up and down several times. Then bring it down to its lowest position and examine it to make sure it is now not too high or too low. If not exactly right make the adjustment again until it is correct.

The foregoing Vertical Mold Blade adjustments are for all Thompson Typecasters up to and including machine number 1298. Beginning with machine number 1299, all are equipped with a hexagon head screw in the machine Base Top. The head of this Screw (V-687) is directly under the Lower end of the Vertical Mold Blade and is adjusted at the factory.

If it should become necessary to adjust this Vertical Mold Blade Stop Screw (V-687), loosen the hexagon Locknut under its head and turn the Stop Screw (V-687) to the left to bring it up, or to the right to bring it down, and tighten the Locknut. Then make the other adjustments necessary on the Vertical Mold Blade Lever Screws (V-684 and V-685) as explained in this article. The lower end of the Vertical Mold Blade must rest firmly on the top of the Stop Screw while the type is being discharged from the Mold into the Receiving Shoe.

THE 72 POINT BODY GAUGE

To gauge the body size of the type you are casting, place a sufficient number of pieces of type, with nicks on the side, in the 72 Point Gauge (A-15) plate 6, so as to fill it snugly. For example, if casting 6 point type, it will require 12 pieces of type to fill the gauge; if casting 12 point type, it will require 6 pieces of type to fill the gauge; if casting 24 point type, it will require 3 pieces of type to fill the gauge. This type when placed in the gauge must fit snugly, not too tight or too loose.

If the type is too large the fault undoubtedly is due to some foreign substance having become lodged between the Mold Body Piece and the Mold Top Block (A-11) or between the Mold Body Piece and the Mold Bottom Block (A-9). Remove Body Piece and wipe thoroughly clean of any dirt or metal; then wipe the Mold Top Block (A-11) and the Mold Bottom Block (A-9) free from all dirt and metal. After the Mold Body Piece and the Mold Body Top and Bottom Blocks have been wiped clean insert Body Piece in Mold and clamp Mold Body Top on Bottom Blocks in position sufficiently tight so that the Mold Body Piece moves freely. If all parts are clean the type will be perfect in size.

When the type fits loose in the 72 Point Gauge (A-15) it is undoubtedly due to the Mold having become chilled by reason of too great a flow of water. Then reduce the flow of water slightly. After operating the machine a few minutes the type will assume the proper body size.

ALIGNING GAUGE

This instrument is to be used for accurately reading the alignment of type. Place the type you wish to test for alignment on the Gauge, with the nick up, alongside the Lining Standard (L-989) plate 6, for the same size body as the type, hold the Aligning Gauge (A-16) plate 6, with the left hand, and with the thumb press both the type and the Lining Standard against the movable blade.

With the fingers of the right hand turn the screw until the sharp edge of the blade is in line with the edge of the face of the type and the edge of the Lining Standard (L-989). The Aligning Gauge (A-16) must be held so the light will fall directly on the edge of the blade, or it cannot be read accurately.

If the line of the type you are casting does not accurately agree with the Lining Standard (L-989) correct the alignment as explained under the caption "MAKING THE ALIGNMENT". Each character should be tested for alignment every time a matrix has been changed.

MAKING THE ALIGNMENT WHEN THE FACE TO BE CAST IS ON STANDARD LINE

Put the capital "H" matrix of the face and body you are about to cast into the Matrix Carrier and place the Carrier into position on the machine. Do not connect it to the Matrix Carrier Lever, as it is desirable to move it toward and from the mold by hand so that you may see whether the aligning position of the matrix is approximately correct. The Lower end of the face when the Matrix is in position on the machine should be about even with the upper surface of the Mold Bottom Block Shoe, which forms the lower side of the Mold Casting Chamber. If necessary, turn the Graduated Knob on top of Matrix Carrier (A-8) to bring the bottom edge of the Matrix Face on a line with the bottom side of the Mold Cavity. Now connect the Matrix Carrier to the Lever and cast one or two type by turning the machine over by hand. Place the type on the Aligning Gauge with the Lining Standard to test it for alignment. If the line is high or low, bring the Matrix up or down by turning the Graduated Knob on the Carrier to bring the Matrix in proper position. When the Alignment is correct, tighten the Slotted Nut in the center of the Graduated Knob to prevent it from turning and consequent changing of the line.

WHEN THE FACE TO BE CAST IS NOT ON STANDARD LINE AND NO TYPE ARE AVAILABLE

Align the top of the capital "T" as high on the body as it will go without being trimmed. Then align the capital "H" with the bottom of the "T". Now cast the lower-case "m" in alignment with the bottom of the capital "H". Then lower-case "o" to align with "m". As the round letters are always larger than the others allow the bottom of the "o" to extend a little below the "m" and then turn both letter over on the Aligning Gauge and it should be found that the "o" is a trifle higher than the top of the "m". Now align all round-bottom characters with the "o" and all square-Bottom characters with the "m". Cast the lower-case "x" to align with the bottom of the "m" and align the lower-case "v" "w" and "y" with the top of the "x". Align such characters as the "g", "p" and "q"

with the top of the "o". Proceed with the capitals the same way, using the capital "H" and "O" as guides.

If the type is to be cast to match Linotype or Intertype alignment, a short slug of lower-case "m's" and "o's" can be cast and this used as a standard.

When once you have cast a face that is not on standard line, save a few types of each the capital "H" and lower-case "m" for standards to which to align that face and size. In future, these standard type may be saved for future use by putting them in a small envelope, properly marked what they are for.

Accurate alignment cannot be made from old worn type because the sharp edges of the face have become rounded.

SETWISE SIZE OF TYPE

Furnished with the machine are nine brass Set Adjusting Blocks (M-608) plate 6 marked 1, 1¼, 1½, 2, 3, 4, 6, 8, 10 and three steel Adjusting Blocks marked 20, L and C, respectively. Use the L Block for Linotype and Intertype matrices and the C Block for Narrow Thompson Matrices. Use only the numbered Blocks when working with Thompson Matrices.

The Thompson style matrices have the body size and series number stamped on the lower end of the matrix, the figures stamped near the upper end, either on the front or the back designate the setwise size of the character.

When casting from wide Thompson Matrices, first put the wide Matrix Holder (G-928) plate 7, into the Matrix Carrier (A-8) and slip the Matrix into the Holder (G-928) with the beveled corners toward the bottom, select preferably the widest character first.

Now select the number of Set Adjusting Blocks (M-608) necessary to make up the number of points indicated on the Matrix and insert them between the lug of the Set Adjusting Liner (M-905) and the Mold Body-Plate (M-942) plate 6, being sure that the sides of the Set Adjusting Blocks are absolutely clean to insure correct setwise dimension of the type. The Set Adjusting Liner Screw (M-934) must then be tightened to hold the Set Blocks together. Then put the Matrix Carrier on the machine and raise the Matrix Carrier Fork (G-685) to connect the Matrix Carrier to the Matrix Carrier Lever (G-924).

Loosen the Mold Body-Plate Outside Locknut (M-707) and the Mold Body-Plate Inside Locknut (M-673), the Mold Body-Plate Adjusting Nut (M-708) must then be loosened at least one-half of an inch, now draw the Mold Body-Plate Adjusting Screw (M-674) outward as far as it will go and tighten the Body-Plate inside Locknut (M-673). This is done to be certain that the Matrix Holder (G-928) will not foul the end of the Set Adjusting Liner (M-905) when the machine is turned to casting position. Be sure the Pump Stop (P-68) is in its inward position so no metal can pass into the Mold, turn the Hand Wheel (S-541) until the Matrix rests snugly in its casting position against the Mold, to make sure of this see that the Cam Lever Roller (C-966) is in contact with the Choker Cam (C-413) or (C-519).

Now loosen the Mold Body-Plate Inside Locknut (M-673) and the Body-Plate Outside Locknut (M-707) until it reaches the extreme outside end of the Body-Plate Adjusting Screw (M-674). Then, with the hand, press against the Outside Locknut (M-707) until the end of the Set Adjusting Liner (M-905) contacts with the Matrix Holder (G-928), now first tighten, by hand, the Mold Body-Plate Adjusting Nut (M-708) to bring the Set Adjusting Liner (M-905) firmly against the Matrix Holder (G-928). Then tighten the Inside Locknut (M-673) and finally lock it tight with the Outside Locknut (M-707) firmly against the Inside Locknut (M-673). It is advisable to always make the first cast by turning the machine by hand.

When casting from narrow Thompson Matrices, remove the wide Matrix Holder (G-928) and insert in its place the Thompson Narrow Matrix Holder (G-929). Add the steel Set Adjusting Block (M-608) marked "C" to the number of brass Set Adjusting Blocks in order to obtain the setwise size of points stamped on the Matrix. Follow the same set adjusting instructions in this case as in casting from Wide Thompson Matrices.

LINOTYPE AND INTERTYPE MATRICES

When casting from Linotype or Intertype Matrices, remove the Thompson Matrix Holder and insert the Linotype or Intertype Matrix in the Matrix Carrier (A-8), press the Matrix firmly against the side wall of the Matrix Carrier with its combination upward against the overhanging top Shoe.

Place an 8 point Linotype or Intertype blank Quad Matrix against the side of the letter Matrix. This forms a side wall for the face and prevents fins. Then place the Linotype Matrix Holder (G-721) plate 7, in the Matrix Carrier (A-8) and press it firmly against the blank Quad Matrix and the letter Matrix while tightening the Screw (X-108-11) which tightens the Linotype Matrix Holder Clamp (G-723).

Use only the steel Set Adjusting Block (M-608) marked "L" place it between the lug on the Set Adjusting Liner (M-905) and the Mold Body Plate (M-942) and follow the Set Adjusting Instructions as explained for Thompson wide and narrow Matrices.

When casting type larger than thirty point body from Linotype or Intertype matrices, it is necessary to cut away about half of the lug on the face side of the combination end of the matrix, allowing enough of it to remain to form a bearing where it fits behind the overhanging portion of the Matrix Carrier Adjusting Block Top Shoe (919), and cut away the entire lug on the face side of the other end of the matrix so the face of the matrix will go firmly against the face of the mold without the lugs fouling with the overhanging portions of the Mold Top and Bottom Blocks.

In casting from Thompson wide or narrow Matrices, the Vertical Mold Blade (V-613) must be used. For Linotype or Intertype Matrices, use the Vertical Mold Blade (V-612).

LOGOTYPES

Logotype can be produced from Linotype or Intertype Matrices by arranging the necessary matrices, for the word required, side by side in the Matrix Carrier (A-8) plate 7, then placing the 8 point blank Quad Matrix against the outer, or last, letter Matrix in the line and holding them all in position by clamping the Linotype Matrix Holder very firmly against them. To make the "set" proceed in the same manner as for single type, but of course, the casting speed must be slower.

MAKING THE SETWISE SIZE OF TYPE WITH THE MICROMETER SET ADJUSTING DEVICE

NOTE: The new Matrix Holder Style "B" plate 8, for both wide and narrow Thompson Matrices must be used with the Micrometer Set Adjusting Device.

The Thompson style matrices have the body size and series number stamped on the lower end of the matrix; the figures stamped near the upper end, either on the front or the back, designate the setwise size of the character.

The Micrometer Set Adjustment Device, plate 8, is just to the right of the mold as you face the machine, being easily distinguished as it is the only part of the mold stand not enameled. The top surface of this device has thirteen graduations from 0 to 48 inclusive, each line representing 4 points. Setwise sizes are made by a screw adjustment, or Measuring Screw (203) on which is a collar with 32 graduations, each division measuring 1/8 point. The Collar is marked 0, 1, 2, 3; indicating 1,2, etc. points. This collar is set, before the machine leaves the factory, so that when the zero mark is in line with the indicator and also the indicator on the Set Device Stop Nut (202) aligns with the zero mark on the top of the Set Device Body (201) the end of the Mold Body (M-894) in the mold is against the Vertical Mold Blade (V-613). Do not change this adjustment.

Before inserting the matrix into the holder ascertain the setwise size on which the particular character is to be cast as explained in the first paragraph above. Then, to make set, loosen the Mold Body Plate Outside Locknut (M-707), Mold Body Plate Inside Locknut (M-673), both of which are on the Mold Body Plate Adjusting Screw (Mp674) between the Mold Body Lever (M-520) and the Mold (A-13), then loosen the Mold Body Plate Adjusting Nut (M-708), which is to the right of the Mold Body Lever. Be sure the Pump Stop (P-682) is in its inward position so no metal can pass through the nozzle into the mold; turn Hand Wheel until upper end of the Mold Body Lever (M-520) is at its farthest position to the right; to make sure of this see that the Cam Lever Roller (C-966) is in contact with the Choker Cam (C-413).

Then loosen Clamping Screw (207) in front of Set Device Body (201) and turn Measuring Screw (203) to the left, or to the right, until the indicator on the Set Device Stop Nut (202) aligns with the graduation on the Set Device Body (201) nearest to the set indicated on the matrix. If the reading is not exact use the graduation on the Set Device Measuring Screw Graduated Collar (204) to bring the set to the correct dimension. For example, if the set indicated on the matrix is 17 1/4, in turning the Measuring Screw (203) stop at 16 on the Set Device Body (201) then turn to the second graduation past the figure 1 on the Graduated Collar

(204) which will give the 17-1/4 setwise size required.

Tighten Clamping Screw (207) firmly with pin wrench. Turn the Mold Body Plate Adjusting Nut (M-708) to the right until the stop on the Mold Body Plate (M-942) is brought back firmly against the stop on the Set Device Stop Nut (202). After this is done tighten the Mold Body Plate Inside Locknut (M-673) and Mold Body Plate Outside Locknut (M-707).

Now insert the Matrix in the Matrix Holder with the beveled corners on the matrix toward the bottom. It is preferable to begin casting from the thinnest characters first. After making the matrix secure in the holder by tightening with the knurled head screw put the Matrix Carrier (A-8) on the machine and raise the Matrix Carrier Fork (G-665) to connect the Matrix Carrier to the Matrix Carrier Lever (G-924). It is advisable to always make the first cast by turning the machine by hand.

When casting from Linotype or Intertype Matrices remove the Thompson Matrix Holder by turning the knurled knob on the Matrix Carrier to the left until the Matrix Holder is freed from the adjusting screw. Replace the Thompson Matrix Holder with the standard Matrix Carrier Adjusting Block, plate 8, by reversing the operation of removing the Matrix Holder. Insert the Linotype or Intertype Matrix in the Matrix Carrier (A-8), press the Matrix firmly against the side wall of the Matrix Carrier with its combination upward against the overhanging Top Shoe. Place an 8 point Linotype or Intertype Blank Quad Matrix against the side of the letter Matrix. This forms a side wall for the face and prevents fins. Then place the Linotype Matrix Holder (C-721) in the Matrix Carrier (A-8) and press it firmly against the blank Quad Matrix and the letter Matrix while tightening the Screw (X-108-11) which tightens the Linotype Matrix Clamp (C-723); now gently tighten the small screw, which passes through the Linotype Matrix Clamp, so its end bears against the blank Quad Matrix to prevent the casting of any fin between the Linotype Letter Matrix and the Quad Matrix.

As the thickness of a Linotype or Intertype Matrix is of the proper setwise size of the character proceed in this manner to obtain the proper set for the character being cast. Loosen the Mold Body Plate Outside Locknut (M-707), Mold Body Plate Inside Locknut (M-673) and Mold Body Plate Adjusting Nut (M-708). Push, with hand, the Mold Body Plate Adjusting Screw (M-674) until the end of the Mold Body (M-894) is against the Vertical Mold Blade (V-612). Place the Linotype

or Intertype Matrix against the stop on the Mold Body Plate (M-942), and after loosening Set Device Clamping Screw (207) turn Set Device Measuring Screw (203) until the stop on the Set Device Stop Nut (202) is firmly against the matrix. Now remove the matrix and proceed exactly as in paragraph 4 above.

In casting from Thompson wide or narrow Matrices, the Vertical Mold Blade (V-613) must be used. For Linotype or Intertype Matrices use the Vertical Mold Blade (V-612).

TO ADJUST THE TYPE RECEIVING SHOE

When one size body is changed for another size the Type Receiving Shoe (A-14) must be adjusted so the size type to be cast will fit under it without being either too tight or too loose.

First remove the Type Receiving Shoe (A-14) plate 2, then turn the Hand Wheel (S-541) over by hand until the end of the Mold-Body (M-894) is at the extreme end of its stroke outside of the left hand end of the Mold (A-13) plate 7. Now place a type, with its nick up, of the same size as the Body in the Mold, on top of the lower Type Receiving Plate (R-630) plate 2, at its extreme left end; then put the Type Receiving Shoe (A-14) back on the Mold Stand (N-502) the right end of the Receiving Shoe (A-14) will then rest on the projecting end of the Body Piece and the left end will rest on the type. Now tighten the Type Receiving Shoe Adjusting Screws (R-696) using the Pin Wrench (E-981) plate 20, to fasten the Screws (R-696) firmly. If the Type Receiving Shoe (A-14) is not down in proper position, the Foot Plow (T-974) and the Type Trimming Knives (T-726 & T-727) will not properly trim the type. The Type Stripper Spring (R-679) will also fail to strip the type from the Body and hold it. If pressed down too tightly, the end of the Mold Body (M-894) may be damaged or the Type Receiving Shoe (A-14) or the Type Receiving Plate (R-630) may be cut by the end of the Mold Body. In casting the larger sizes of type from 14 point to 48 point, it is good practice to put a piece of thin paper on top of the Mold Body (M-894) when setting the Type Receiving Shoe (A-14) to prevent damage to those parts, this thin paper passes through the Receiving Shoes with the type as they are cast.

CONNECTING AND ADJUSTING METAL POT

The Metal in the Pot Crucible (H-571) plate 2, must be thoroughly melted before it is locked into casting position against the Mold, if it is locked up while the surface metal

or metal in the Nozzle (H-575) is not fully melted it will cause leakage at the Nozzle hole. When lighting the Burner under the Pot to melt the metal the Pot must be back away from the mold, while it is in this position, just before locking it against the Mold, the Choker should be moved back and forth to make sure it does not stick in the Nozzle (H-575) or Choker Channel (C-580). To move the Choker back and forth, use the Choker Tripping Tool (C-837) and hook it over the Choker Lever (C-854) at the point above the Choker Lever Link (C-527), press down on the end of the Choker Tripping Tool (C-837) until the metal flows freely out of the hole in the Nozzle (H-575), move the end of the Tripping Tool quickly up and down a few times to move the Choker back and forth; the Jet Box (J-597) or the Ladle (X-128-2) should be held before the Nozzle to catch the molten metal as it flows out.

Wipe the Nozzle (H-575) and the Nozzle Plate (H-639) absolutely clean, see that no dirt or metal lies between the Nozzle Plate (H-639) and the Mold (A-13). Swing the Metal Pot around toward the Mold, turn the Pot Yoke Lock Handle (H-763) far enough so the flat surface of the toe of the Pot Yoke (H-506) will pass under the flat side of the Pot Yoke Lock (H-692); at the same time holding up the Pump Lever (P-537) so the opening in the lower end of the Pump Lever Link (P-526) will engage the end of the Pump Cam Lever (P-524), and then turn the Pot Yoke Handle (H-763) in the proper direction to lock the Pot against the Mold.

If the Pot Yoke Lock Handle (H-763) plate 2, does not turn freely, examine the Nozzle (H-575) for escaping metal, and see there is no dirt or metal on the toe of the Pot Yoke (H-506) where the Pot Yoke Lock (H-692) engages it, as this may prevent the Metal Pot from coming forward into locking position.

There is a Rear Pot Adjusting Screw (X-114-11) that passes through the Pump Lever Support (P-548) against the rear lug of the Pot (H-571), this should be only tight enough to hold the Pot against the Mold and prevent leakage of metal between the Nozzle (H-575) and the Nozzle Plate (H-639) while casting type. It is very important that this pressure is not excessive, as that would cause the Vertical Mold Blade (V-613) or the Jet Ejector (J-893) to stick as they move along the face of the Nozzle Plate (H-639). It is also very important that the Metal Pot (H-571) sets square with the back of the Mold (A-13) to prevent squirts.

When the Pot (H-571) requires adjusting, proceed as follows: First look the Pot into casting position, being sure that the Pump Stop (P-682) is in position under the Pump Cam Lever (P-524) to prevent leakage of metal through the Nozzle while the adjustment is being made. Then loosen the hexagon head Pot Screws (X-120-3) that pass through the side luge of the Pot into the Pot Yoke (H-506), also loosen the Rear Pot Adjusting Screw (X-114-11) by first loosening the hexagon lock nut thereon and then turning the Adjusting Screw (X-114-11) to the left.

Now turn the Pot Adjusting Screw (X-114-11) to the right only enough to move the Pot (H-571) forward until it presses against the Mold (A-13) without binding the Nozzle Plate (H-639) too tight between the Nozzle (H-575) and the Mold (A-13). Now tighten the hexagon head Pot Screws (X-120-3) down firmly to hold the Pot in position on the Pot Yoke (H-506).

After the pot pressure adjustment has been made, take hold of the wire Nozzle Plate Handle (H-768) and move the Nozzle Plate (H-639) with a rocking motion between the Nozzle (H-575) and the Mold (A-13) while the Pot is locked in its casting position, to ascertain whether the pressure of the Pot against the Mold is correct.

SIDEWISE ADJUSTMENT OF METAL POT

When it is necessary to adjust the Metal Pot, either to the right, or to the left in order to bring the hole in the Nozzle (H-575), and the Nozzle Plate (H-639), directly in front of the Jet opening in the Mold proceed as follows: First look the Pot into casting position, being sure that the Pump Stop (P-682) is in position under the Pump Cam Lever (P-524) to prevent leakage of metal through the Nozzle (H-575) while the adjustment is being made. Loosen the hexagon head Pot Screws (X-120-3) plate 2, that hold the Pot on the Pot Yoke (H-506), loosen the Rear Pot Adjusting Screw (X-114-11) plate 2, and the hexagon head choker Lever Adjusting Screw (X-120-1) which holds the Choker Lever (C-534) in place.

Now move the Pot (H-571) to the right, or to the left, by first loosening the large head Pot Adjusting Screw (H-415) plate 2, on that side of the Pot to which it is to be shifted, and then tighten the Pot Adjusting Screw (H-415) on the other side until the Pot is moved over as far as required. Be sure to tighten all the screws that hold the Pot sidewise, forward and down, and the Choker Lever Screw (C-534) that holds the Choker Lever in place before attempting to cast type.

NOTE: When the machine is an old model, without Pot Adjusting Screws (M-415), it will be necessary to drive the Metal Pot (M-571) to the right, or to the left, with a hammer when making the sidewise adjustment.

QUICK CHANGE HOLDER FOR FOUNDRY STYLE MATRICES

Foundry Style Matrices can be as easily and quickly adjusted in the Quick Change Holder as Thompson Matrices in the Standard Holder. This is an important feature.

To insert a matrix in the Quick Change Holder, plate 9, loosen the Clamping Screw (219) place the matrix between the jaws of the Holder and tighten the Clamping Screw (219), this brings the Top Jaw (217) down to the end of the matrix and the Latch (218) against the back of the matrix at the same time, thereby locking it firmly in the Holder. Use the fingers only to tighten the Clamping Screw. To use pliers may result in damage to the Holder.

To adjust the Mold Body for setwise size of the character, when using Foundry Style matrices in that style of Holder which has no Side Plate for contact with the end of the Set Adjusting Liner (M-905), it is necessary to first select the Set Adjusting Blocks (M-608), to equal the side bearing of the matrix; this is the distance between the character and the side of the matrix nearest the Set Adjusting Liner; this varies in different sizes and in different plants, sometimes it is less than 5 point and sometimes 8 point or more; add to them the necessary Set Adjusting Blocks that equal the width of the character to be cast and insert all of them between the lug of the Set Adjusting Liner (M-905) and the Mold Body Plate (M-942). Then make the setwise size adjustment of the Mold Body in the same manner as explained in a preceding article under the caption "SETWISE SIZE OF TYPE".

When the Quick Change Holder has a Side Plate for contact with the end of the Set Adjusting Liner no Set Adjusting Blocks, to equal the side bearing of the matrix are required, select only the Set Adjusting Blocks required to equal the width of the character to be cast and make the setwise adjustment as explained in the foregoing paragraph.

If the machine is equipped with the Micrometer Set Adjusting Device, plate 8, make the setwise adjustment as explained under the caption "MAKING THE SETWISE SIZE OF TYPE WITH THE MICROMETER SET ADJUSTING DEVICE".

SPECIAL MATRIX CARRIER WITH ADJUSTABLE SIDE WALL

The Special Adjustable Matrix Carrier, plate 9, is necessary to cast Vernacular Type from foundry style matrices as it enables the operator to cast the character in any desired position on the end of the body; it can also be used for Thompson, Linotype and Intertype matrices by the purchase of the necessary holders.

To change the position of the character on the end of the body, first place the foundry style matrix in the Quick Change Holder and tighten the Clamping Screw (219) only slightly, so the matrix can be shifted sideways if necessary. Then release the small clamping screw that passes through the left side wall of the Matrix Carrier into the Adjusting Wedge (212), next turn the Wedge Adjusting Screw (213) in the necessary direction to move the Adjusting Wedge (212) to the right, or to the left, in order to bring the matrix in the desired position in front of the mold, so the character will be cast in the desired sidewise position on the end of the type; tighten the small clamping screw to hold the Adjusting Wedge firmly against the Matrix Carrier Side Wall, loosen the Matrix Carrier Clamping Screw (219), push the Matrix firmly against the Matrix Carrier Adjusting Wedge (212) and then tighten the Matrix Holder Clamping Screw (219) to hold the matrix firmly in position.

Place the Matrix Carrier in the machine, adjust the Mold Body for the setwise size desired, as described in a preceding section under the caption, "QUICK CHANGE HOLDER FOR FOUNDRY STYLE MATRICES".

If the machine is equipped with the New Set Adjusting Device make the setwise adjustment as explained under the caption "MAKING THE SETWISE SIZE OF TYPE WITH THE MICROMETER SET ADJUSTING DEVICE".

Now cast one or two type, if the setwise size is found to be correct, and the character in the desired position proceed with casting. But if the character is not in the desired sidewise position on the end of the body, remove the Matrix Carrier, move the matrix to the right, or to the left, in the Holder to bring the character into the correct position by making the necessary adjustments as explained in the second paragraph of this article.

TO REPLACE FOUNDRY STYLE MATRIX HOLDER WITH THE NEW STYLE "B" MATRIX HOLDER

The Style "B" Matrix Holder, plate 8, is for both wide and narrow Thompson Matrices, it must be used on machines with the new Micrometer Set Adjusting Device; it cannot be used on machines where the Set Adjusting Blocks (M-608) and the Set Adjusting Liner (M-905) are still in use.

Remove the Foundry Style Matrix Holder, plate 9, by first releasing the nut in the top center of the Graduated Knob on top of the Matrix Carrier; turn this Graduated Knob to the left until the Matrix Holder is disengaged from the Adjusting Screw. This will allow the Holder to be withdrawn from the Matrix Carrier.

Now place the Style "B" Matrix Holder in the Carrier and screw it into position by turning the Graduated Knob to the right until the Holder is drawn well up into the Carrier. Then release the small Clamping Screw that passes through the left side wall of the Matrix Carrier into the Adjusting Wedge; next turn the Adjusting Wedge Screw to the left in order to bring the Adjusting Wedge downward until its inner edge rests snug against the side of the Style "B" Matrix Holder, and tighten the small Clamping Screw to hold the Adjusting Wedge firmly against the Matrix Carrier Side Wall; this brings the Rib, which projects beyond the forward end of the Adjusting Wedge, just eight points from the Style "B" Matrix Holder and acts as a side guide for both wide and narrow Thompson Matrices.

TO REPLACE STYLE "B" MATRIX HOLDER WITH HOLDER FOR SPACE AND QUAD MATRICES

Remove the Foundry Style Matrix Holder by first releasing the Nut in the top center of the Graduated Knob on top of the Matrix Carrier, next turn this Graduated Knob to the left until the Matrix Holder is disengaged from the Adjusting Screw. This will allow the Holder to be easily removed from the Matrix Carrier.

Next place the Matrix Carrier Adjusting Block (918) plate 8, in the Carrier and screw it into position by turning the Graduated Knob to your right. Insert Quad Matrix in position place Linotype Matrix Holder (C-721) plate 8, firmly against matrix to keep it in place.

Make the necessary adjustments for casting spaces and quads as explained under the caption, "QUAD AND SPACE MATRICES."

QUAD AND SPACE MATRICES (Old Pattern)

The Quad Matrices (G-788) plate 6, are used with the Linotype Matrix equipment and the Linotype Vertical Mold Blade (V-612). Insert the Quad and Space Matrix in the Matrix Carrier (A-8) in the same manner as the Linotype Matrix. The Top number stamped on the side of the Space or Quad Matrix (G-788) is the body size; the other number is the setwise size in points. Consult the Quad Matrix Table to ascertain what combinations to employ to make any desired setwise size.

Before connecting the Matrix Carrier (A-8) to the Matrix Carrier Fork (G-665), push the Matrix Carrier by hand against the Mold to see if the Quad Matrix is properly aligned so as to enter the Mold freely. If the projecting portion of the Quad Matrix is either too high or too low, they will be sheared by the Mold as they enter the casting chamber. Care must be exercised, therefore, to push the Matrix Carrier until the toe of the Matrix is only just in front of the casting chamber; then examine closely and if necessary bring the Matrix either up or down by turning the Graduated Knob on top of the Matrix Carrier (A-8) in the proper direction so the Matrix toe will enter the mold chamber freely.

Remove the Upper Type Receiving Shoe (A-14) and take off the Type Trimming Knife (T-727). Remove also the Lower Type Trimming Knife (T-726) and replace it with the Quad Trimming Knife (T-725); this Knife will trim off any burr that may be cast on the end of the Space or Quad. The Font Plow (T-974) remains in place the same as when casting type.

Replace the Upper Type Receiving Shoe (A-14) and adjust it the same as when casting type.

Put the steel Set Adjusting Block (M-608) marked "C" between the lug on the Set Adjusting Liner (M-905) and the Mold Body Plate (M-942) the same as when casting type. This is done to bring the end of the Set Adjusting Liner (M-905) back some distance from the end of the Mold Body (M-894) so it will not touch the side of the Quad Matrix and give the Matrix Carrier (A-8) ample time to move to its fur-

theest position away from the Mold, so the Set Adjusting Liner will not strike the toe of the Quad Matrix while ejecting the Quad from the Mold.

Make the setwise adjustment the same as for casting type. The Set Adjusting Liner should not bear against the Quad Matrix as when casting type, but the end of the Mold Body bears against the toe of the Matrix.

QUAD TRIMMING KNIFE

The Quad Trimming Knife (T-725) plate 6, must be attached to the Type Receiving Plate (R-630) by removing the Type Trimming Knife (T-726) and attaching the Quad Trimming Knife in its place, it trims off any burr that may appear on the end of the Spaces or Quads after they leave the Mold; remove also the Type Trimming Knife (T-727) from the Type Receiving Shoe (A-14) to make room for the upper end of the Quad Trimming Knife (T-725).

TYPE TRIMMING KNIVES

There are two Type Trimming Knives, one is the Upper Type Trimming Knife (T-727) plate 6, which is located in the Type Receiving Shoe (A-14), the other is the Lower Type Trimming Knife (T-726) and is located in the Type Receiving Plate (R-630) plate 6. These Knives trim the bodies at the face end of the type as they pass between their cutting edges.

As these Trimming Knives must be kept sharp they must be removed from the Upper Type Receiving Shoe (A-14) and the Lower Type Receiving Plate (R-630) whenever they are sharpened, they are easily adjusted by the screws (X-108A-1) that pass through slotted holes in the Trimming Knives, and should be set so the end of the last tooth is even or level with the surfaces of both the Type Receiving Shoe (A-14) and the Type Receiving Plate (R-630).

When casting type with kerns or overhangs, the Top or Bottom Trimming Knives may be removed to permit the overhangs to pass. As these Trimming Knives (T-726 & T-727) are principally for trimming type cast from Linotype and Intertype Matrices they should be set to trim the face without cutting deeply into the type body.

TEMPERATURE OF METAL

A suitable thermometer, such as is furnished with the Thompson Typecaster, is essential. The temperature at which the metal is to be run depends on the grade of metal used. If old type-foundry metal is used, the temperature should be about 725 degrees Fahrenheit; good type metal purchased from a first class metal maker should also be run at about the same temperature. If softer grade of metal is used, the temperature should be lower. Linotype metal should be run at about 650 degrees when casting thin setwise characters. This temperature may be reduced when casting large type.

A good rule is to run the metal at the lowest temperature possible to get good sharp faces and solid bodies. The operator must be careful not to overheat the metal, as that burns out the tin, separates the antimony from other metals of which good type metal is composed and, therefore, destroys its flowing and wearing qualities. It is of the first importance and an essential to successful results, to use the metal at the proper temperature and not to damage it by overheating. A product or uneven type at once indicates improper handling of metal or a poor or unsuitable quality of metal.

CLEANING METAL

The metal in the melting pot of the caster should be cleaned once every day or two. Throw a piece of tallow about as large as a small walnut into the molten Metal and stir thoroughly. This will wash all the metal out of the dross; then skim off the dross. This treatment improves the metal.

After metal has been cast into type, and leads, slugs and rules, several times, it is apt to become brittle or soft, brittle if the tin is burned out; soft if tin and antimony are both reduced. Tin should then be added when remelting. If tin and antimony are not at hand, a liberal quantity of new type metal added to the mold metal will greatly improve it. It is generally possible to arrange with a Metal Supply Company to renew metal at a small cost per pound.

For detailed information regarding type Metal, see article under the caption "Practical and Metallurgical points regarding care and handling of metal".

ADJUSTING MATRIX CARRIER LEVER

The Matrix Carrier (A-8) plates 7 and 8, is pressed resiliently against the Mold (A-13), by the Matrix Carrier Cam Lever Spring (G-926) which is located between the upper section Matrix Carrier Lever (G-924) and the lower section Matrix Carrier Cam Lever (G-925); this Spring (G-926) is held in place by the Matrix Carrier Lever Screw (G-923).

The Matrix Carrier Lever Screw (G-923) plate 5, must be adjusted so the pressure of the Matrix Carrier Cam Lever Spring (G-926) holds the Matrix snug against the face of the Mold. If the Matrix does not bear firmly against the Mold proceed as follows: Remove the Matrix Carrier, clean the Mold face and the Matrix, put Matrix Carrier back on the machine and connect it to the Matrix Carrier Fork (G-665); push the Pump Stop (P-682) inward to prevent metal from flowing into the Mold, and turn the cam shaft in its casting direction until the Matrix is in its casting position in front of the Mold.

Now loosen the Matrix Carrier Cam Lever Screw Nut (G-947½) on the inner end of the Matrix Carrier Lever Screw (G-923), then loosen this Matrix Carrier Lever Screw (G-923) gradually until the Matrix bears firmly against the face of the Mold, then tighten the Matrix Carrier Cam Lever Screw Nut (G-947½) to prevent the Screw (G-923) from moving.

When this adjustment is correctly made the Concave Washer (G-987) should have about 1/64" play between the head of the Matrix Carrier Lever Screw (G-923) and the Matrix Carrier Lever (G-924). This play is taken up by the tension of the Spring as the Matrix Carrier leaves the front of the Mold.

THE PUMP STOP

The outer end of the Pump Stop (P-682) is located between the Cam Lever Shaft (K-585) and the Machine Base Top (B-801) about 2-1/2 inches from the left hand end of the Mold Stand (N-502). When this Pump Stop is pushed inward toward the Metal Pot its inner end disengages the Choker Lever Link (G-527) from the Choker Cam Lever (G-523) and lays under the Pump Cam Lever (P-524) thus preventing the casting of type even though the machine is running, it is a safety device to

prevent metal from passing through the Nozzle (K-575) when the operator is making adjustments while the Metal Pot is locked in its casting position.

Always press the Pump Stop (P-682) inward as far as it will go so the Pump Cam Lever (P-524) rests on the Pump Stop before stopping the machine, or disconnecting the Metal Pot when you swing it away from the Mold (A-13). When ready to cast start the machine at the proper speed and then pull out the Pump Stop.

PUMP SPRING ADJUSTMENT

It is obvious that in casting different sizes of type, the tension on the Pump Spring (P-791) must be varied. The larger sizes of type require more tension on the Pump Spring (P-791) than the smaller sizes.

To increase the tension on the Pump Spring (P-791) turn the crank on the Pump Spring Tension Ratchet (P-900), located outside the rear of base about six inches above the floor, in a clock-wise direction. To decrease the tension turn it in a counter clock-wise direction. In order to turn the Pump Spring Tension Ratchet (P-900) in a counter clock-wise direction, first release it by raising the lever end of the Pump Spring Tension Ratchet Pawl (P-901) high enough to clear the top of the ratchet teeth, this must not be done, however, unless you are holding onto the crank handle of the Pump Tension Ratchet (P-900). After the tension is correct the lever end of Tension Ratchet Pawl (P-901) must be lowered to again engage the teeth of the Pump Tension Ratchet. The proper spring tension is easily arrived at after a little experience.

MATRIX CARRIER SLIDE ADJUSTMENTS

If the Matrix Carrier (A-8) plate 1, is not snug between the Matrix Carrier Slides (C-670 & C-671) in the Mold Stand (N-502 & N-503) it will effect the alignment of the type. When necessary to adjust this proceed as follows:

Loosen the Fillister Head Clamping Screw (X-108-18), which passes through the right hand forward extension of the front wall of the Mold Stand (N-503) into the Matrix Carrier Slide (C-671) midway between the short Slide Adjusting Screw (C-694) and the long Slide Adjusting Screw (C-695). Then

turn the short Slide Adjusting Screw (C-694) and the long Slide Adjusting Screw (C-695) to the right, this drives the Right Hand Matrix Carrier Slide (C-671) toward the Matrix Carrier (A-8), turn these screws just enough to allow the Matrix Carrier to slide forward and back on the Slides freely without binding and without any side play, be sure the Matrix Carrier is not tighter between the Slides at one end than the other; then tighten the Matrix Carrier Slide Clamping Screw (X-108-18) thus pulling the Slide (C-671) firmly against the ends of the Adjusting Screws (C-694 & C-695) and locking it.

ADJUSTING CHOKER CAM AND CHOKER CAM ROLLER

The Choker Cam (C-413) plate 3, should be so adjusted that it will bring the Choker (C-531) against its seat in the Choker Channel Bushing (C-580) at the same instant that the Pump (P-572) is ready to drop.

To make the above adjustment, proceed as follows: Unlock the Metal Pot; swing it back away from the Mold; release the tension of the Pump Spring so that it will give only a slight pull on the Pump Cam lever; then pull forward the Pump Stop so that the roller on the Pump Cam will drop into the recessed portion of the Cam when the Cam Shaft is rotating in the clock-wise or casting direction.

Now turn the Cam Shaft very slowly by hand until the Pump Cam Lever Roller drops into the recessed part of the Pump Cam. Then pull the hand wheel backward toward you so that the end of the Pump Cam Lever abuts against the recessed portion of the Cam. In other words, pull the hand-wheel backward until the Cam is brought to an abrupt stop by the lever. The machine is then in position for making the Choker Cam Adjustment.

Loosen the hexagon head cap screw which passes through the slot in the new Universal Choker Cam (C-413) and move said Cam either forward or backward until the Choker Cam Lever Roller is in contact with the top of the Cam at the end nearest the operator. Fasten the hexagon head cap screw firmly down.

Once this adjustment is properly made, you need never change it, no matter whether casting 48 point, 6 point or any other size, nor need any change be made in its adjustment when casting leads, slugs or rule.

To adjust the Choker Cam Lever Roller (C-966) so as to bring the Choker against the seat in the Choker Channel Bushing (C-580), with just enough pressure to prevent leakage, proceed as follows: Put the Matrix Carrier in position, lock the Pot in its casting position against the Mold and have all adjustments made as when ready to cast type and pull out the Pump Stop. Now turn the machine over by hand until the Choker Cam Roller (C-966) is in engagement with the Choker Cam (C-413); then loosen the hexagon Locknut (X-102-3) on the Choker Cam Lever Roller Adjusting Screw (X-114-7), hook the Choker Tripping Tool (C-837) over the Choker Lever (C-854) right above the Choker Lever Link (C-527); press down on the end of the Choker Tripping Tool as far as it will go until the Choker (C-531), or (C-576), is pressed against its seat in the Choker Channel Bushing just tight enough to prevent leakage of metal between the seat when the Pump drops; now, with the small screw driver, first loosen the Choker Cam Lever Adjusting Screw (X-114-7), to make sure it is not too tight, and then tighten it until the Choker is pressed against its seat in the Choker Channel Bushing, just tight enough to prevent leaking to insure the casting of solid type, but without any unnecessary pressure or strain on the Choker or the Choker Lever as that would break the Choker (C-531) or the Choker Valve Lever (C-534).

OLD STYLE CHOKER VALVE AND CHOKER CAM

If your machine is equipped with the old style Choker Valve (C-576) Choker Valve Fork (C-532) and Choker Cam (C-519) all on plate 22, all adjustments, except that of the Choker Cam (C-519), are made the same as the new style Choker (C-531) explained in the preceding article; but the adjustment of the Choker Cam (C-519) must be changed for different size bodies.

If you wish to cast type of a larger size than that for which the machine is set, it will be necessary to move the Choker Cam (C-519) in a clock-wise (forward) direction, just a little bit and when smaller size type is to be cast, the Choker Cam must be moved a little in a counter-clock-wise (backward) direction.

FITTING CHOKER POINT TO NOZZLE PLATE

After the metal is melted to its casting temperature compress the Choker Rod Spring (C-856), plate 1, by

turning the Choker Spring Rod Adjustment Nut (C-530) to the left until the spring is tight enough to hold the Choker point seat firmly against the inside seat of the hole in Nozzle (H-575), with the Choker point protruding beyond the point of the Nozzle. Hook the Choker Tripping Tool (C-837) plate 20, over the Choker Lever (C-854) plate 1, at the point above the Choker Lever Link (C-527); move the Tripping Tool (C-837) down and up a few times. This moves the Choker back and forward. At the same time hold the Jet Box (J-597) or the Ladle (X-128-2) under the Nozzle to catch the molten metal.

With the left hand hold the Nozzle Plate (H-639) in position against the Nozzle (H-575) and if the Choker Point extends through the hole in the Nozzle Plate, dress off the point with a very fine file until it comes even with the face of the Nozzle Plate (H-639). It must not extend through the least bit or it will prevent the Choker point from closing when the pot is locked in casting position against the Mold; neither must it be too short as that would allow metal to gather in the Nozzle Plate hole between the Mold and the Choker Point. This metal would chill while the type is ejected from the Mold and prevent the casting of type with good faces and solid bodies.

All new Chokers are made with the point long so they may be dressed to fit.

INSTRUCTIONS FOR ATTACHING THE UNIVERSAL CHOKER EQUIPMENT TO THE THOMPSON TYPECASTER

The equipment consists of:

1 Nozzle	Universal	style	(H-575),	plate 18
1 Choker	"	"	(C-531),	" 18
1 Choker Channel Bushing	"	"	(C-580),	" 18
1 Choker Valve Lever	"	"	(C-534),	" 18
1 Choker Cam	"	"	(C-413)	" 20

We also include a special plug to be used for removing the old bushings from the metal pot and for driving in the new one.

To attach the above equipment to the Thompson machine, proceed as follows: Drain off the metal, remove the Thompson Nozzle and Choker in the usual way. Then, with the driving tool, or plug, we furnish, drive the old choker valve bushing, that is in the forward end of the Channel, backward into the recessed portion of the channel from where it may be removed, then again insert the Driving Tool into channel from which the forward Choker Valve Bushing has been removed, push it back against the rear Choker Valve Bushing and drive this last mentioned Bushing back into the Pump Well, from which it may be removed; this rear Bushing will require more force to drive back than the forward one because it has a shoulder at its forward end, said shoulder will be sheared off in driving this last Bushing backward.

Now clean the hole from which you have driven the Bushings; put a very little white or red lead on the new Universal Choker Channel Bushing, and with the plug we furnished drive it into position until the forward end of Bushing is back 5/8" from the front outer end of the Pot nozzle hole; if it is driven in any further the rear end of the Choker Channel Bushing will extend into the Pump Well and obstruct the downward movement of the Pump (P-572). Be careful to have the slot in said bushing at the top so that the pin in the end of the new Choker Valve Lever (C-534) will pass through said slot, when it is in position to actuate the Choker (C-531)., without rubbing on either side.

Now, with a Hand Drill, or a Breast Drill, drill a 1/4" hole into the new Choker Channel Bushing (C-580) plate 18, at a point in, or near the rear corner of the recessed portion of the Pot through which the Bushing passes; this hole should be drilled as close to the outer diameter of the Bushing as possible, close to the wall of the recess, it should be shallow, not more than 1/4" deep; care being taken not to drill into the Choker Hole of the Bushing. A piece of drill rod, or Bessemer rod, that fits the newly drilled hole should now be driven therein, this prevents the bushing (C-580) from moving when the Choker is operating.

The new Choker (C-531), Nozzle (N-575) as well as the Choker Lever (C-534) are put into the melting pot in the same manner as the old style Thompson Choker and Choker Fork.

Next, remove the old Thompson Choker Cam (C-519) place the new Choker Cam (C-413) (which is longer) in the same place, using the same screw to hold it in position, and adjust it so that when the choker is back against the Choker Seat, - or in other words, just as soon as the highest point of the Choker Lever Roller comes in contact with the top of the Choker Cam- the Choker is against the Choker Seat in the Choker Channel Bushing. At that instant, and not before, should the pump drop. Neither should it drop later, because if only the slightest turn of the cam shaft takes place after the choker is seated against the seat in the Choker Channel before the pump drops, a small drop of metal is apt to flow out of the nozzle into the jet channel of the mold and slightly chill before the pump drops. If this occurs, the result is most apt to be a type with chilled face. That being the case, why change the position of the Choker Cam at all, once it is set correctly?

To make the above adjustments follow instructions given under the caption "ADJUSTING CHOKER CAM AND CHOKER CAM ROLLER".

STARTING MACHINE FOR CASTING TYPE

Light the gas under the Metal Pot about forty-five minutes before starting to cast type. About three-quarters of an hour is usually required to bring the heat to the proper temperature.

Before the Mold is adjusted it should be wiped absolutely clean and must be thoroughly oiled and free from accumulation of dirt or metal; also make sure that all Oil Cups are filled.

When casting from wide Thompson Matrix, insert the wide Thompson Matrix Holder (G-928) in the Matrix Carrier, - when casting from narrow Thompson Matrix, insert the narrow Thompson Matrix Holder (G-929) in the Matrix Carrier. When casting from a Linotype Matrix, place an 8 point Linotype Quad Matrix together with the Linotype Matrix Holder (G-721) alongside of the matrix in the Matrix Carrier.

Determine the proper set which is shown on upper end of matrix and insert the necessary set blocks in opening made in Mold Body Plate by loosening Set Adjusting Liner Screw just right of mold facing machine. Read carefully reference, "SETWISE SIZE OF TYPE".

Place Matrix in Matrix Carrier, put the Matrix Carrier on the machine. Then pull out knob in Matrix Carrier Lever (G-924) and raise the Matrix Carrier Fork (G-665) until it fits snugly under the handle of the Matrix Carrier.

When the metal has been heated to the proper temperature, hook the Choker Tripping Tool (C-837) over the Choker Lever (C-854) and press down on the end of the Choker Tripping Tool to make sure the Choker Point will move freely out of the hole in the Nozzle, this must be done to make sure the metal in the Nozzle is melted. If the metal is not thoroughly melted at this point the Choker Point will stick in the Nozzle and break. Now wipe clean the face of the Nozzle; also wipe clean the opening in Nozzle Plate and set the latter closely against the Mold. Swing Pot against Mold and lock it in casting position.

Turn over Hand Wheel several times to make sure that all parts are moving freely.

The Clutch Shifting Knob (S-804) plate 5, is located on the right hand side of the machine base, directly above the Friction Wheel Controlling Knob (F-952). To shift the machine from neutral into low gear, raise the Clutch Retaining Latch (S-866) plate 4, thereby disengaging it from the middle annular groove in the Clutch Shifting Rod (S-810) plate 5, and press the Clutch Shifting Knob (S-804) inward to the limit. Then lower the Clutch Retaining Latch (S-866) engaging it in the right hand annular groove in the Clutch Shifting Rod (S-810).

To stop the machine shift to neutral by reversing the above operation.

Start the motor, allow it to run about half a minute, then with the right hand take hold of the handle of the Hand Wheel and turn it in its casting direction; at the same time, with the left hand, raise the Clutch Shaft Retaining Latch (S-866) and pull out the Clutch Shifting Knob (S-804).

The machine is now in high speed and ready to cast type of the smaller point sizes such as 6 Pt., 8 Pt., 10 Pt., 12 Pt., and 14 Pt. If type of the larger point sizes is desired, lift up Clutch Shaft Retaining Latch and push in Clutch Shifting Knob.

The Friction Wheel Controlling Knob (F-952) plate 5, is for the purpose of regulating the speed of the machine in conjunction with the Clutch Shifting Knob, both located on the lower right hand side facing the machine near the Hand Wheel. This is explained in the next section.

Pull out Pump Stop (P-682) on the upper left hand front facing the machine, only after all adjustments for casting are correctly made.

After running the machine for at least one minute, turn on the water. When casting type of the smaller bodies only a little water is required to keep the Mold cool, but when casting the larger sizes of type, a good flow of water is necessary to keep the Mold sufficiently cool to insure a maximum casting speed.

After making the first cast, remove type from the Mold, break off jet and place type, with its nick up, alongside the Lining Standard, on Aligning Gauge to ascertain whether it is of the proper alignment. If not, follow instructions under the caption: "MAKING THE ALIGNMENT".

CASTING SPEEDS

The casting of the smaller type as a 6 point should be started at the rate of about 90 pieces per minute; the speed should be gradually decreased with the increase of type in point size. The 48 point size type should be started at the rate of about five per minute.

Before trying to set the machine for the proper speed at which to cast type, the operator should thoroughly familiarize himself with the means for changing the speed of the machine as set forth in the following directions:

The Thompson Typecaster is designed so that any speed between the high and low limits can be readily obtained. This is accomplished by means of a friction drive and the high and low gear.

The Friction Wheel Controlling Knob (F-952) plate 5, on the right side of the machine base, controls the Friction Drive. Turning the Friction Wheel Controlling Knob (F-952) in a clock-wise direction moves the Friction Wheel (F-805) towards the center of the Friction Plate (F-802) and reduces the speed of the machine. To increase the speed of the machine turn the Friction Wheel Controlling Knob (F-952) in a counter clock-wise direction. This operation moves the Friction Wheel (F-805) towards the rim of the Friction Plate (F-802).

Never turn the Friction Wheel Controlling Knob (F-952) unless the power is on. If the Friction Wheel (F-805) plate 4, is moved while the Friction Plate (F-802) plate 4, is at rest a flat spot will be worn on the Fibre Friction Ring (F-655) plate 4, with the result that the Friction Drive will not work properly.

The speed at which type may be cast on the Thompson Typecaster is limited only by the time required to fill the Mold solidly with metal, and chill it sufficiently to permit its being discharged, when any typecaster is operated at a speed too fast to permit the metal to solidly fill the mold chamber the result must be, hollow type.

Small type should be cast at high speed; large type should be cast at low speed. Large type cannot be cast as fast as small type because it takes longer for a large volume of metal to cool and solidify than for a small volume. If the machine is run faster than the interior of the type can solidify, the type will swell or explode upon being ejected from the Mold. The efficient water cooling system on the Thompson Machine makes it possible to run it faster on large sizes of type than any other machine of the kind.

Type will have a "Frosty" face if cooled too quickly. It is, therefore, absolutely necessary that the water supply to the Mold is not too great. When the water flowing out of the Mold is luke warm to the touch, the proper amount is being supplied.

CLEANING CHOKER NOZZLE AND PUMP

Swing back the Metal Pot and remove the Pump (P-572) by loosening the square head Pump Lever Set Screw (X-121-1) in the top of Pump Lever (P-537) and pull Pump Connecting Pin (P-549) outward and lift the Pump out of the Pot. If the Pump sticks in the Pump Well swing the Pump Links (P-705) upward, push a piece of round rod through the holes in Pump Links and turn the Pump (P-572) back and forth at the same time raising it up out of the Well.

Drop a small lump of mutton tallow or put a little oil on the metal and stir thoroughly until the dross is well separated from the metal; then skim off the dross. This

should be saved and sold to the metal refiners.

Now drain all the metal from the Pot by placing the Metal Tray (E-551) under the Nozzle (E-575), hook the Choker Tripping Tool (C-837) over the Choker Lever (C-854) at the point above the Choker Lever Link (C-527); press down on the end of the Choker Tripping Tool until the metal flows freely out of the Nozzle into the Metal Tray. The Ladle (X-128-2) should be held before the Nozzle to guide the molten metal into the Tray.

Now take out the Choker Lever Adjusting Screw (X-120-1) and remove the Choker Lever (C-534).

Place the hexagon Box Wrench (E-993) on the Nozzle (E-575) and move it up and down until the Nozzle is loose. If the Nozzle sticks, loosen it by striking a sharp blow on the end of the Box Wrench (E-993); clean all metal and oxides out of the inside of the Nozzle.

Now take the Choker (C-531) if your machine is the latest model, or (C-576) if it is an old model machine, out of the Pot and clean off all metal or oxides while it is still hot.

With a stick of wood, clean out the Choker Channel, making sure no dirt is left in the Channel or the nozzle hole in the Pot, and immediately turn off the gas or electric current so the Pot will cool off.

Immediately after turning off the gas or electric current, and while the Pot is still hot, clean out the Pump Well in the Metal Pot with a wooden stick and a rag.

If there is an accumulation of oxides in the Nozzle or on the Choker, it can be removed by heating them in the flame of a Bunson Burner, or a Blow Torch until they are a dull red; do not get them too hot, and then clean off the oxides.

GRINDING IN CHOKER AND ASSEMBLING

Examine the Choker Channel Seat and the seat on the Choker. If either is not perfectly smooth, they must be ground in by putting a little oil and fine emery flour,

or some fine grinding compound on the Choker Seat, inserting the Choker in the Choker Channel and turning the Choker back and forth while pressing it against the Choker Channel Seat.

If your machine is equipped with the new style Choker (C-531) its seat is at the forward end of its shank about one inch from the Choker point.

If your machine is equipped with the old style Choker Valve (C-576) its seat is at the extreme rear end.

To turn the new style Choker (C-531) back and forth while grinding in the seat, hold the forward end of the Choker with the new Choker Seat Grinding Tool, being careful not to touch the point of the Choker (C-531) where it fits into the Nozzle hole, as bruising or damaging this point will cause metal to leak out of the Nozzle (H-575).

The old style Choker Valve (C-576) can be turned back and forth by bending a piece of wire, about one eighth of an inch in diameter, in the form of a loop with the two ends parallel and about half an inch apart; insert the two ends of this wire loop in the two holes in the end of the Choker Valve (C-576) and with this wire as a handle turn the Choker Valve back and forth against the Seat.

After grinding the Choker Channel Seat, as well as the Choker Seat, they must be wiped clean to be sure no emery or oil remains on them.

The Point of the Choker (C-531) or Choker Valve (C-576) should be ground into the Nozzle (H-575) with a little fine emery flour, or grinding compound, the same as was used for grinding in the Choker Seat. To do this proceed as follows: Be sure the Choker Point and the inside of the Nozzle, are perfectly clean and free from metal or dross; place the shank of the Choker (C-531) in the small hole of the new Nozzle Grinding Tool, put a little fine valve grinding compound on the Choker Point, place the Nozzle Shank into the large hole of the Nozzle Grinding Tool, holding the Nozzle and Grinding Tool together with the left hand, take hold of the Choker Shank, extending beyond the end of the Nozzle Grinding Tool, with the right hand and turn the Choker back and forth until a clean smooth seat is ground at, and

around the Small hole, inside the Nozzle and around the Choker Point. Now clean off all grinding compound from both the Choker and Nozzle.

If the Pump (P-572) plate 18, was tight when it was taken out of the Well it was most likely due to oxides adhering to the Pump or the Pump Well wall. In that case put some thin oil on the Pump, place it in the Well and work it up and down with a turning motion; do not use emery as that may grind the Pump down too small; then clean off all thoroughly, both out of the Well and from the Pump.

Now place the Choker in its Channel in the Pot, push it back as far as it will go so its point will not be in the Nozzle hole while the latter is being driven into the Pot, be sure the Nozzle Shank and the Nozzle hole in the Pot are absolutely clean. Place the Nozzle into the Pot, turn it back and forth a few times to make sure it will seat itself correctly when driven in; put the Nozzle Driving Tool (H-979) plate 20, over the Nozzle and, with a medium sized hammer, strike the end of the Nozzle Driving Tool until the Nozzle is firmly seated in the Pot.

Caution:- We wish to caution you to exercise care at all times when driving the Nozzle into the Metal Pot. If you will observe the following rule, the hole in the Pot into which the Nozzle fits will not become enlarged, as it does in case too much force is used in driving the Nozzle into position.

Be sure the Nozzle hole in the Metal Pot is perfectly clean before the Nozzle is put into place. Also be sure the Pot is perfectly cold before the Nozzle is placed in it, and when driving the Nozzle into position, tap the driving tool lightly with the hammer, as it is easily held tightly on account of the taper of the hole in the Pot and the shank of the Nozzle that fits into it. A heavy blow will enlarge the Nozzle hole in the Pot and after a short time make the hole so large the Nozzle will no longer fit tightly.

If the Nozzle (H-575) has been driven in straight its hole will be concentric with the Choker point and the Choker can be moved forward and back without sticking in the

Nozzle hole. Test this by putting the Choker Lever (C-534), or Choker Valve Fork (C-532), into place in the Pot and move Choker in and out by hand. If the Choker point sticks in the Nozzle, it indicates that the latter was not driven in perfectly straight; in that case ascertain which side of the Choker point binds in the Nozzle hole, push Choker back out of the Nozzle (H-575) and with the Nozzle Driving Tool (H-979) against the Nozzle, tap it lightly with a hammer on that side at which the Choker point binds. Repeat this, if necessary, until the Choker point can be moved freely by hand in and out of the Nozzle.

Now replace the Choker Valve Lever (C-534), or Choker Valve Fork (C-532), fasten it in position with the hexagon head Choker Lever Adjusting Screw (X-120-1).

Now fill the Metal Pot (H-571) with metal, and light the gas or turn on the electric current, and heat up to proper temperature.

When the metal is melted put the Pump (P-572) into the molten metal, but not into the Well. After the Pump is as hot as the metal it may be placed in the Well and connected by pushing the Pump Connecting Pin (P-549) through the holes in the Pump Links (P-705) and fastening it with the square head Pump Lever Set Screw (X-121-1).

ADJUSTING FORWARD POSITION OF METAL POT

It is usually necessary to readjust the forward position of the Metal Pot (H-571) after the Nozzle (H-575) has been replaced.

There is a Rear Pot Adjusting Screw (X-114-11) in the Pump Lever Support (P-548) that should be slackened off by first loosening its Locknut (X-102-3) after the metal is hot, and the Pot swung against the Mold and locked in casting position. The two hexagon head Pot Screws (X-120-3), that hold the Pot down on the Pot Yoke (H-506), must be loosened just enough to allow moving the Pot forward without permitting it to be raised up.

The Rear Pot Adjusting Screw (X-114-11) must then

be brought against the Pot until it presses the Nozzle to a snug bearing against the Nozzle Plate and the Mold. Do not force it forward. There should be only just enough pressure to prevent leakage between the Nozzle, Nozzle Plate and Mold. Then tighten the Locknut (X-102-3) on Rear Pot Adjusting Screw (X-114-11) and tighten down the two Hexagon Head Pot Screws (X-120-3) on both sides of the Pot.

HEIGHT OF TYPE

The dimension from the foot of the type to the surface of its face is called the "height-to-paper"; the standard for this in the United States, Canada, England and Australia is 0.918 inch.

The "depth-of-face" in the matrix is the depth of the hole in which the character is cast.

Types of various sizes of bodies but all of equal height cannot be cast in one mold unless the "depth-of-face" in the matrices are all equal.

The "height-to-paper" of the type cast equals the sum of the "height of Mold" and the "depth-of-face" in the Matrix.

It is easily seen that, if a Matrix having a shallower "depth-of-face" is substituted for a deeper one, the "height-to-paper" will be less; if the "depth-of-face" in the matrix is more, the "height to paper" will be more. For this reason, a Mold of different height is required for each different "depth-of-face" in Matrix when type of uniform height are to be cast.

The depth of face in Thompson Matrices as well as Linotype and Intertype Matrices is uniform, namely 0.043 inch; the height of the Thompson Mold for these Matrices is such that a blank cast therein measures 0.875 inch high, adding 0.043 inch to 0.875 inch we have 0.918 inch which is the American and English standard "height-to-paper".

The "height-to-paper" (overall height of the type) varies in different countries outside the United States and Great Britain. The Thompson Type Machine Co. can make the Mold so type may be cast of any desired predetermined height from matrices of any depth of face, provided, the following information is furnished.

When matrices to be used on the Thompson Typecaster are obtained from some source other than the Thompson Type Machine Co. we must know the depth of face in the matrix, and the overall height of type ("height-to-paper") the customer wants to cast, or better still, furnish us with a sample matrix, and a sample type, one for each size if the depth of face varies with different size bodies, and we will make the height of the mold, so type cast from the matrices to be used thereon will give the customer type of the "height-to-paper" he wants.

THE AUTOMATIC METAL FEEDER

The Metal Feeder (E-418) plate 22, consists of a shallow round Pot, six inches in diameter at the top, with a spout. The chamber for the Gas Burner is formed by the circular wall of the Metal Feeder (E-418) extending downward six inches. The Gas Burner is attached to a rigid cross-bar inside the Burner Chamber. The burner chamber is open at its lower end, and has holes in the circular wall at its upper end immediately under the Feeder top, to allow free passage of air for proper combustion of gas at the Burner.

A gas pipe with Stop Cock and fittings, for connecting it to the gas supply pipe of the Metal pot Burner extends below the lower end of the Feeder.

When the Metal Feeder is to be used with the Electric Pot it will be necessary to connect the Gas Burner, under the Feeder, with a gas supply pipe with a good gas cock on its end, to connect the gas cock with the Gas Burner use a piece of good gas tubing.

The Feeder is hung on the back of the Pot Crucible (E-571) between the Pump Lever Support (P-548) and the left hand upright of the Pot Yoke (E-506) in which the Pot Yoke Handle (E-749) is fastened.

Cold pigs of metal are placed on the top of the Feeder where they are liquefied and the molten metal flows through the spout into the Metal Pot (E-571); or the pig of metal, after it becomes hot, but before it is melted, may be pushed through the spout into the Metal Pot, where the final melting can take place. A pig of hot metal will not chill the molten metal in the pot to any appreciable extent;

and the metal in the Pot may be quickly replenished, when it is low, without waiting for it to melt in the feeder. Another advantage of the Metal Feeder is, that when casting large type, or six point and larger Slugs or Rule, the metal is used up so quickly, that the Gas Burner under the Metal Pot (H-571) does not melt the metal fast enough to supply the amount used and keep the Metal Pot filled with molten metal which is hot enough to produce sharp faces on the type, and a good weld in the strip material; here the Metal Feeder (E-418) becomes a necessity. The Gas Burner in the Feeder assists the Gas Burner under the Metal Pot in keeping the Pot full of metal at the proper temperature.

We strongly recommend that every Thompson Typecaster be equipped with one of these Metal Feeders.

THE STOP MOTION

The Stop-Motion is located on the right hand side of the Machine Base (B-800) between the Clutch Shifting Knob (S-804) and the Friction Wheel Control Knob (F-952), with it in operation the output of type, borders and quads, of the sizes larger than 24 point, can be increased at least fifty per cent; it can be thrown into, or out, of operation in less than thirty seconds.

Before throwing the Stop-Motion into operation have Matrix Carrier in position and all adjustments made so the machine is ready for casting; be sure to have the Pump Stop (P-682) in its inward position to prevent metal from passing through the Nozzle into the Mold.

To throw the Stop-Motion into operation, first raise the Clutch Shaft Retaining Latch (S-866) and press its end behind the flat Retaining Latch Spring (266), thereby disengaging the Latch from the middle annular groove in the Clutch Shifting Rod (S-810) and preventing it from falling down into any of the annular grooves in the Clutch Shifting Rod while the Stop-Motion is in operation.

The Stop-Motion Main Spring (264) must now be pushed over so its upper end bears against the outside of the Clutch Shifting Knob (S-804), this spring pushes the Clutch Shifting Rod (S-810) inward and throws the low gear into action. Now push upward the outer end of the flat

Stop-Motion Release Spring (265), until the short Stud on its inner end lowers the end of the Stop-Motion Latch (254), thereby throwing the other end of the Stop-Motion Latch upward into path of the Actuating Pin inside the Hand Wheel (S-541), this Hand Wheel Actuating Pin actuates the Stop Motion.

After all the above adjustments are correctly made pull out the Pump Stop (P-682), the machine will now operate with an intermittent motion or dwell; the metal in the mold is chilled during the dwell so the type may be quickly discharged and the next type cast at much higher speed than would be possible without the Stop-Motion.

The Crank Pin (273) is located in the Stop Motion Disk (257) which is fastened to the outer end of the Friction Wheel Shaft (P-808) it actuates the Stop-Motion Ratchet Wheel (255) by contact with the teeth of the Ratchet Wheel once during each revolution of the Friction Wheel Shaft.

When the machine is to be run at high speed, or when it is to be operated for several days for casting material in the smaller bodies, where the Stop-Motion is not to be used, the Stop Motion Crank Pin (273) should be taken out of the Crank Pin Disk (257), this is easily done with a screw driver; the removal of this pin prevents the operation and wear of the Stop-Motion parts thereby prolonging its life.

IMPROVED EQUIPMENT FOR CASTING SPACES AND QUADS

The improved equipment for casting spaces and quads can be used only on machines with the Micrometer Set Adjusting Device, plate 8, it consists of low space and quad Special Bodies and a special spacer to be used in the Type Mold (A-13) and a steel special space and quad Matrix, plate 8. To use this equipment proceed as follows.

Remove the Mold (A-13) plate 7, as explained under the caption "TO REMOVE THE TYPE MOLD", then take out the two small fillister head screws that pass through the mold front wall, this releases the Spacer which can now be withdrawn from the Mold. Replace this with the Spacer for space and quad Bodies by sliding it into the place

against the Mold Front Wall from which you have just removed the Type Body Spacer, and fasten it firmly in position with the two fillister head screws.

The Spacer for space and quad Bodies is thicker than the one for type Bodies and makes up the difference in height between the space and the type Bodies, so the space Body and Jet Ejector will fit correctly between the Mold Back Wall and the Spacer against the Mold Front Wall.

Now slide the Mold Body Plate (M-942) into the Mold, put the Jet Ejector and the space and quad Body, of the desired size, into the mold, and move them back and forth to make sure they are not too tight, if they bind it indicates there is dirt between some of the parts you have just assembled, all dirt must then be removed before the Mold is placed into the Mold Stand.

Now put the Mold on the machine as instructed under the caption "TO REPLACE THE MOLD". Either Vertical Mold Blade (V-612) or(V-613) plate 6, can be used in casting spaces and quads with this equipment.

Only one steel Matrix, plate 8, is required to cast all setwise sizes of spaces and quads for any one body. Select the space and quad steel Matrix for the size Body you have in the Mold, place it in the style "B" Matrix Holder, press it firmly against the Matrix Carrier Side Wall and tighten the knurled head Clamping Screw to hold it firmly in place.

Take the Matrix Carrier Fork (G-665) out of the Matrix Carrier Lever (G-924) as it must not be left on the machine while casting spaces and quads with this equipment; put the Matrix Carrier in the machine, push it forward until the Toe of the Matrix is just in front of the Mold Casting Chamber, then examine closely, and if necessary, bring the Matrix either up or down by turning the Graduated Knob on top of the Matrix Carrier in the necessary direction so the Matrix Toe will enter the mold chamber without binding on either top or bottom.

When the Matrix is adjusted, so its Toe will enter the mold chamber freely, press the Matrix Carrier forward until the matrix is tight against the face of the Mold; the

Toe of the matrix then rests against the forward side of the space and quad Body. Now lock the Matrix Carrier firmly in its casting position by first releasing the fillister head Clamping Screw, which passes through the middle of the right hand forward extension of the front wall of the Mold Stand (N-503) into the Matrix Carrier Slide (G-671); then tighten the long Slide Adjusting Screw (G-695), the head of which is in the right hand end of the front wall of the Mold Stand, next tighten the short Slide Adjusting Screw (G-694), that passes through the forward end of the Mold Stand forward extension; tightening these two Slide Adjusting Screws drives the right hand Matrix Carrier Slide firmly against the Matrix Carrier and holds it rigidly in position while casting Quads or Spaces.

Now make the setwise adjustment as explained under the caption "MAKING THE SETWISE SIZE OF TYPE WITH THE MICROMETER SET ADJUSTING DEVICE".

Once all adjustments are made it is not necessary to remove the Matrix from the Mold when changing from the thinnest space to the widest quad as all setwise changes are made with the new Set Adjusting Device.

QUOTATION QUADS

Quotation, or hollow, quads are cast in the same manner as spaces and quads by taking the space and quad Steel Matrix out of the Matrix Holder and replacing it with the special Quotation Quad brass Matrix, plate 8, making the setwise size in the same manner as described above.

TROUBLES AND REMEDIES

Cause and remedy for hollow spaces and type of small set-wise dimensions.

The cause of trouble of this character is usually a combination of two or more adjustments being improperly made. Thin spaces and characters are usually the most difficult to cast solid. This is because certain laws of physics that have only a slight effect when casting type of large set-wise dimension become prominent when casting thin type. The length of time required for the type to cool is directly proportional to the ratio between the volume of metal entering the mold and the area of inside walls of the mold. In

the case of thin spaces and characters of small set-wise dimensions, the area of the walls of the mold cavity is large while the volume of the metal required to fill the cavity is comparatively small. For this reason, the ratio is small and the time of cooling is very short. In order to cast solid spaces and type of small set-wise dimension, therefore, the metal must be injected into the mold as quickly as possible, and the temperature of the mold must not be kept too low. In order to accomplish this, the following should be done.

1. Increase the speed of the machine. This results in the complete casting operation being done very quickly and does not allow much time for cooling.

2. Decrease water and oil supply. This allows the temperature of the mold to go up with the result that the incoming metal will not be cooled too quickly.

3. Increase the temperature of the metal in the pot from 25 to 30 degrees above normal casting temperature. Because the amount of heat that must be conducted from the metal by the mold and the water circulating through it is greater, the time required for the type metal to solidify will be greater.

4. Increase the pump spring pressure slightly. This will cause the metal to be forced into the mold more positively and with greater speed and will therefore allow the mold to be filled before the metal has had too much time to cool off. The pressure should not be increased excessively, especially for the smaller body sizes. Excessive spring pressure is just as bad as too little pressure. A little experience will make it possible for the operator to correctly judge the correct amount of pump spring pressure to give the best results.

5. Carefully adjust the metal pot to the right or left so that there is a maximum opening of the nozzle to the mold. If the opening is too small, metal will enter the mold too slowly with the result that it may start cooling before the mold cavity has been completely filled.

From the above, it will be seen that the casting of narrow spaces and type of small set-wise dimension is

dependant generally upon heat, and upon the rate of cooling of the metal as it enters the mold. It is well, therefore, to keep these matters well in mind while casting narrow set material. If any unusual difficulty is encountered it is often easily overcome by trying to imagine what is taking place in the mold and then locating the difficulty by logical reasoning.

WHEN TYPE IS HOLLOW

Improper seating of the Choker on the Choker Seat may be the cause of hollow type. Leakage at the Choker Seat may be due to improper seating because of wear. In this case it will be necessary to regrind the valve to a seat. This will be found necessary only after the machine has been in use for some time. Do not grind the valve unless it is absolutely necessary and then proceed in accordance with the directions given in this book under the heading,"GRINDING IN CHOKER AND ASSEMBLING".

Hollow type will also be produced by the machine if the temperature of the metal is too high. On the other hand, if the temperature of the metal is too low, the metal will not be sufficiently fluid to flow into and completely fill the mold with the result that the face will not be sharp and perfect. See "TEMPERATURE OF METAL".

Hollow type may be the result of incorrect location of the Metal Pot. If the Metal Pot is too far to the right or left the opening in the Nozzle Plate (H-639) may be obstructed by part of the Jet Ejector or the Vertical Mold Blade (V-612 or V-613) to such an extent that it is impossible for sufficient metal to enter the mold. Correct method of making left and right Metal Pot adjustments is given under the caption "SIDEWISE ADJUSTMENT OF METAL POT".

WHEN THE TYPE EXPLODES AS THE MOLD OPENS

Type explodes when ejected from the mold if it has not cooled sufficiently prior to the opening of the mold. This may be due to an insufficient supply of water circulating through the mold or may be the result of running the machine too fast. A combination of the above may also be the seat of the trouble. If you are experiencing trouble of this kind, read "CASTING SPEEDS".

THE CAUSES OF AND REMEDIES FOR SQUIRTS OR SPLASHES

A Thompson Typecaster will never "squirt" or "splash" unless the metal is too hot or through improper adjustment of its various parts, or because of dirt or foreign matter being lodged between any of several parts, an opening is left through which metal can escape.

If the Vertical Mold Blade (V-612) or (V-613) does not bear evenly against the end of the type mold, an opening may be left that will result in a squirt. When making this adjustment, care should be taken to see that no dirt or foreign matter becomes lodged between the parts. It is clear that if anything should get between the parts they cannot be brought into contact with one another. The result is an opening. See "ADJUSTING VERTICAL MOLD BLADE" for method of making correct adjustment.

Dirt or any foreign matter on the face of the matrix will prevent it from seating properly upon the mold. This may cause a "squirt".

The Matrix Carrier Cam Lever Spring (G-926) which is held between the Matrix Carrier Lever (G-924) and the Matrix Carrier Cam Lever (G-925) acts as a cushion for the Matrix Carrier. It is the pressure of this spring that holds the Matrix Carrier against the mold. Tightening the Matrix Carrier Cam Lever Screw (G-923) compresses the Matrix Carrier Cam Lever Spring (G-926) and consequently moves the end of the Matrix Carrier (G-924) further away from the mold. If this is tightened too much, the Matrix Carrier will be pulled back so far that an opening will be left between the Matrix and the mold with the result that there will be a "squirt" if the machine is run that way. See "ADJUSTING MATRIX CARRIER LEVER" for proper adjustment of the Matrix Carrier Cam Lever Spring (G-926).

If the Jet Block (A-12) or the Mold Top Block (A-11) are not down on the Jet Ejector or the Body Piece, either due to improper adjustment or due to dirt or foreign matter having lodged between them, there will be an opening through which metal will escape. For the proper method of adjusting these parts see "TO CHANGE JET EJECTORS" and "TO CHANGE MOLD BODY PIECES".

Dirt or foreign matter on the front side of the Nozzle Plate (H-639) will prevent its seating properly against the mold. This will leave an opening through which metal may be forced. Dirt or foreign matter on the Nozzle (H-575) or in the part of the Nozzle Plate (H-639) which receives the Nozzle will prevent a tight joint being made between these parts with the result that there may be a "squirt". If the Metal Pot is not tightly locked up or if the adjustment of the Metal Pot is not proper, the Nozzle Plate (H-639) will not completely fill up the space between the Nozzle (H-575) and the mold with the result that an opening will be left through which metal may be forced. For instructions as to making the proper metal pot adjustments, see "FITTING CHOKER POINT TO NOZZLE PLATE" and "ADJUSTING FORWARD POSITION OF METAL POT".

The cause of a "squirt" is always quite easily located by looking for the place from which the metal escaped.

THE CAUSES OF FINS AND THE REMEDIES

A Fin on a piece of type is a miniature squirt. The causes and remedies are identical. Dirt lodged between parts of the mold or improper mold adjustments are always the cause. Whenever a Fin appears on any part of the type or on the jet it is positive evidence that there is an opening between parts of the mold. The seat of the trouble can always be located by observing what part of the type or its jet the fin is on.

If a Fin appears on the left hand side of the type as it comes from the machine it indicates that there is an opening between the Vertical Mold Blade (V-612) or (V-613) and the mold. To remedy, clean the parts thoroughly and adjust according to the instructions under the caption "ADJUSTING VERTICAL MOLD BLADE".

Horizontal fins on either the top or bottom of the right hand side of the type as it comes from the machine indicates that there is an opening between the Mold Body Piece and either the Mold Top Block (A-11) or the lower part of the mold. The remedy is to remove the Body Piece and the Jet Ejector, thoroughly clean them and the parts of the mold with which they come in contact and then replace the parts

and adjust them in the manner described under the captions, "TO CHANGE JET EJECTORS" and "TO CHANGE MOLD BODY PIECES".

A Pin on the shoulder of the type indicates that there is an opening between the matrix and the mold. This may be due to dirt or metal being lodged on the face of the matrix or on the part of the mold with which the Matrix comes in contact. It may also be due to improper adjustment of the Matrix Carrier Lever Screw (G-923). In this connection see "ADJUSTING MATRIX CARRIER LEVER".

A Pin at the base of the Jet indicates that there is an opening between the Nozzle Plate (H-639) and the mold. This may be due to the Metal Pot being improperly locked up or to dirt or to improper Pot adjustment. In this connection read, "ADJUSTING FORWARD POSITION OF METAL POT".

WHEN TYPE IS TOO WIDE SET-WISE

If type is oversize in the set-wise dimensions, there are three possible causes. First: There may have been an error in making up the combination of Set Blocks. Second: Dirt may have become lodged between the set blocks or they may not be tightly clamped. If trouble is experienced with type that is oversize in set it is always well to remove all of the Set Blocks thoroughly clean them and replace, being sure to turn the Set Adjusting Liner Screw (M-934) snug, not too tight, with the fingers. Never use a wrench or pliers on this screw. Third: If either of the above is not the cause of the difficulty, dirt or metal on the side of the Matrix Holder or the end of the Set Adjusting Liner (M-905) may be the cause. Sometimes the trouble is due to faulty adjustment of the Vertical Mold Blade (V-612) or (V-613) or to dirt or metal having become lodged between the Mold and the Vertical Mold Blade (V-612) or (V-613). The remedy is to remove and thoroughly clean the Vertical Mold Blade, being sure to carefully clean all other parts with which the Vertical Mold Blade comes in contact. Then replace and adjust in accordance with the directions under "ADJUSTING VERTICAL MOLD BLADE".

WHEN TYPE IS OVERSIZE IN BODY DIMENSION

Type that is oversize in the body dimension is the

result of dirt being lodged between the Mold Body Piece and the Mold or of the Mold Top Block (A-11) not being far enough down. It must be in actual close contact with the mold Body Piece. The best remedy for type oversize in body dimension is to remove the Mold Body Piece, thoroughly clean it and the Mold cavity, replace and carefully adjust in accordance with the directions given under "TO CHANGE MOLD BODY PIECES".

WHEN TYPE IS TOO HIGH TO PAPER

If the height of the type is oversize it is due to the matrix not seating properly against the mold. This may be due to dirt being lodged on the face of the matrix or on the mold. The best remedy is to thoroughly clean the parts. It may also be due to improper adjustment of the Matrix Carrier Lever Screw (G-923). In this connection see "ADJUSTING MATRIX CARRIER".

WHAT CAUSES DEFECTIVE TYPE FACES?

One of the commonest type face defects is that known as a "frosty face". This is caused by sudden cooling of the metal as it enters the mold. The first few pieces of type cast on a cold machine usually have frosty faces. This difficulty will disappear after the mold has had time to warm up unless it is because too much water is circulating through the mold. If the water leaving the mold is warm to the touch it is properly adjusted. If it is cold, cut down the supply and the difficulty will disappear. If the mold is flooded with oil, imperfect faces will also result. There is a difference in the appearance of frosty faces and faces defective because of too much oil. Too much oil prevents the hot metal from flowing evenly over the surface of the mold cavity and the matrix. With a little experience it will be easy to recognize type made imperfect because of excessive oil. The remedy is to cut down the oil supply and run the machine, casting type until the oil is worked out of the mold. Care should be taken not to cut down the oil supply so far that the mold will not be sufficiently lubricated. To do so is liable to cause damage to the mold by cutting and scoring.

If the type is cast with too low a temperature of the metal, it will be solid but will be imperfect in the face and body. One of the most noticeable characteristics of type cast with metal that is too cold is that the edges of the type body and type face will not be sharp. When metal is too cold, it will not flow freely. The result is that it will not flow into all of the corners and crevices. As soon as metal that is low in temperature strikes the matrix or walls of the mold cavity, it is suddenly cooled beyond the point where it will flow. The result is that the body and face of the type will not have a smooth, plane surface but that it will be uneven.

Type with uneven surfaces and rounded edges is often the result of worn out or poor metal. Tin in type metal makes it fluid. If the metal has been overheated or has been used over a period of time, the proportion of tin becomes low through a process of oxidation. It may also become low due to skimming the metal from the top of the Pot. The metal should always be separated from the oxides or dross by putting a piece of mutton tallow into it and stirring well. Dross or Oxides always appear as a black powder and not as thick more or less unfluid metal. See "PRACTICAL AND METALLURGICAL POINTS REGARDING CARE AND HANDLING OF METAL". The remedy is to replace the defective metal with new or to add the missing ingredient to the defective metal.

WHEN METAL LEAKS OUT OF NOZZLE

This is liable to happen during the time that the metal is being melted. It does not indicate, however, that anything is wrong. If the leak does not stop after the metal is melted and up to casting temperature, hook the Choker Tripping Tool (C-837) over the Choker Lever (C-854) at a point above the Choker Lever Link (C-527); hold the Jet Box (J-597) or the Ladle (X-128-2) in front of the Nozzle (H-575) and pull downward on the end of the Choker Tripping Tool. This will open the Choker and allow the metal to run from the Nozzle (H-575). Then suddenly release the pressure on the end of the Choker Tripping Tool, thereby allowing the Choker to close suddenly.

The foregoing operation will allow any chilled metal in the Nozzle (H-575) to escape. If the leak does

not stop, it indicates that the Choker is not properly seating in the Nozzle. This may be due to insufficient pressure on the Choker Rod Spring (C-856). To increase the pressure on this spring, turn the Choker Spring Rod Adjusting Stud Nut (C-530) in a counter-clock-wise direction. Care should be taken not to tighten the Choker Rod Spring (C-856) excessively. To do so will produce undue strain on the parts and may damage the forward seat in the Nozzle (H-575). About 3/8" compression of the Choker Rod Spring (C-856) is usually sufficient.

It is also possible that the Nozzle (H-575) has not been driven in straight. To remedy, relieve all of the pressure on the Choker Rod Spring (C-856) by turning the Choker Spring Rod Adjusting Nut (C-530) in a clock-wise direction and give the Nozzle (H-575) a light tap with the Nozzle Driving Tool furnished with every machine. Apply the pressure of the tool at a point opposite to the point at which the metal escapes. The point of the Choker should move freely in and out of the opening in the Nozzle without the pressure of the Choker Rod Spring (C-856). If it does not, it indicates that the Nozzle (H-575) is not driven in straight and it will leak.

If any of the above means of stopping the leak prove ineffective, it is pretty clear that the Nozzle (H-575) and the Choker (C-531) or (C-576) are hindered in their operation by an accumulation of oxides, or that the Choker needs grinding. To correct these difficulties, proceed as directed under "CLEANING CHOKER NOZZLE AND PUMP" of this book and if the desired result is then accomplished, proceed to grind the choker valve as directed under "GRINDING IN CHOKER AND ASSEMBLING".

THE CAUSE OF CHOKER STICKING

A sticking Choker (C-531) or (C-576) is invariably caused by dirt or oxides becoming lodged in the Nozzle (H-575) and on the Choker. To remedy, proceed as directed under the caption "CLEANING CHOKER, NOZZLE AND PUMP".

WHEN THE PUMP STICKS. THE REMEDY

As in the case of a sticking Choker Valve, a Pump (P-572) that sticks is the result of a collection of Oxides

or dirt in the Pump Well or on the Pump (P-572). To correct, follow the directions given under "CLEANING CHOKER, NOZZLE AND PUMP".

GAS BURNER FAILS TO GENERATE ENOUGH HEAT TO RAISE METAL IN POT TO REQUIRED TEMPERATURE. WHAT IS REMEDY?

If the burner fails to generate enough heat to raise the metal to the proper temperature, it is evident that the supply of air to the burner is not sufficient to burn all of the gas. This fault is easily remedied by properly adjusting the Burner Air Regulating Plate (H-518½). This part is located immediately under the Burner Mixer (H-518). To adjust, turn Burner Air Regulating Plate (H-518½) to the right, or to the left, until the flame is blue. If the flame is all yellow or if it shows up yellow at the top, it indicates that there is not sufficient air entering the Mixer to burn all the gas. If the Burner Air Regulating Plate is turned so that too much air enters the Mixer, the flame will "strike back" into the Mixer. In this case it will be necessary to extinguish the flame and re-light after adjustment has been made to decrease the amount of air entering the Burner Mixer. A few trials at the adjustment of the burner will thoroughly acquaint the operator with the operation of the burner so that no further difficulty will be experienced.

MOLD WORKS TIGHT. WHAT IS THE REMEDY?

The mold may work tight as a result of the lack of oil or as the result of being set too tightly at the beginning. If the mold runs tight as the result of insufficient oil supply, the result is liable to be serious. Insufficient oil is the cause of a cut mold. Hardened steel parts such as the mold are made of, will always cut if run together without oil. The remedy is obviously to supply the oil. Care should be taken, however, not to supply an overamount. To do so will result in imperfect faces. See trouble "WHAT CAUSES DEFECTIVE TYPE FACES" in this book.

The Mold may be set too tight at the beginning and still work freely. It works tight as the result of the expansion of the metal due to heat. The Mold may be cool at the time it is originally set. After a few casts have been made the incoming metal will heat up the mold suffi-

ciently to cause the several parts to expand and work tight. The remedy is to stop the machine and reset the mold as directed under "TYPE MOLD ADJUSTMENTS".

WHAT IS THE CAUSE AND REMEDY FOR CHANGING TYPE ALIGNMENT WHILE THE MACHINE IS IN OPERATION?

When the THOMPSON TYPECASTER leaves the factory, all adjustments are properly made. If, however, the parts of the Matrix Carrier should work loose through wear the proper adjustment can be easily made as follows: Remove the Matrix Carrier (A-8), loosen the Slotted Nut in the center of the Graduated Knob; then turn the Graduated Knob to the left until the Matrix Carrier Adjusting Block is almost out of the Matrix Carrier (A-8). The small headless Set Screw, that passes through the back of the Matrix Carrier Adjusting Block, against the split Bronze Bushing, must now be tightened to compress the split Bronze Bushing just enough so there will be no lost motion of the Matrix Carrier Adjusting Screw in the split Bronze Bushing.

This operation compresses the Matrix Carrier Block Bushing and makes it fit the Matrix Carrier Adjusting Screw more closely. The adjustment is correct if the Matrix Carrier Graduated Knob can just be turned with the fingers. Do not tighten the set screw so much that it is necessary to use a pin wrench to turn the Matrix Carrier Graduated Knob.

WHAT IS THE CAUSE AND REMEDY FOR A FRICTION DRIVE THAT SLIPS AND FAILS TO PULL THE MACHINE?

The cause of a slipping Friction Drive is usually an excess of oil. Inside of the rim of the Friction Wheel (F-805) a groove has been provided to catch any oil that may be thrown from the shaft or bearings by centrifugal force. If this is wiped out occasionally with a piece of cotton waste or rag, no difficulty in this respect will be encountered. If, however, this difficulty is experienced, it can be easily corrected by wiping the face of the Friction Plate (F-802) and the Friction Ring (F-655) with gasoline or benzine. This will remove all of the oil from the parts and eliminate the trouble. After long use, the Friction Ring (F-655) may become worn with the result that the pressure of the Friction Plate (F-802) against the Friction Ring

(F-655) may not be sufficient to pull the Machine. In order to correct this, the pressure on the Friction Plate Spring may be increased by turning the Friction Plate Spring Tension Nut (F-827) in a clock-wise direction. Care should be taken not to make the spring pressure excessive. The pressure should only be enough to just drive the machine. If the tension is too great the pressure of the Friction Plate (F-802) against the Friction Ring (F-655) will be excessive with the result that flat spots are liable to be worn on the Friction Ring (F-655). In this case the friction drive will fail to operate satisfactorily and the only remedy then is to remove the Friction Wheel Assembly from the machine, place it in a lathe and turn the fibre Friction Ring (F-655) in order to remove the flat spots. When this is necessary follow instructions under the caption "HOW TO REMOVE THE FRICTION WHEEL". With ordinary care of the parts in question, no repairs should be necessary for years. Thompson Typecasters have been in use for long periods without the necessity of removing any of the Friction Drive Parts.

GENERAL HINTS

When through with the day's work swing the Metal Pot away from the Mold only far enough so the center toe of the Pot Yoke still rests on the planed part on the Base Top.

When leaving the machine with the pot swung away from the mold, be sure that the choker valve is properly closing the nozzle. Otherwise when the pot is lighted up the metal will flow out of the nozzle until the metal heats enough to allow the valve to close.

Allow the machine to stand a few minutes with the pot connected before starting work, to permit the mold to become heated sufficiently to make a good cast. Now swing the pot away from the mold; then hook the Choker Tripping Tool (C-837) over the Choker Lever (C-854) and move the Choker back and forth, as explained under the caption "STARTING MACHINE FOR CASTING TYPE", to make sure no chilled metal remains in the nozzle. This should be done whenever the machine has been at rest for half an hour or more.

Do not turn machine over and permit the Pump-cam Lever (P-524) to drop when the pot is disconnected. The blow may break the lever. If the Pump Stop (P-682) beneath the lever is pressed inward when the lever reaches its full upstroke, it will support the lever and prevent damage.

If the old style Choker Cam (C-519) is set too far forward or too far back, it will not operate the choker valve in proper time to allow the pump to force metal into the mold. It can be readily shifted to find the best location.

There are adjusting screws for the right-hand Matrix-Carrier Slide (C-671). If the Matrix Carrier is not snug on the slides it will affect the alignment of the type. Do not touch the adjustment of the left-hand Matrix-Carrier Slide (C-670). It is for assembling purposes only, and must never be changed outside the factory.

There is a split bronze bushing and a small screw for adjusting same on the Matrix-Carrier aligning screw. This is for the purpose of taking up play in the screw. The nut in the top of the knurled knob can also be tightened to prevent the alignment changing.

The type-stripper Spring (R-679) must be set so as to engage all type as they are ejected. If it does not do so, the type may pull back into the mold and cause a "squirt". When it is acting properly, it will show a slight cut in the forward edge of the type about one point back. It should be set so as to project through the shoe about 1/32 of an inch.

The Nicking Tools (R-680) must not be turned over and should be set to cut but a slight groove in the type. Four different combinations are possible: one cast nick only; the forward tool only and the cast nick; the rear tool only and the cast nick, and both tools and the cast nick.

Never use pliers on the knurled screw heads. If wrenches or pliers were intended to be used, the heads would not have been knurled.

Do not leave the machine with the jet ejectors exposed to the flame of the metal-pot. Turn the machine so as to draw the ejector into the mold while it is not running.

If it becomes necessary to sharpen the Trimmer Knives, rub them across the surface of a large oil stone,

all teeth bearing at once on the stone. Grind off the back of the teeth so the cutting edges will be only one-sixty-fourth of an inch wide.

Narrow Thompson Matrices are used in the same manner as wide Thompson Matrices. It is only necessary to use the proper matrix-holder. The "C" block and, in addition, the number of points indicated on the back of the matrix are placed behind the lug of the set adjusting liner.

When the machine is equipped with the Micrometer Set Adjusting Device the Style "B" Matrix Holder for wide and narrow Thompson Matrices must be used.

The matrix carrier is pressed resiliently against the mold by a cushion spring located between the two parts of the matrix-carrier lever. The adjustment to press the matrix against the mold tightly is made by turning the screw on which the spring is placed. The nut on the other end of the screw must be kept tight, and when properly adjusted, the concave Washer under the head of the screw will be free when the carrier is pressed against the mold.

The tension of the friction drive can be increased by turning in on the threaded collar on the friction-plate shaft behind the machine. The tension of this, as of all other parts, should be only sufficient to do the work.

The mold can be quickly cleaned without removing it by raising the top mold-block and jet-block by means of the eccentric, then disconnecting the mold body plate pin (M-933) and taking off the nut and lock-nut (M-673) and (M-707) and removing the set-adjusting screw (M-674). The mold body and jet ejector are next removed and the set-adjusting liner clamping screw taken out. This Liner (M-905) and the Mold Body Piece (M-942) can now be drawn backward and removed from the mold, when the mold interior can be readily gotten at and cleaned.

FRICTION PLATE AND FRICTION WHEEL

The Friction Wheel (F-805) which has a Fibre Ring

(F-655) is mounted on the Friction Wheel Shaft (F-808); its periphery bears against the face of the Friction Plate (F-802) which is mounted on the end of the Friction Plate Shaft (F-833).

The Friction Plate (F-802) is held in contact with the Friction Wheel (F-805) by the Friction Plate Spring (F-824).

If the Friction Drive slips it may be due to oil or grease on the Friction Plate and the Friction Wheel, or the pressure of the Friction Plate against the Friction Wheel may require adjusting.

With a clean cloth saturated with gasoline or benzine, thoroughly clean off all grease from the Friction Wheel (F-805), the Fibre Friction Ring (F-655) and the face of the Friction Plate (F-802) and wipe perfectly dry with a clean cloth.

If, after cleaning, the Friction still slips it may be necessary to tighten the tension on the Friction Plate Spring (F-824), to increase the pressure of the Friction Plate against the Friction Wheel as follows:

With the Pin Wrench (E-981) turn the threaded Friction Plate Spring-Tension Adjusting Nut (F-827), which is on the Friction Plate Shaft-Bearing (F-822) behind the machine, to the right only a little at a time, until the pressure of the Friction Plate (F-802) against the Friction Wheel (F-805) is just enough to prevent slipping. The tension of this, as of all other parts should be only sufficient to do the work.

Also carefully examine the periphery, or face, of the Fibre Friction Ring (F-655) to see if there are any flat spots on it; if there are the Friction Wheel (F-805) must be taken out of the machine and the Fibre Ring faced off true in a lathe.

HOW TO REMOVE THE FRICTION WHEEL

To remove the Friction Wheel (F-805) plate 4.

proceed as follows: First loosen the Friction Plate Spring-Tension Adjusting Nut (F-827) on the Friction Plate Shaft Bearing (F-822) until all pressure against the Friction Plate Spring (F-824) plate 4, is entirely removed. Then cut a piece of wood just a little longer than the distance between the face of the Friction Plate (F-802) and the edge of the side door opening in the Machine Base (B-800), about four inches long will do; force this piece of wood between the face of Friction Plate and door opening to hold the Friction Plate away from contact with the Friction Wheel (F-805).

Now turn the Friction Wheel (F-805) plate 4, very slowly until, by looking through the lower front door opening of the Base (B-800), you can see the small end of the Taper Pin (X-119-4), which passes through the hub of the 4 inch Speed Gear (S-820) and the Friction Wheel Shaft (F-808). Then with a piece of brass rod, placed against the small end of the Taper Pin (X-119-4) drive the Pin out of the Speed Gear by striking the other end of the brass rod with a hammer; be careful not to bruise the end of the Taper Pin or it will not pass freely through the hole in the Speed Gear.

Next take out the Friction Shaft Bearing Set Screw (X-114-4) which holds the Friction Shaft Bearing Bushing (F-817) in the hole in the left hand side of the Base (B-800), loosen the Set Screw (X-114-5) in the Friction Wheel Shaft Collar (F-861), place a round piece of wood against the end of the Friction Wheel Shaft (F-808) on the hand Wheel side of the Base, and with a heavy hammer, drive the Shaft toward the other side; this drives out the Bushing (F-817) with the Shaft.

The Shaft may now be pulled out from the left hand side of the Base, care being taken to hold the Gears, Shaft Collar and Friction Wheel from falling on the floor of the Base and injuring them as the Friction Wheel Shaft (F-808) is pulled out of these.

After the Shaft is out, the Friction Wheel will rest on the inside bottom of the Base, with its Shaft bearing held in the hole of the Friction Wheel Shifter Yoke (F-946); now take out the three Friction Ring Shifter Yoke

Ring Retaining Screws (X-105-1) and lift off the Friction Wheel Shifter Yoke Retaining Ring (F-967); the Friction Wheel (F-805) can now be taken out of the Base, then placed on a Mandrel and the face of the Fibre Ring (F-655) turned off true in a lathe.

PRACTICAL AND METALLURGICAL POINTS REGARDING CARE AND HANDLING OF METALS.

Type metals are alloys of Tin, Lead and Antimony. The finest working type metal is that alloy of correct formula which most closely approaches a state of chemical purity. It is not commercially possible or practical to produce a metal that is 100% chemically pure. But every user of a THOMPSON TYPE, LEAD AND RULE CASTER should endeavor to use only such metal as will give the best results. The best type metal obtainable is none too good for a machine that is built with the accuracy and precision of the Thompson. Remember that the service results of a good metal will be in proportion to the care you give it in casting and remelting.

There are two fundamental reasons why type metals deteriorate while in use:

(1) The unbalancing of the proportions of Lead, Tin and Antimony, or, in other words, the changing of formulae.

(2) The introduction of impurities into the metal while it is being remelted and worked.

The unbalancing of the Lead, Tin and Antimony results generally from three causes:

(1) Skimming of metal when it is too cold. When molten type metal is maintained near the solidifying point there is a tendency for the tin and antimony to segregate at the surface. Skimming then takes off a greater amount of these two important ingredients. This is especially the case with metals having a high Tin and Antimony content.

(2) Oxidation or burning of Metal. Tin has a greater affinity for oxygen than Antimony, while Antimony

has a greater affin'ty for oxygen than lead. It follows, therefore, that when metal is overheated, the oxidation or dross formation which results from contact of air and surface metal in the pot, is greater than when the metal is run at its proper temperature. Therefore, in order to reduce this oxidation to a minimum and keep the metal in good condition for the longest possible time, it should be worked, both in the Typecaster and in the remelting pot, at the lowest temperature at which the best type can be cast.

(3) When a plant is using more than one grade of metal they may become mixed. The utmost care should be taken, therefore, not to mix the different grades, as such mixing will unbalance the proportion of Tin, Lead and Antimony and change the formulae.

IMPURITIES

Carelessness on the part of the workman when he throws the old metal into the remelting pot may result in zinc etchings, iron shavings or filings, sweepings or other impurities, which may also contain arsenic, being introduced and melted with the metal which will surely deteriorate the good metal mixture. Zinc causes the metal to be sluggish and gives poor faces and bodies. Zinc will also attack the plunger, choker and other parts of the typecaster pot mechanism.

Arsenic is an impurity often present in virgin, as well as in used metal, and cannot be removed in the printing plant. If the metal contains the impurity in excess of one-eighth of one per cent, the only remedy is to dispose of it to the refinery in exchange for new, clean, free-flowing metal.

FORMULAE

The following percentage of ingredients for metals for different classes of work will be found to give excellent service results:

Hard Foundry Type Metal for Roman Faces:

Tin	15%
Antimony	23%
Lead	62%
	100%

Metal for Italic and other faces that require Kerning or that Overhang, and for Metal Rule:

Tin	9%
Antimony	12%
Lead	79%
	100%

Metal for Spaces, Quads, Leads, Slugs and Rules:

Tin	6%
Antimony	12%
Lead	82%
	100%

In combining the lead, tin and antimony it is necessary to first melt the antimony at a high temperature so as to liquefy it thoroughly. Then the lead and tin should be melted separately and the antimony mixed with the lead and tin and the combination should then be thoroughly stirred from time to time over a period of three hours before the metal is finally cooled into pigs. The purpose of this is to see that the antimony is properly combined with the other metals because the percentage of antimony in this metal has been materially reduced beyond the usual percentage for type metal and this antimony must, therefore, be thoroughly combined with the other ingredients so that the type will not suffer through the reduction in the antimony.

THE RE-SMELTING IMPORTANT DETAIL

One detail, which is probably of the greatest importance and which has been most grossly neglected, is the care given the metal during re-melting and pigging. Many buyers are especially particular to purchase fine type metals, yet they overlook the fact that Metal is no better than its care.

As soon as the mass of type has been turned into liquid in the re-smelting furnace, examine the surface residue and immediately skim off any brass matrices or rules, as these contain zinc and are, therefore, detrimental to type metals.

It is an excellent idea occasionally to boil the metal which is done in the following manner: While the temperature of the metal is still low - that is to say, after it has reached a state of fluidity - attach a raw potato or a piece of green wood to the end of an iron rod. This should be attached with iron wire - under no circumstances should brass or copper wire be used. Plunge the potato or wood into the bottom of the metal, holding it there for five or ten minutes. The agitation or bubbling of the metal, which we call boiling, will bring impurities to the surface, break up the crystallization of antimony (which has been taking place while the metal has been previously remelted) and refine the metal.

Allow the metal to heat up until hot enough to brown an inserted strip of paper before skimming off the dross. Clean dross will harm nothing, as it acts as a non-conductor of heat, holding the heat in the metal, thus hastening its heating and economizing on time.

Then (if there is no danger of fire from adjacent walls) throw a half teacupful of ordinary machine oil or tallow upon the metal and quickly ignite it. While the flame burns, stir it vigorously in contact with the dross. Since dross is oxygen combined with metal, the flame will consume much of the oxygen and liberate the metal it held, which will pass back into the pot.

If enough stirring and oil flame are applied, the dross will be turned from a heavy metallic skimming into a fine brown powder and it should be skimmed into the dross drums and the pigs immediately poured. This will insure the pigs being cast from metal that has just been thoroughly stirred.

If, during the work of pouring pigs the workman is interrupted and it becomes necessary to leave the job, when going back to the job the metal should be again thoroughly stirred before doing any further pouring. If metal

is allowed to remain liquefied without stirring, the tin and antimony will rise to the top, like cream upon milk, and pigs poured from separated metal will cause trouble.

INSTRUCTIONS FOR OPERATING THE LEAD AND RULE CASTING DEVICE

Remove Matrix Carrier, Type-Mold, Vertical Mold Blade, Type Receiving Shoe, Type Receiving Plate, Type Stick, Foot Plow and Pedestal; Bronze Shoe and Pressure Adjusting Shoe beneath the Type Stick.

If the equipment for trimming type on all four sides is attached to the machine, this also must be removed.

To remove the Trimming Attachment, proceed as follows: Swing back the Metal Pot and remove the Nozzle Plate. Take out the screw that connects the Vertical Kerning Knife Link (35) to the Vertical Kerning Knife Lever (37) and put the screw back into the hole in the Vertical Kerning Knife Lever (37) so it will not be lost, then lift out the Vertical Kerning Knife Holder (26). Now take out the Knurled Head Screw (696) which holds the Upper Receiving Shoe (20) in position on the Mold Stand and remove the Receiving Shoe (20). Remove the Vertical Kerning Knife Spring (42) and Cam Lever Spring (54), take out the Hexagon Head Screw that holds the Vertical Kerning Knife Lever (37) in place and remove the Housing Cover (48) by taking out the four screws that hold it to the Vertical Kerning Knife Lever Housing (47) and lift out the Lever (37) and Lever Link (41). The two flat head screws that hold the Housing (47) to the side of the machine Base must then be taken out with a good screw driver and the Housing (47) removed. With a good screw driver now remove the Vertical Kerning Knife Spring Stud (43), then take out the Hexagon Head Screw that passes through the end of the Cam Lever (50) and the Hexagon Head Screw that holds the Bell Crank (61) in position and remove the Cam Lever (50) and Bell Crank (61) both of which are held together by the Connecting Rod (59). The Stationary Jet Breaker (64) should then be removed by taking out the two flat head screws that hold it to the Mold Stand. Then drew the Extractor Slide out of the Receiving Plate (12) and take out the two screws that hold this Plate on the Mold Stand so that Receiving Plate (12) may be removed

from the machine. The Cam (49) is then removed by taking out the screw that passes through it into the end of the Cam Shaft. Be careful to put all the Trimming Attachment parts into a box of some kind so nothing for the equipment becomes lost.

To remove Type Mold and its Vertical Mold Blade, proceed as follows:

First remove Matrix Carrier (A-8), Nozzle Plate (H-639) and Type Receiving Shoe (A-14). Then loosen the Vertical Mold Blade Adjusting Screw (V-646) plates 1 and 2, the head of which, in some models, is located in the end of the Mold Stand (N-502) immediately under the Type Stick; while in other models it is located on the front of the Mold Stand immediately to the left of the Matrix Carrier Slide (G-670). Now loosen the Hexagon Nut on the knurled head Upper Adjusting Screw (V-684) that passes through the top of Vertical Mold Blade Cam Lever (V-525), then raise the Vertical Mold Blade Lever Yoke (V-511) and slide the Vertical Mold Blade Lever (V-512) to the left as far as it will go, this draws the Vertical Mold Blade Lifting Block (V-615) out of the recessed portion of the Vertical Mold Blade (V-612 or V-613), and lift out the Vertical Mold Blade. CAUTION: On the right hand end of the Mold Stand (N-503) immediately under the Mold (A-13) is the Mold Locating Screw (M-983). This screw is NOT to be disturbed when the Mold is removed from the Mold Stand as it is adjusted at the factory to hold the Mold in its correct position in relation to the Matrix Carrier. Next loosen the small screw that passes downward through the back right hand end of the Mold Body Plate (M-942) and withdraw the Mold Body Plate Connecting Pin (M-933), this disconnects the Mold Body Plate Adjusting Screw (M-674).

Now loosen the knurled head Mold Block Adjusting Screws (M-683 and M-693) and the Jet Block Adjusting Screws (J-650 and J-691), that pass through the Mold Stand Cap, until the ends of these Adjusting Screws are even with the underside of Mold Stand Cap. Insert large end of Pin Wrench (E-981) in the hole in Mold Top Block Adjusting Eccentric (M-898) and Jet Block Adjusting Eccentric (J-897) and turn each Adjusting Eccentric to the right until the Mold Top Block and the Jet Block are brought up against the Mold

Stand Cap. Now insert the sharp end of the Body Lifting Tool (M-932) in the groove on underside of Mold Body (M-934) raising it by a slight downward pressure on the outer end of the Mold Body Lifting Tool, push the Mold Body forward toward the left, take hold of it with the fingers and remove it from the Mold; now remove the Jet Ejector in the same manner.

Remove the Mold Body Plate (M-942) by drawing it to the right out of its bearings in the Mold. With the small screw driver remove the four Mold and Jet Block Lifting Stud Nuts (M-939), next take out the four Mold Stand Cap Screws (N-872) and lift the Mold Stand Cap (N-910) with the left hand, high enough to enable you to remove the Mold and Jet Block Lifting Yokes (J-937).

The Mold can now be lifted out of the Mold Stand. Should the Mold fit very tight in the Mold Stand care must be exercised in removing it, use only a piece of brass rod or a hard wood stick for a lever to raise the Mold out of its position. Place the Mold on the bench and lift out the Mold Top Block (A-11) and the Jet Block (A-12). Be very careful not to damage any of the parts in doing this, use only a piece of brass rod or a hard wood stick for a lever to raise the parts out of the Mold. Flush all the Mold Parts with benzine or gasoline and wipe them clean, also run a piece of wire into the oil hole that runs from the front of the Mold Bottom Block (A-9) through it to the lower felt pad, to be sure oil will flow freely through it to lubricate the side of the Vertical Mold Blade (V-612 or V-613) and the end of the Mold (A-13) where they come in contact one with the other.

After thoroughly cleaning all the Mold Parts wipe them with a piece of clean cloth dipped in fine lubricating oil and assemble the Mold ready to put it on the machine.

The Pin, 5/16" diameter, the forward end of which is located about 2 inches below the Matrix Carrier Rail, must now be driven back and out of the Mold Stand, and the Bronze Shoe used with the Type Mold taken out. Now place the special Bronze Vertical Mold Blade Shoe (1093) in position, using the special flat headed pressure screw in place

of the knurled head screw which is used with the Type Mold, then put the Lead, Slug and Rule Mold Vertical Blade (1092) into its place in the Mold Stand, but do not adjust the Vertical Blade until the Mold is in position.

NOTE: When the Vertical Mold Blade Adjusting Screw (V-646) plates 1 and 2, is located on the front of the Mold Stand immediately to the left of the Matrix Carrier Slide (G-670) it need not be replaced with another one as the same Adjusting Screw is used for both the Type Mold Vertical Mold Blade and the Lead, Slug and Rule Mold Vertical.

Place the Lead, Slug and Rule Mold into the Mold Stand. Be sure the Mold, Vertical Mold Blade and Mold Stand are perfectly clean, and push it as far to the left as it will go. Be sure the bottom of the Mold is down flat on the Mold Stand, the left hand end of the Mold should now abut firmly against that part of the Mold Stand from which the Type Receiving Shoe has been removed, while the other end of the Mold must be under the head of the Mold Locating Screw, which is in the right hand end of the Mold Stand.

If there is any play of the Mold between the head of the Mold Locating Screw and the higher part of the Mold Stand at its other end it will be necessary to tighten the Mold Locating Screw so that the Mold cannot be moved back or forward; it is rarely however that this adjustment need be made because the length of the Lead, Slug and Rule Mold is usually made that it will fit between the parts above mentioned without any extra adjustment. Place the Lead, Slug and Rule Cap (1082) in position on the Mold Stand and use the four fillister head cap screws that are used on the Type Mold Cap; tighten these screws firmly.

Now adjust the Vertical Mold Blade (1092) by first tightening the special flat headed pressure screw in the left hand end of the Mold Stand, or the regular Vertical Mold Blade Pressure Screw located in the front of the Mold Stand, so the Bronze Shoe will hold the Vertical flat against the end of the Mold sufficiently tight to prevent any leakage of metal between the Vertical and the Mold while casting strip material.

Next, connect the Vertical Mold Blade Lever (V-512) and turn the Cam Shaft until the Vertical is at

its highest point. In this position the upper end of the Vertical should be about .002" (a paper thickness) below the Rule Matrix when that is in casting position. This adjustment is made with the two screws, one of which passes through the top downward, and the other through the bottom upward, of the Vertical Mold Blade Cam Lever (V-525). The ends of the screws must be tightened and locked firmly against the projecting Lug of the Vertical Blade Lever (V-512) after the adjustment has been made. If the Vertical is set too high, it will strike the Rule Matrix and damage it; if too low, there will be a leakage of metal between the Upper end of the Vertical Mold Blade (1092) and the Matrix.

After the above adjustments have been correctly made, the hexagon head adjusting screw (V-984) must be very carefully adjusted by first releasing and then tightening it until it gently presses the Vertical Mold Blade Supporting Plug (V-960) against the lower right hand side of the Vertical Mold Blade (1092), as explained under the caption, "ADJUSTING VERTICAL MOLD BLADE" in the instruction book. Be very careful not to force the Brass Plug (V-960) too tight against the Vertical Mold Blade (1092) or it will push the lower end of this Vertical Mold Blade too far to the left and if it is too loose it will allow it to shift too far to the right and throw its upper end out of proper contact with the end of the Lead, Slug and Rule Mold, thereby causing a fin or burr on the Jet of the strip material being cast.

Release set screws in bearing of Cam Lever Shaft (K-585) and drive shaft to the right far enough to mount the Cutter-Cam Lever (1341) and the Stud (1342) in left hand bearing, then tighten the screw in the right hand bearing to prevent the Cam Lever Shaft (K-585) from shifting and tighten the screw in the left hand bearing to hold the cutter-cam Stud (1342) firmly in its place.

Place Lead, Rule and Slug Receiving Block (1104) plate 10, in position, using the two knurled screws (S-69) taken from the Type Receiving Shoe to hold it.

Connect Body Blade Link (1004) plate 10, to Mold Body Adjusting Screw (M-674). Turn machine over by hand and set the Adjusting Nut (M-673) on the Body Adjusting

Screw (M-674) so the rear wall, or cross piece, of the Mold Body, when at the end of its forward stroke, can be seen projecting not more than two points beyond the jet opening in the Mold Back Wall where the Metal enters the Mold. This adjustment is of the utmost importance for unless it is made exactly right, it will be impossible to cast strip material with a good weld or fuse at the joint, especially 2 point leads or 2 point rule. When this adjustment is correctly made, lock the front Knurled Nut (M-675) on the Adjusting Screw (M-674) by tightening the Locknut (M-707) firmly against it.

Adjust the back stroke of the Body Blade Link so that the section cast will be about 1" long for Leads and Slugs, and 21/32" long for Rule. Set the back-stop finger (1161) plate 10, by first loosening the Screw that passes through the lower forward side of the Stroke Adjusting Back Stop Finger (1161) against the Stroke Adjusting Finger Guide Stud (1088) plate 10, and then turning the Stroke Adjusting Thimble (1085) until the Back Stop Finger (1161) is in contact with the Body Blade Link (1004) when the Mold Body is in casting position at the end of its backward stroke. Lock the Back Stop Finger (1161) securely by tightening the Screw against the Stroke Adjusting Finger Guide Stud (1088); now adjust the long Knurled Nut (M-708) so it will just hold the Body Blade Link (1004) against the Back Stop Finger (1161) without springing it while the Mold Body is in its casting position, then place the Special Knurled Nut, furnished with the Lead and Rule Equipment, on the end of the adjusting Screw (M-674) and with it lock long Knurled Nut to prevent it from working loose.

NOTE: When the machine is equipped with the Micrometer Set Adjusting Device the Back Stop Finger is not furnished with the Lead and Rule equipment because the Micrometer Set Adjusting Device is used instead of the Back Stop Finger. Adjustment of the back stroke of the Body Blade Link is made much easier with the Micrometer Set Adjusting Device than is possible with the Back Stop Finger.

When these adjustments are correctly made there will be considerable play on each side of the upper end of the Mold Body Lever (M-720) between the Locknut (M-675) and the long Knurled Nut (M-708), but the length of section cast must be as above stated in order to obtain good results.

Replace Foot Flow Bracket (T-976) with the Knife Block Set Screw Bracket (1090) plate 11, that fits in the same slot in the Mold Stand and adjust screw running through upper end of said Bracket (1090) so the end of this screw bears against the lower end of the Trimming Knife Block (1105) plate 11, just enough to hold it from being forced backward as the strip material is trimmed in passing the Trimming Knife (1106) plate 11.

The Trimming Knife (1106) on the Trimming Knife Block (1105) must be adjusted so that it will trim the jet even with the surface of the strip without removing any metal other than the jet, and not cutting any deeper at either the upper or lower edge. This Knife is correctly adjusted at the factory.

Should it become necessary to adjust the Trimming Knife (1106), remove the Trimming Knife Block (1105), and adjust the Knife so that its cutting edge will be exactly even or level with the upper and lower edges of the inside of said Block (1105). This Block is slightly recessed as wide as the rule height so the strip material will pass through freely after it has passed the Trimming Knife.

By setting the cutting edge of the Knife even with the inside edges on each side of the recessed portion of the Block, the Trimming Knife (1106) will project .001" beyond said recessed portion, and trim the strip material correctly.

To place the Cutter Operating Cam (1131) plates 10 and 11, on the end of the Cam Shaft (K-579) from which you removed the Trimming Cam (49) proceed as follows: Turn Cam Shaft (K-579) in the casting direction very slowly until the Pump Lever (P-524) drops into the recessed portion of the Pump Cam (P-510), and then turn it backward until the Pump Lever abuts firmly against the straight side of the Pump Cam (P-510) opening. Next, place the Cutter Operating Cam (1131) on the end of the Shaft by pushing the dowel pins that are in the Cam (1131) into the holes in the end of the Cam Shaft (K-579) so as to bring the point, or highest part, of the Cam (1131) to point toward the rear of the machine; now pass the 1/4"-20 screw through the center hole in the Cam and screw it tight.

The Cutter Cam Roller Bar Guide (1329) plate 11, must now be attached to the base at the place provided for it, the narrow end of the Cutter Cam Roller Bar (1353) plates 10 and 11, placed therein and the other end attached to the Cutter Cam Lever.

There are two bracket Brace Rods, each made up of two pieces Nos. (1164 & 1165) and a Turnbuckle (1166) plates 10 and 11, they are marked at both ends to show where they are to be attached. Alongside of the holes in the side of the base, numbers are stamped to correspond with the numbers stamped on the end of the Bracket Brace Rods, while the numbers stamped on the other ends of these Rods designate their position under the Cutter Bracket as follows: That end of the Bracket Rod with the figure "0" is to be attached to the Bracket where it is marked "0" near the screw hole in the bracket, and is the Upper Rod; the end of the Rod marked "1" is to be attached to the Bracket below the Upper Rod and is the Lower Rod, the other ends of the Bracket Brace Rods must be attached to the upper base so the numbers 2 and 3 correspond with the same numbers stamped near the holes in said Upper Base.

Attach the cutter to left hand end of Mold Stand by first putting the Screws through the holes in Cutter Bracket Plate into the holes in Mold Stand. While doing this, a support of some kind must be placed under the Cutter Bracket (1334) plates 10 and 11, at its extreme left hand end to prevent straining or springing the Cutter Table (1336); now adjust the three nuts on the three screws in left hand end of Mold Stand and the Bracket Brace Rods (1164) and (1165) that run from the Cutter Bracket to the side of the Machine Base, so that the Bracket Table is level and the Gauge Rod (1351) plates 10 and 11, to which the Gauge Finger (1375) is fastened will move freely back and forth without binding. Place the 3/8" Finger Guide Stud (1088) plate 10, in the hole provided for it in the right hand end of the Mold Stand (N-502) and fasten it in position by tightening the hexagon nut firmly against the Mold Stand (N-502), then put the 1/4" Stroke Adjusting Stud (1087) plate 10, to which is attached the Backstop Finger (1161) and the Stroke Adjusting Thimble (1085), into the hole above the 3/8" Finger Guide Stud (1088) and lock it in place by tightening its hexagon nut against the Mold Stand.

Put the glass barrel Oil Cup, furnished with the Lead, Slug and Rule Equipment, in position on top of the Mold Cap (1082) plate 11, and place the wire beneath it so it will feed oil, about one drop a minute, onto the upper end of the Vertical Mold Blade from which it will flow into the Mold Jet Cavity and lubricate the Vertical Mold Blade (1092) where it is in contact with the Mold.

Set the Gauge Finger (1376) plate 10, to cut any desired length of strip material required by adjusting it the required distance from the Cutter Knife, so that the Gauge Finger, as the strip material comes in contact with it, will actuate the Cutter through the Gauge Rod (1351).

Put Nozzle Plate (H-639) in place and lock the Pot in casting position. This is important. Then loosen the adjusting screw behind the Pot and the two screws which hold the Pot in place on the Yoke, and the screw which holds the Choker Lever in place. Push the entire Metal Pot to the left or to the right far enough so the jet opening in the Mold will pass directly across the center of the hole in the Nozzle Plate when the Pot is locked against the Mold in its casting position. It may be necessary to make this adjustment several times before it is exactly right, but it must be correct in order to insure the successful fusing, or welding, of the sections as they are cast. This pot adjustment is made with the two very large head screws in the Pot Yoke, one on each side of the Pot. Be sure to tighten all screws that hold Pot and Choker Valve Lever before beginning to cast.

Several strips of Leads, Slugs and Rule are furnished with each equipment. To get a start in casting, it is necessary to insert a short strip of this material of the proper size into the open end of the Mold to prevent molten metal from being forced out of the Mold cavity.

A Stripper Cam (1108) is located in a slot in the end of the Knife Block (1105) and is held in position by a knurled head Pin which passes through a hole in the Knife Block (1105), from the top, and through a hole in the Stripper Cam (1108), a flat Stripper Cam Spring (1109) plate 11, actuates the Stripper Cam.

This Stripper Cam prevents the strip material from being drawn back into the Mold Body during its backward stroke.

Care must be taken that this Stripper Cam is in its operating position while inserting the strip material necessary to begin casting Leads, Slugs or Rule.

While inserting the strip of material, through the Cutter from the Cutter Table (1336) into and through the cavity between the Trimming Knife Block (1105) and the Receiving Block (1104), it is necessary to hold the Stripper Cam (1108) in position by pushing the end of it, that extends beyond the end of the Trimming Knife Block (1105), back against the Stripper Cam Spring (1109), with a thin piece of brass o.' the small screw driver, far enough to permit the strip being inserted to pass freely between the eccentric end of the Stripper Cam (1108) and the inner wall of the Receiving Block (1104) and into the Mold.

After the strip of material is in casting position allow the Stripper Cam end to come forward, the eccentric end of the Stripper Cam (1108) will then hold the Lead, Slug or Rule being cast from returning or being pulled back into the Mold.

To cast Rule: Replace Lead or Slug Mold Body with Rule Mold Body of the desired size. Place Rule Matrix, plate 11, in position, being sure those parts of the Mold, called the Matrix Chamber, into which the Matrix fits are perfectly clean, and then insert the fillister head screw through front of Mold into the threaded hole in the side of the Matrix, drawing it up only slightly, then turn knurled head screw (1083) down on top of Matrix, but only tight enough to hold the Matrix snug against the top of the Mold Body. Now tighten the fillister head screw from the front of Mold to draw the Matrix firmly against the flat side of the Matrix Chamber, and do not fail to put a few drops of oil into the oil groove on the forward side of the Matrix where it is held against the Matrix Chamber.

When changing the bodies from one thickness to another (as, for example, from 2 point to 4 point) it is

necessary to change the Liner that fits under the stationary knife, and the Liner that fits into the Receiving Block (1104), so the opening through which the strips pass will be the correct size in both the Receiving Block and between the stationary and movable knives on the cutter. These Liners are marked to designate the sizes for which they are to be used.

Although Linotype metal may be used for casting strip material, better results are obtained by using a metal mixed according to the following formula:

Tin	6%
Antimony	12%
Lead	82%
	100%

The temperature of the metal when casting leads and slugs should be not less than 650 degrees Fahrenheit, but when casting 2 point rule with hair line face, the temperature should be about 800 degrees Fahrenheit. The speed for casting 2 point leads and 2 point rule should be not less than 80 revolutions per minute to insure good fusing and good sharp face; this speed must be reduced as the size (thickness) being cast is increased.

Lock the Metal Pot in its casting position for a few minutes before beginning to cast, in order to heat the Mold sufficiently so the section will weld or fuse. Be sure to shut off the water during the time the Mold is getting warm, and turn on and regulate the flow of water to get the best results after the machine is started.

DRESSING, KERNING AND BEARDING TYPE ON THE THOMPSON TYPECASTER

The part numbers for the Dressing, Kerning and Bearding attachment appear on plates 27 and 28.

As the type is ejected from the Mold by the Body Blade it is pushed to the left into the Vertical Carrier where it is held firmly between the Vertical Mold Blade Type Support (2) and the Vertical Mold Blade Bridge (6) by two

Stripper Spring Pins that pass through the Bridge. It is then carried upward past the Stationary Jet Breaker (64), where the Jet is removed, until the Vertical Mold Blade with its type Support and Bridge are in casting position. While in this position the next type is cast in the mold.

During the upward movement of the type, the Extractor Slide (14) moves to the right bringing the Extractor close to the Vertical Mold Blade so that the Vertical Mold Blade, when it descends to its normal position, brings the type in front of the type Receiving Shoe (20) into which it is pulled by the Extractor; at the same time, the type that was cast while the one about to be trimmed was in its highest position, is ejected from the Mold.

As the type is pulled through the Receiving Shoe, the face end of the type passes between the Upper and Lower Dressing Knives (21 & 13), where it is trimmed before it reaches the left end of the Receiving Shoe. Here it is held firmly between the Upper and Lower Receiving Shoe by two Stripper Spring Pins, and while in this position the Vertical Dressing Knives (27 & 28) descend and trim the type on both sides.

Now the Extractor Slide (14) moves to the right, but the trimmed type still remains in position where its sides were dressed until the next type that was cast is pulled into the Type Receiving Shoe; but before this next type reaches the end of the Receiving Shoe where it is to be dressed, the last type dressed is pulled out of the way by the Extractor Slide Trip Latch (17).

All adjustments for casting and dressing type are correctly made on each machine before it leaves the factory. Samples of type dressed and cast will be found in the Receiving Shoe on the machine. We suggest that the operator closely study the movements of the different parts of the Trimming Attachment before making changes to another size body or set.

EXTRACTORS

Four Slide Extractors are furnished with each equipment. The shortest one must be used when dressing 6, 8 or 10 point type; the next size is for dressing 12,

14 or 18 point; another one for dressing 24, 30 and 36 point, and the longest one for dressing 42 and 48 point. Each one is marked with figures to designate the various sizes of type for which it is to be used. One of these Extractors is fastened with a screw to the right or inner end of the Extractor Slide (14).

ADJUSTMENTS

When changing from one size body to another, first swing back the Metal Pot; loosen the fillister head slotted locking screw that passes through the upper end of the Vertical Mold Blade Type Support (2) and turn the Knurled Head Adjusting Screw (5), that extends beyond the extension, to the left until the Vertical Mold Blade Bridge (6) is raised as high as it will go; then remove the Upper Type Receiving Shoe (20) which is held in position by one knurled head screw. Remove the Extractor Slide (14) if the Extractor on its end is to be changed for one that is longer or shorter. The Extractor Slide is removed by taking hold of it with the right hand and with the left hand pulling the upper end of the rear Bell Crank (61) to the left until the extending pin that connects the Slide with the Bell Crank is pulled out of the slot in the upper end of said Bell Crank (61).

Before putting the Upper Receiving Shoe (20) back on the machine, the Mold Body Blade must be changed in the usual manner, the Matrix placed in position in the Carrier and all adjustments made for casting type. Now lock the Pot in its casting position and cast two or three type by hand. Swing back the Metal Pot away from the Mold. Next, place two type on the Lower Receiving Plate (12) with a thin piece of tissue or cigarette paper under each type. The type must be spaced far enough apart so that a type will be under each end of the Upper Receiving Shoe (20). Press the shoe down onto the type by hand and tighten the knurled head screw that holds it in place, very firmly with the pin wrench. The tissue paper is put under for the purpose of preventing the type that is subsequently cast, from sticking between the Upper and Lower Shoe, because those types will be hot and consequently a little larger in size before they are cooled off. The tissue paper will pass out of the Receiving Shoe automatically as the types are being cast.

After the Upper Shoe has been adjusted, and before casting, bring the Vertical Mold Blade down into its lowest position; then turn the Knurled Head Screw (5) so as to bring the lug on the side of the upper end of the Vertical Mold Blade Bridge (6) down tight on the highest part of the Upper Receiving Shoe (20). Now turn this same knurled screw backward a half turn, then tighten the fillister head locking screw. This must be done so that the coil spring which is located inside the upright portion of the Vertical Mold Blade Bridge (6) will have just enough tension to hold the type firmly between the Vertical Mold Blade Support and the Bridge as it is carried up and down.

It is very important that all of the working parts of the device be kept very clean because the least bit of dirt or metal accumulation will cause trouble. Also be sure that you get a full solid cast the first few types that are started through the Receiving Shoe, if these types are hollow, the pressure of the extractor will cause them to be started improperly through the Receiving Shoes and the succeeding types will follow in the same manner.

DRESSING KNIVES

There are four Dressing Knives; one is located in the Upper Receiving Shoe (20), one in the Lower Receiving Plate (12) and two are attached to the Vertical Dressing Knife Holder (26).

The Dressing Knives in the Upper Receiving Shoe and Lower Receiving Plate have three teeth each. They are adjusted so the end of the teeth are even or level with the flat sides or inner surfaces of the Receiving Shoes (12 & 20). For Kerning type, knives with beveled sides of the knife teeth that have the proper angle for trimming or undercutting the character on the type, are furnished. These are called Kerning Knives and are adjusted in the same way as the Dressing Knives.

The two Vertical Dressing Knives (27 & 28) attached to the Vertical Dressing Knife Holder (26) have two teeth each. One of these knives is fastened to the right side of the Holder and need never be moved, no matter what size type

are to be dressed. The other, which is the adjustable knife, is held in position by two long screws that pass through two holes in the shank of said knife, into two tapped holes in the shank of the other knife, and hold it and the Space Plates (29) in position on the Holder (26). For Kerning type the knives with beveled teeth must be used and adjusted the same way as the Dressing Knives.

BEARDING TYPE

When the printing-face of the character projects set-wise or body-wise beyond the stem of the type, it is said to beard, and the projecting portion must be "bearded"; this means that the sides of the character must be trimmed flat or parallel with the body, while the adjacent type must have the shoulder of the body cut or trimmed off square, so that it does not, when set up, foul the side or bottom of any character to which it may be adjacent. The "Bearding Knives" are attached, one to the Lower Receiving Plate (12), the other to the Upper Receiving Shoe (20), each has two teeth and each must be adjusted to trim or beard the shoulder end of the body and the sides of the character; to do this, proceed as follows:

Remove the Upper Receiving Shoe (20) then cast one type by hand and take it out of the Vertical Carrier, place it on the Lower Receiving Plate (12) so the character overhangs the lower Bearding Knife (13) and adjust this Knife so the upper ends of the teeth will trim off the bevel or inclination on the upper side of the character without cutting into the face of the type.

Now place the type on the Upper Receiving Shoe (20) with its nick fitting over the nick in the Shoe and adjust the Upper Bearding Knife (21) the same as the Lower Bearding Knife (13).

Put the Upper Receiving Shoe (20) back on the machine and make all adjustments thereof as explained in the second paragraph of this article under the section "ADJUSTMENTS". When the knives (13 & 21) are adjusted as explained above they will trim off the shoulder end of the type and beard the sides of the characters so they will fit closely together without fouling one with the other.

When changing from one set-wise type to another, the number of points of the set-wise size of type to be dressed, must be made up by placing the required number of Space Plates (29) to equal the width of the type in points, between the shanks of the two Dressing Knives (27 & 28). (The figures stamped on these Space Plates designate their thickness). The remaining Space Plates must be placed on the other side of the adjustable Dressing Knife so all the Space Plates are always on the Vertical Dressing Knife Holder (26).

Turn the machine over slowly by hand for several revolutions to make sure that all adjustments work freely. Then lock the Pot into casting position; cast a few type by hand so as to be sure all adjustments are properly made and then turn on the power and operate the machine in the usual manner.

ADJUSTING VERTICAL DRESSING KNIVES

If at any time the sides of the type show that the Vertical Dressing Knives are cutting more on one side than the other it indicates that the Extractor Slide (14) is not correctly set; to remedy this, proceed as follows:

Remove the screw that holds the Vertical Dressing Knife Link (35) to the Vertical Dressing Knife Lever (37). The Vertical Dressing Knife Holder (26) can then be moved up and down by hand. Next, remove the Upper Receiving Shoe (20). Now place a type of the set-wise size to be dressed on the Type Receiving Plate (12) and turn the Cam Shaft over by hand until the arrow on Cam (49) points straight down. The type must be held firmly against the Extractor so as to take up any lost motion there may be in the different parts. Then bring the Vertical Dressing Knife Holder (26) down to the type by hand, being sure that the Space Plates between the Vertical Dressing Knives equal the set-wise size of the type. Loosen the nuts on upper and lower ends of the Connecting Rod (59) and turn said Connecting Rod, either to the right or to the left until the Extractor Slide brings the type in proper position for dressing even on both sides.

Now replace Upper Type Receiving Shoe (20) and the Vertical Dressing Knife Holder (26) as explained in the previous sections.

When the THOMPSON TYPECASTER is equipped with the Lead, Slug and Rule Attachment as well as the Trimming Attachment, it will be necessary to remove the entire Trimming Device in order to attach the Lead, Slug and Rule Equipment. How to do this is explained in the article captioned "INSTRUCTIONS FOR OPERATING THE LEAD AND RULE CASTING DEVICE".

When replacing the Trimming Attachment, care must be taken to put the Trimming Attachment Cam (49) correctly on the left outside end of the Cam Shaft.

This Cam (49) has an arrow marked on its outside flat side. When putting it in position, first turn the Cam Shaft of the machine in the clock-wise direction until the Vertical Mold Blade has just reached its lowest, or normal, position; then place the Cam on the end of the Cam Shaft by putting the two pins which project beyond the inside flat side of the Cam into the two holes in the shaft so the arrow on the outside, flat side, of said Trimming Attachment Cam points upward.

REMOVING TRIMMING ATTACHMENT AND ADJUSTING MACHINE FOR CASTING SPACES AND QUADS

When a THOMPSON TYPECASTER is shipped with the Kerning Attachment, all adjustments for casting and kerning type are correctly made. Samples of types cast and kerned will be found in the Receiving Shoe on the machine.

We suggest that the operator closely study the movements of the different parts of the Kerning Attachment before making changes to another size body.

When spaces and quads are to be cast, the Kerning Attachment must be removed from the machine. Also take out the Vertical Mold Blade with its type support and Top Bridge which are all fastened together, and put in its place the plain Vertical Mold Blade; but do not disturb the Type Mold as this may be left in position when changing the Vertical Mold Blade.

Remove the rigid Jet Breaker, which is fastened to the Mold Stand, as this can be used only with this Attach-

ment, and fasten the regular Jet Breaker to the Pump Lever Link with two screws in the place provided for it on the Pump Lever Link.

Put the Lower Type Receiving Plate and Upper Type Receiving Shoe in place on the Mold Stand. The quad Trimming Knife, which is attached to the Lower Type Receiving Shoe must be in place on said Shoe before it is put onto the Mold Stand.

When a machine is equipped with a Quick Change Foundry Style Matrix Holder, this must be removed from the Matrix Carrier as explained in a preceding article under the caption, "TO REPLACE FOUNDRY STYLE MATRIX HOLDER WITH HOLDER FOR SPACE AND QUAD MATRICES".

Select Space and Quad Matrices required to make up the setwise size of the quads, that you wish to cast (all space and quad matrices are stamped with figures designating the body and setwise size for which they are intended); place these matrices in position in the carrier, hold them in place with the Space and Quad Matrix Clamp, place the Carrier in position on the machine and make all adjustments as explained under "QUAD AND SPACE MATRICES".

AMERICAN SYSTEM OF TYPE BODY DIMENSIONS

The following table gives the equivalent of the various points in thousandths of an inch.

Points		Points	
½	.00346	15½	.21452
½	.00692	16	.22144
1	.01384	16½	.22836
1½	.01730	17	.23528
1½	.02076	17½	.24220
2	.02768	18	.24912
2½	.03114	18½	.25604
2½	.03460	19	.26296
3	.04152	19½	.26988
3½	.04498	20	.27680
3½	.04844	20½	.28372
4	.05536	21	.29064
4½	.05882	21½	.29756
5	.06228	22	.30448
5½	.06920	22½	.31140
5½	.07266	23	.31832
6	.07612	23½	.32524
6½	.08304	24	.33216
6½	.08996	25	.34600
7	.09688	26	.35984
7½	.10380	27	.37368
8	.11072	28	.38752
8½	.11764	29	.40136
9	.12456	30	.41520
9½	.13148	31	.42904
10	.13840	32	.44288
10½	.14532	33	.45672
11	.15224	34	.47056
11½	.15916	35	.48440
12	.16608	36	.49824
12½	.17300	38	.52592
13	.17992	40	.55360
13½	.18684	42	.58128
14	.19376	44	.60896
14½	.20068	46	.63664
15	.20760	48	.66432

The American Standard Height of Type is .918"

"DIDOT" TYPE BODY DIMENSIONS

The following table gives the equivalent of the various Didot points in thousandths of an inch:

Points	Didot
1	0.0148
2	0.0296
2½	0.0370
3	0.0444
4	0.0516
4½	0.0592
5	0.0666
5½	0.0740
6	0.0814
6½	0.0888
7	0.0962
8	0.1036
9	0.1184
10	0.1332
11	0.1480
12	0.1628
14	0.1776
16	0.2072
18	0.2369
20	0.2665
22	0.2961
24	0.3257
28	0.3553
30	0.4145
32	0.4441
36	0.4737
40	0.5329
42	0.5625
44	0.6218
48	0.6514
	0.7106

"Didot" height of type is .0918"

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B	Base Group	Plate 23
C	Choker Group	" 18,22
E	Miscellaneous	" 20,22,26
F	Friction Group	" 12,15
G	Matrix Carrier Group	" 7,8,9,16
H	Metal Pot Group	" 21,18,19
J	Jet Group	" 6,17,23
K	Cam Shaft Group	" 15,20
L	Type Aligning Group	" 6
M	Mold Group	" 6,7,16,17,23
N	Mold Stand Group	" 17
P	Pump Group	" 18,19,20,21
R	Type Receiving Group	" 6,20
S	Speed Changing Group	" 13,14
SK	Electric Metal Pot Group	" 25
T	Type Trimming Group	" 6
V	Vertical Mold Blade Group	" 6,15,17,23
	Micrometer Set Adjusting Device	" 9

NUMERICAL INDEX TO ILLUSTRATIONS OF PARTS AND SUPPLIES FOR THE THOMPSON TYPE LEAD AND RULE CASTER

Detail Number	Illustration on Plate No.	Name of Part
C-413	20	Choker Cam
H-415	19	Pot Adjusting Screw
H-416	18	Pot Adjusting Screw Pins
H-417	18	Rear Pot Adjusting Pin
M-502	1-2-17	Mold Stand (R.H.)
M-503	1-17	Mold Stand (L.H.)
K-504	5-15	Cam Shaft Bearing (R.H.)
K-505	5-15	Cam Shaft Bearing (L.H.)
H-506	1-2-19	Pot Yoke
V-509	3-5-20	Vertical Mold Blade Cam
P-510	3-5-20	Pump Cam
V-511	1-15	Verbical Mold Blade Lever Yoke
V-512	1-2-15	Vertical Mold Blade Lever
M-513	3-5-20	Matrix Carrier Cam
H-514	19	Burner Top Plate
M-515	3-20	Mold Body Cam
M-516	3-5-20	Mold Body Auxiliary Cam
H-518	19	Burner Mixer
C-519	22	Choker Cam
M-520	1-2-16	Mold Body Lever
M-521	1-2-5-16	Mold Body Cam Lever
C-523	1-5-15	Choker Cam Lever
P-524	5-15	Pump Cam Lever
V-525	1-5-15	Vertical Mold Blade Cam Lever
P-526	1-2-18	Pump Lever Link
C-527	1-2-18	Choker Lever Link
C-529	2-19	Pump Link & Choker Bracket Plate
C-530	1-2-18	Choker Spring Rod Adjusting Stud
C-531	18	Assembled Choker
C-532	22	Choker Valve Fork
C-534	1-2-18	Choker Valve Lever
M-535	16	Mold Body Cam Lever Roller Stud
G-536	15-16	Matrix Carrier & Vertical Mold Blade Cam Lever Roller Studs
P-537	1-2-18	Pump Lever
S-541	4-5-23	Hand Wheel
P-544	18	Pump & Choker Lever Link Pins
B-545	2-21	Water Drain Cup

Detail Number	Illustration on Plate No.	Name of Part
V-546	15	Vertical Mold Blade Lifting Block Stud
P-548	1-19	Pump Lever Support
P-549	1-18	Pump Connecting Pin
B-550	20	Skimmer
E-551	22	Ingot Mold
U-571	2-18	Pot Crucible
P-572	1-2-18	Pump
P-573	2-18	Pot Jacket (Lower)
P-574	1-2-18	Pot Jacket (Upper)
N-575	2-18-22	Nozzle
C-576	22	Choker Valve
C-577	15	Spring for Choker Cam Lever Roller
K-579	2-3-20	Cam Shaft
C-580	18	Choker Valve Bushing
K-585	1-2-15	Cam Lever Shaft
B-590	23	Base Door (Lower)
B-592	4-23	Base Door (Upper)
P-595	2-21	Pot Yoke Lock Bracket
B-596	23	Base Door Knob Latch
J-597	1-23	Jet Box
J-598	1-23	Jet Box Bracket
B-599	19	Burner
F-600	19	Flathead Stove Bolt for Burner
M-608	9	Set Adjusting Blocks
V-612	9	Vertical Mold Blade (Large type)
V-613	6	Vertical Mold Blade (Electrotype)
V-614	15	Vertical Mold Blade Lifting Yoke
M-628	16	Mold Body Cam Lever Roller
T-630	2-6	Type Receiving Plate
R-631	15-16	Cam Rollers
T-632	2-6	Nozzle Plate
V-646	1-2-17	Vertical Mold Blade Adjusting Screw
M-649	1-16	Mold Body Lever Shaft
S-650	1-2-17	Jet Block Adjusting Screw (Small Head)
F-655	4-3-13	Friction Ring
P-656	4-24	Motor Pinion
C-665	1-16	Matrix Carrier Fork

Detail Number	Illustration on Plate No.	Name of Part
G-667	1-16	Matrix Carrier Fork Releasing Knob
G-669	17	Matrix Carrier Slide Rib
G-670	17	Matrix Carrier Slide (L.H.)
G-671	17	Matrix Carrier Slide (R.H.)
M-673	1-6-10	Mold Body Plate Inside Locknut
M-674	1-2-6	Mold Body Plate Adjusting Screw
R-679	6	Type Stripper Spring
R-680	6	Type Kick Outters
P-682	1-15	Pump Stop
M-685	1-17	Mold Block Adjusting Screw (Small Head)
V-684	15	Vertical Mold Blade Lever Adjusting Screw (Upper)
V-685	15	Vertical Mold Blade Lever Adjusting Screw (Lower)
P-686	15	Pump Cam Roller Stud Washer
B-689	23	Base Door Knob Latch Pin
C-690	20	Choker Cam Screw Washer
J-691	17	Jet Block Adjusting Screw (Large Head)
P-692	2-21	Pot Yoke Lock
M-693	17	Mold Block Adjusting Screw (Large Head)
G-694	17	Matrix Carrier Slide Adjusting Screw (Short)
G-695	17	Matrix Carrier Slide Adjusting Screw (Long)
R-696	1-6-10	Type Receiving Shoe Adjusting Screw
R-698	2-20	Type Stick
B-702	4-21	Base & Mold Stand Key
P-705	1-2-18	Pump Links
P-706	1-2-18	Pump Link Pin
M-707	1-6-10	Mold Body Plate Outside Locknut
M-709	1-2-6-10	Mold Body Plate Adjusting Nut
J-710	2-10	Jet Bracket
T-714	19	Tower Supporting Stud
E-715	19	1/8" Elbow for Burner

Detail Number	Illustration on Plate No.	Name of Part
H-716	19	1/8" Pipe for Burner
G-721	7	Matrix Holder, Linotype
G-723	7	Matrix Holder Clamp, Linotype
T-726	6	Type Trimming Knife (Lower)
T-727	6	Type Trimming Knife (Upper)
H-749	2-19	Pot Yoke Handle
P-750	21	Base Door Upper Spring
C-755	18	Choker Lever Link Connecting Pin
P-758	1-2-18	Pump Lever Pin
G-760	16	Matrix Carrier Fork Releasing Pin Spring
H-763	2-21	Pot Yoke Lock Handle
H-764	4-5-15	Hand Wheel Handle
H-765	19	Pot Yoke Handle Stud
H-769	6	Nozzle Plate Handle
C-771	22	Choker Valve Seat Bushing
C-772	22	Choker Valve Bushing
P-780	15	Pump Cam Roller Stud
P-781	3-20	Pump Cam Block
C-782	18	Choker Fork Adjusting Screw Washer
P-784	15	Pump Stop Screw
P-785	15	Pump Stop Washer
P-786	15	Pump Stop Spring
G-788	6	Low Quad Matrix
P-791	4-21	Pump Spring
C-792	18	Choker Link Spring
P-798	2-21	Water Drain Pipe 1/4" Union
P-799	21	Water Drain Pipe 1/4" Elbow
P-800	23	Machine Base (Bottom)
P-801	23	Machine Base (Top)
F-802	4-5-12	Friction Plate
S-803	3-4-14	Clutch Gear Yoke
S-804	3-4-5-14	Clutch Shifting Knob
F-805	4-13	Friction Wheel
F-806	4-13	Friction Wheel Clamping Ring
F-807	4-13	Friction Wheel Shaft
S-809	3-14	Clutch Shaft
S-810	3-4-14	Clutch Shifting Rod

Detail Number	Illustration or Plate No.	Name of Part
S-811	13	Speed Gear 7"
S-812	3-4-14	Yoke Gear 7"
S-813	13	Speed Gear 3-1/2"
S-814	3-4-14	Clutch Gear 3-1/2"
F-817	13	Friction Shaft Bearing Bushing
F-819	12	Friction Plate Shaft Spring Bushing
S-820	13	Speed Gear 4"
S-821	3-4-14	Clutch Gear 7"
F-822	12	Friction Plate Shaft Bearing
F-823	12	Friction Ball Bearing Thrust & Washer
F-824	4-12	Friction Plate Spring
P-825	1-2-20	Type Stick Plate
F-826	12	Friction Plate Spring Stop Collar
F-827	12	Friction Plate Spring Tension Adjusting Nut
F-828	4-12	Friction Plate Shaft
P-834	2-12	Pot Yoke Stud
H-836	19	Burner Connecting Nipple
C-837	20	Choker Tripper Tool
C-843	15	Choker Cam Lever Spring
H-844	26	Gasoline Burner
C-845	18	Choker Link Pin
C-846	1-2-18	Choker Spring Rod
C-847	2-18	Choker Spring Block Guiding Rod
C-848	1-2-18	Choker Spring Rod Block
C-849	1-2-18	Choker Spring Rod Nut
C-850	1-2-18	Choker Spring Rod Collar
C-851	2-19	Choker & Pump Link Bracket
C-852	1-2-18	Choker Lever Connecting Pin
C-854	1-2-18	Choker Lever
C-856	1-2-18	Choker Rod Spring
F-861	13	Friction Wheel Shaft Collar
K-865	3-20	Cam Shaft Gear
S-866	4-5-14	Clutch Shaft Retaining Latch
P-867	4-21	Pump Spring Lever
P-868	4-21	Pump Spring Lever Bracket
F-869	12	Friction Plate Spring Adjusting Pins
W-872	16	Weld Stand Cap Screws

Detail Number	Illustration on Plate No.	Name of Part
S-902	14	Clutch Shaft Key
S-903	14	Clutch Shaft Key
F-906	23	Friction Wheel Oil Guard Spacer
F-907	23	Friction Plate Oil Guard
F-908	23	Friction Wheel Oil Guard
C-868	4-21	Oil Pipe Feed Clamp
P-869	4-21	Oil Feed Pipe
P-890	4-21	Oil Feed Pipe
J-893	6	Jet Ejectors Nos. 1,2 and 3
M-894	6	Mold Body (2 Designs)
M-895	1-2-16	Mold Body Lever Cross Block
J-896	1-2-17	Jet Block Adjusting Eccentric
M-898	1-2-17	Mold Top Block Adjusting Eccentric
P-899	5-21	Pump Tension Pulley
P-900	21	Pump Tension Ratchet
P-901	21	Pump Tension Ratchet Pawl
P-902	21	Pump Tension Ratchet Pawl Stud
M-903	1-22	Metal Pot Splash Guard (Outside)
N-905	1-6	Set Adjusting Liner
M-906	6	Set Adjusting Liner Washer
P-908	21	Water Drain Pipe
P-909	21	Water Drain Pipe
M-910	1-2-17	Mold Stand Cap
P-912	15	Pump Lever Rod
V-914	2-17	Vertical Mold Blade Adjusting Shoe
C-924	1-16	Matrix Carrier Lever
C-925	1-5-16	Matrix Carrier Cam Lever
C-926	16	Matrix Carrier Cam Lever Spring
C-928	7	Matrix Holder for wide Thompson Matrices
C-929	7	Matrix Holder for narrow Thompson Matrices
M-933	6	Mold Body Plate Connecting Pins
M-934	1-6	Set Adjusting Liner Screw
M-935	6	Set Adjusting Liner Banking Plate
R-936	24	Carriage Bolt
J-937	17	Jet Block Lifting Yoke
M-938	1-17	Mold Stand Tray
M-939	17	Mold & Jet Block Lifting Stud Nuts
M-940	17	Mold & Jet Block Lifting Studs
J-940a	17	Jet Block Lifting Stud

Detail Number	Illustration on Plate No.	Name of Part
M-941	17	Mold & Jet Block Fulcrum Studs
M-942	6	Mold Body Plate
V-943	17	Vertical Mold Blade Adjusting Screw Plug
E-945	18	Pot Screw Washers
F-946	5-13	Friction Wheel Shifter Yoke
B-949	23	Base Door (Side) New
K-950	13	Friction Wheel Shaft Key
B-951	23	Base Door Pins
F-952	5-13	Friction Wheel Controlling Knob
V-954	17	Vertical Mold Blade Oil Screws
B-955	1-2-16-21	Oil Cups
B-956	17	Vertical Mold Blade Oil
B-957	1-21	Oil Hole Cover
P-958	1-21	Pump Spring Lever Bracket Pin
V-960	17	Vertical Mold Blade Supporting Plug
P-961	21	Pump Tension Pulley Shaft
P-962	5-21	Pump Starting Chain
F-963	5-13	Friction Wheel Adjusting Screw
C-964	15	Choker Cam Lever Roller Pin
C-965	15	Choker Cam Lever Roller Yoke
C-966	15	Choker Cam Lever Roller
F-967	13	Friction Wheel Shifter Yoke Retaining Ring
S-969	3-4-14	Clutch Gear Shifter Yoke
C-971	15	Choker Cam Lever Yoke Pin
F-972	4-12	Friction Plate Shaft Cover
P-973	21	Pump Cam Cover Plate
F-974	2-6	Foot Plow Nos. 1, 2, 3
F-975	6	Foot Plow Adjusting Screw
F-976	2-6	Foot Plow Bracket
F-977	13	Friction Wheel Adjusting Screw Collar
V-979	17	Vertical Mold Blade Adjusting Screw Spring
D-980	20	Double Driving Tool
P-981	20	Pin Wrench
M-982	20	Mold Body Lifting Tool
M-983	1-15	Mold Locating Screw
V-984	2-17	Vertical Mold Blade Supporting Plug Set Screw

Detail Number	Illustration on Plate No.	Name of Part
V-985	17	Vertical Hold Blade Supporting Plug Set Screw Nut
S-987	16	Matrix Lever Convex Washer
L-989	6	Lining Standards
E-990	20	"S" Wrench for 5/16" & 3/4" Nuts
M-991	1-22	Thermometer
S-993	20	3/4" Hexagon Nut for Wrench
M-995	1-16	Street Elbow
M-997	4-12	Grease Cup 1/4" Shank
M-998	13	Grease Cup 1/8" Shank
M-999	23	Square Head Cap Screw
	24	Motor
	24	Motor Bracket

ALPHABETICAL INDEX TO ILLUSTRATIONS ON
PARTS AND SUPPLIES FOR THE [illegible]
TYPE HEAD AND RULE CASTER.

Name of Part	Detail Number	Illustration No.
Base Door (Lower)	B-590	23
Base Door (Upper)	B-592	4-23
Base Door Knob	B-[illegible]	[illegible]
Base Door Knob Latch	B-596	23
Base Door Knob Latch Pin	B-[illegible]	[illegible]
Base & Mold Stand Key	B-[illegible]	4-21
Base Door Upper Spring	B-730	4
Base Door (Side) Hex	B-[illegible]	23
Base Door Pin	B-951	23
Burner Top Plate	B-514	1
Burner Mixer	B-[illegible]	1
Burner	B-[illegible]	15
Burner Supporting Stud	B-714	1
1/8" Elbow for Burner	B-715	15
1/8" Pipe for Burner	B-717	15
Burner Connecting Nipple	B-[illegible]	15
Cam Shaft Bearing (R.H.)	B-[illegible]	5-15
Cam Shaft Bearing (L.H.)	B-[illegible]	5-15
Cam Shaft	B-[illegible]	5-15-20
Cam Lever Shaft	B-[illegible]	1-5-15
Cam Rollers	B-[illegible]	15-16
Cam Shaft Gear	B-[illegible]	5-20
Carriage Rods	B-[illegible]	24
Choker Cam	C-[illegible]	28
Choker Cam	C-[illegible]	28
Choker Cam Lever	C-[illegible]	1-25-15
Choker Lever Link	C-[illegible]	1-25-15
Choker Spring Rod Adjusting Stud	C-[illegible]	1-[illegible]
Choker Assembled	C-[illegible]	15
Choker Valve Body	C-[illegible]	3
Choker Valve Lever	C-[illegible]	1-3-15
Choker Valve	C-[illegible]	3
Choker Valve Packing	C-[illegible]	15
Choker Cam Screw Washer	C-[illegible]	28
Choker Lever Link Connecting Pin	C-[illegible]	15
Choker Valve Seat Packing	C-[illegible]	28

Name of Part	Detail Number	Illustration on Plate No.
Choker Valve Bushing	C-772	22
Choker Valve Fork Adjusting Screw		
Choker Link Spring	C-792	18
Choker Tripper Tool	C-837	20
Choker Cam Lever Spring	C-843	15
Choker Link Pin	C-842	18
Choker Spring Rod	C-845	1-2-18
Choker Spring Block Guiding Rod	C-847	2-18
Choker Spring Rod Block	C-846	1-2-18
Choker Spring Rod Nut	C-849	1-2-18
Choker Spring Rod Collar	C-850	1-2-18
Choker & Pump Link Bracket	C-851	2-18
Choker Lever Connecting Pine	C-852	1-2-18
Choker Lever	C-854	1-2-18
Choker Rod Spring	C-856	1-2-18
Choker Cam Lever Roller Pin	C-864	15
Choker Cam Lever Roller Yoke	C-865	15
Choker Cam Lever Roller	C-866	15
Choker Cam Lever Yoke Pin	C-871	15
Clutch Gear Yoke	C-803	3-4-24
Clutch Shifting Knob	C-804	3-4-24
Clutch Gear Double	C-807	3-4-24
Clutch Shaft	C-809	3-24
Clutch Shifting Rod	C-810	3-4-24
Clutch Gear 3-1/2"	C-811	3-4-24
Clutch Gear 7"	C-812	3-4-24
Clutch Shaft Retaining Latch	C-813	3-4-24
Clutch Shaft Key	C-802	24
Clutch Shaft Key	C-805	24
Clutch Gear Shifter Yoke	C-806	3-4-24
Flathead Stove Bolt for Burner	F-600	20
Foot Plow Stud Nut	F-626	2-6
Foot Plow Nos. 1,2,3	F-974	1-6
Foot Plow Adjusting Screw	F-975	6
Foot Plow Bracket	F-976	6
Friction Plate	F-962	4-5-12
Friction Wheel	F-963	4-13
Friction Wheel Clamping Ring	F-906	4-13
Friction Ring	F-955	4-5-13

Name of Part	Detail Number	Illustration on Plate No.
Friction Wheel Shaft	F-808	4-13
Friction Shaft Bearing Bushing	F-817	13
Friction Plate Shaft Spring Bushing	F-819	12
Friction Plate Shaft Bearing	F-822	12
Friction Ball Bearing Thrust & Washer	F-823	12
Friction Plate Spring	F-824	4-12
Friction Plate Spring Stop Collar	F-826	12
Friction Plate Spring Tension Adjusting Nut	F-827	12
Friction Plate Shaft	F-833	4-12
Friction Wheel Shaft Collar	F-861	13
Friction Plate Spring Adjusting Pine	F-869	12
Friction Wheel Oil Guard Spacer	F-885	23
Friction Plate Oil Guard	F-886	23
Friction Wheel Oil Guard	F-887	23
Friction Wheel Shifter Yoke	F-946	5-13
Friction Wheel Shaft Key	F-950	13
Friction Wheel Controlling Knob	F-952	5-13
Friction Wheel Adjusting Screw	F-963	5-13
Friction Wheel Shifter Yoke Retaining Ring	F-967	13
Friction Plate Shaft Cover	F-972	4-12
Friction Wheel Adjusting Screw Collar	F-977	13
Gasoline Burner	H-844	26
Grease Cup 1/4" Shank	F-997	4-12
Grease Cup 1/8" Shank	F-998	13
Hand Wheel	S-541	4-5-27
Hand Wheel Handle	S-764	4-5-13
Ingot Mold	E-551	22
Jet Box	J-597	1-23
Jet Box Bracket	J-598	1-23
Jet Block Adjusting Screw (Small Head)	J-650	1-2-17
Jet Block Adjusting Screw (Large Head)	J-691	17
Jet Breaker	J-710	2-20

Name of Part	Detail Number	Illustration on Plate No.
Jet Ejectors Nos. 1,2,3	J-893	6
Jet Block Adjusting Eccentric	J-897	1-2-17
Jet Block Lifting Yoke	J-737	17
Jet Block Lifting Stud	J-940A	17
Knife - Quad Trimming	T-725	6
Knife - Type Trimming (Lower)	T-726	6
Knife - Type Trimming (Upper)	T-727	6
Lining Standards	L-989	6
Machine Base (Bottom)	B-900	23
Machine Base (Top)	B-901	23
Matrix Carrier Cam	M-513	3-5-20
Matrix Carrier & Vertical Mold Blade Cam Lever Roller Stude	C-536	15-16
Matrix Carrier Fork	C-665	1-16
Matrix Carrier Fork Releasing Knob	C-667	1-16
Matrix Carrier Fork Releasing Pin	C-668	16
Matrix Carrier Slide Gib	C-669	17
Matrix Carrier Slide (L.H.)	C-670	17
Matrix Carrier Slide (R.H.)	C-671	17
Matrix Carrier Slide Adjusting Screw (Short)	C-694	17
Matrix Carrier Slide Adjusting Screw (Long)	C-695	17
Matrix Holder - Linotype	C-721	7
Matrix Clamp Holder - Linotype	C-723	7
Matrix Carrier Fork Releasing Pin Spring	C-760	16
Matrix - Low Quad	C-788	6
Matrix Carrier Lever	C-924	1-16
Matrix Carrier Cam Lever	C-925	15-16
Matrix Carrier Cam Lever Spring	C-926	16
Matrix Holder for Wide Thompson Matrices	C-928	7
Matrix Holder for Narrow Thompson Matrices	C-929	7
Matrix Lever Convex Washer	C-937	16

Name of Part	Detail Number	Illustration on Plate No.
Metal Pot Splash Guard (Inside)	M-858	22
Metal Pot Splash Guard (Outside)	M-903	1-22
Mold Stand (R.H.)	M-502	1-2-17
Mold Stand (L.H.)	M-503	1-17
Mold Body Cam	M-515	3-20
Mold Body Auxiliary Cam	M-516	3-5-20
Mold Body Lever	M-520	1-2-16
Mold Body Cam Lever	M-521	1-2-5-16
Mold Body Cam Lever Roller Stud	M-535	16
Mold Body Cam Lever Roller	M-620	16
Mold Body Lever Shaft	M-649	1-16
Mold Body Plate Inside Locknut	M-673	1-6-10
Mold Body Plate Adjusting Screw	M-674	1-2-6
Mold Block Adjusting Screw (Small Head)	M-683	1-17
Mold Block Adjusting Screw (Large Head)	M-693	17
Mold Body Plate Outside Locknut	M-707	1-6-10
Mold Body Plate Adjusting Nut	M-708	1-2-6-10
Mold Stand Cap Screws	M-892	16
Mold Body (2 designs)	M-894	6
Mold Body Lever Cross Block	M-895	1-2-16
Mold Top Block Adjusting Eccentric	M-896	1-2-17
Mold Stand Cap	M-910	1-2-17
Mold Body Plate Connecting Pins	M-927	6
Mold Stand Tray	M-938	1-17
Mold & Jet Block Lifting Stud Nuts	M-939	17
Mold & Jet Block Lifting Studs	M-940	17
Mold & Jet Block Fulcrum Studs	M-941	17
Mold Body Plate	M-942	6
Mold Body Lifting Tool	M-982	20
Mold Locating Screw	M-983	1-15
Motor Pinion	P-656	4-21
Motor		24
Motor Bracket		24
Nozzle	M-575	2-18-22
Nozzle Plate	M-639	2-6
Nozzle Plate Handle	M-768	6
Nozzle Driving Tool	M-979	20

Name of Part	Detail Number	Illustration on Plate No.
Oil Pipe Feed Clamp	C-888	4-21
Oil Feed Pipe	B-889	4-21
Oil Cups	B-955	1-2-16-21
Oil Hole Cover	B-957	4-21
Pin Wrench	E-981	20
Pot Adjusting Screw	H-415	19
Pot Adjusting Screw Pins	H-416	18
Pot Adjusting Pin (Rear)	H-417	18
Pot Yoke	H-506	1-2-19
Pot Crucible	H-571	2-18
Pot Jacket (Lower)	H-573	2-18
Pot Jacket (Upper)	H-574	1-2-18
Pot Yoke Lock Bracket	H-595	2-21
Pot Yoke Lock	H-692	2-21
Pot Yoke Handle	H-749	2-19
Pot Yoke Lock Handle	H-763	2-21
Pot Yoke Handle Stud	H-766	19
Pot Yoke Stud	H-834	2-18
Pot Screw Washers	H-945	18
Pump Cam	P-510	3-5-20
Pump Cam Lever	P-524	5-15
Pump Lever Link	P-526	1-2-18
Pump Link & Choker Bracket Plate	C-529	2-19
Pump Lever	P-537	1-2-18
Pump & Choker Lever Link Pins	P-544	18
Pump Lever Support	P-548	1-19
Pump Connecting Pin	P-549	1-18
Pump	P-572	1-2-18
Pump Stop	P-682	1-15
Pump Cam Roller Stud Washer	P-686	15
Pump Links	P-705	1-2-18
Pump Link Pin	P-706	1-2-18
Pump Lever Pin	P-758	1-2-18
Pump Cam Roller Stud	P-769	15
Pump Cam Block	P-781	1-20
Pump Stop Screw	P-784	15
Pump Stop Washer	P-785	15
Pump Stop Spring	P-786	15
Pump Spring	P-791	4-21

Name of Part	Detail Number	Illustrated on Plate No.
Pump Spring Lever	P-867	4-21
Pump Spring Lever Bracket	P-868	4-21
Pump Tension Pulley	P-899	4-21
Pump Tension Ratchet Pawl	P-901	21
Pump Tension Ratchet Pawl Stud	P-902	21
Pump Lever Rod	P-912	15
Pump Spring Lever Bracket Pin	P-950	4-21
Pump Tension Pulley Shaft	P-961	21
Pump Spring Chain	P-962	4-21
Pump Cam Cover Plate	P-973	21
Set Adjusting Blocks	M-608	6
Set Adjusting Liner	M-905	1-6
Set Adjusting Liner Washer	M-906	6
Set Adjusting Liner Screw	M-924	1-6
Set Adjusting Liner Packing Plate	M-925	6
Skimmer	M-930	20
Speed Gear 7"	S-911	15
Speed Gear 3-1/2"	S-915	15
Spring for Choker Cam Lever Roller	C-577	15
Square Head Tag Screw	B-999	23
Street Elbow	M-956	1-16
Thermometer	M-991	1-22
Type Receiving Plate	B-620	2-6
Type Stripper Spring	B-649	6
Type Kick Outboard	B-686	6
Type Receiving Shoe Adjusting Screw	B-696	1-6-16
Type Stick	B-699	2-20
Type Stick Plate	B-825	1-2-20
Vertical Mold Blade Cam	V-509	3-5-22
Vertical Mold Blade Lever Yoke	V-511	1-5
Vertical Mold Blade Cam Lever	V-515	1-5-15
Vertical Mold Blade Lifting Block Stud	V-545	15
Vertical Mold Blade (Timotype)	V-612	9

Name of Part	Detail Number	Illustration on Plate No.
Vertical Mold Blade (Electrolyze)	V-[illegible]	[illegible]
Vertical Mold Blade Lifting Block	V-[illegible]	15
Vertical Mold Blade Adjusting Screw	V-[illegible]	1-2-17
Vertical Mold Blade Lever Adjusting Screw (Upper)	V-684	15
Vertical Mold Blade Lever Adjusting Screw (Lower)	V-695	15
Vertical Mold Blade Adjusting Shoe	V-914	2-17
Vertical Mold Blade Adjusting Screw Plug	V-943	17
Vertical Mold Blade Gib Screws	V-[illegible]	17
Vertical Mold Blade Gib	V-[illegible]	17
Vertical Mold Blade Supporting Plug	V-[illegible]	17
Vertical Mold Blade Adjusting Screw Spring	V-978	17
Vertical Mold Blade Supporting Plug Set Screw	V-[illegible]	2-17
Vertical Mold Blade Supporting Plug Set Screw Nut	V-[illegible]	17
Water Drain Cup	B-[illegible]	2-21
Water Drain Pipe 1/4" Union	B-[illegible]	2-21
Water Drain Pipe 1/4" Elbow	B-[illegible]	21
Water Drain Pipe	B-[illegible]	21
Water Drain Pipe	B-[illegible]	21
Wrench, "S" for 5/16" and 1/4" Nuts	B-[illegible]	20
Wrench, 3/4" Hexagon Nut Box	B-[illegible]	20
Yoke Gear 7"	S-[illegible]	3-4-14

6 6 2 8

PLATE 1

A-8	Matrix Carrier Complete.
A-9	Mold Bottom Block, Assembled.
A-11	Mold Top Block, Assembled.
N-502	Mold Stand (R. H.)
N-503	Mold Stand (L. H.)
H-506	Pot Yoke.
V-511	Vertical Mold Blade Lever Yoke.
V-512	Vertical Mold Blade Lever.
M-520	Mold Body Lever.
M-521	Mold Body Cam Lever.
C-523	Choker Cam Lever.
P-524	Pump Cam Lever.
V-525	Vertical Mold Blade Cam Lever.
P-526	Pump Lever Link.
C-527	Choker Lever Link.
C-530	Choker Spring Rod Adjusting Stud Nut.
C-534	Choker Lever Assembled.
P-537	Pump Lever.
P-548	Pump Lever Support.
P-549	Pump Connecting Pin.
P-572	Pump.
H-574	Pot Jacket (Upper).
K-585	Cam Lever Shaft.
J-597	Jet Box.
J-598	Type Box Bracket.
V-646	Vertical Mold Blade Adjusting Screw.
M-649	Mold Body Lever Shaft.
J-650	Jet Block Adjusting Screw (Small Head).
G-665	Matrix Carrier Fork.
G-667	Matrix Carrier Fork Releasing Knob.
M-673	Mold Body Plate Inside Lock Nut.
M-674	Mold Body Plate Adjusting Screw
M-683	Mold Block Adjusting Screw (Small Head).
R-696	Type Receiving Shoe Adjusting Screw.
P-705	Pump Links.
P-706	Pump Link Pin.
M-707	Mold Body Plate Outside Lock Nut
M-708	Mold Body Plate Adjusting Nut.
P-758	Pump Lever Pin.
R-825	Type Stick Plate.
C-846	Choker Spring Rod.
C-848	Choker Spring Rod Block.
C-849	Choker Spring Rod Nut.
C-850	Choker Spring Rod Collar.
C-852	Choker Lever Connecting Pins.
C-854	Choker Lever.
C-856	Choker Rod Spring.
M-895	Mold Body Lever Cross Block.
J-897	Jet Block Adjusting Eccentric.
M-898	Mold Top Block Adjusting Eccentric.
H-903	Metal Pot Splash Guard (Outside).
M-905	Set Adjusting Liner.
N-910	Mold Stand Cap.
G-923	Matrix Carrier Lever Screw.
G-924	Matrix Carrier Lever.
G-925	Matrix Carrier Cam Lever.
M-934	Set Adjusting Liner Screw.
N-938	Mold Stand Tray.
B-955	Oil Cups.
M-983	Mold Locating Screw.
H-991	Thermometer.
M-996	Street Elbow.
X-116-1	Sight Feed Oiler for Mold.

PLATE 1

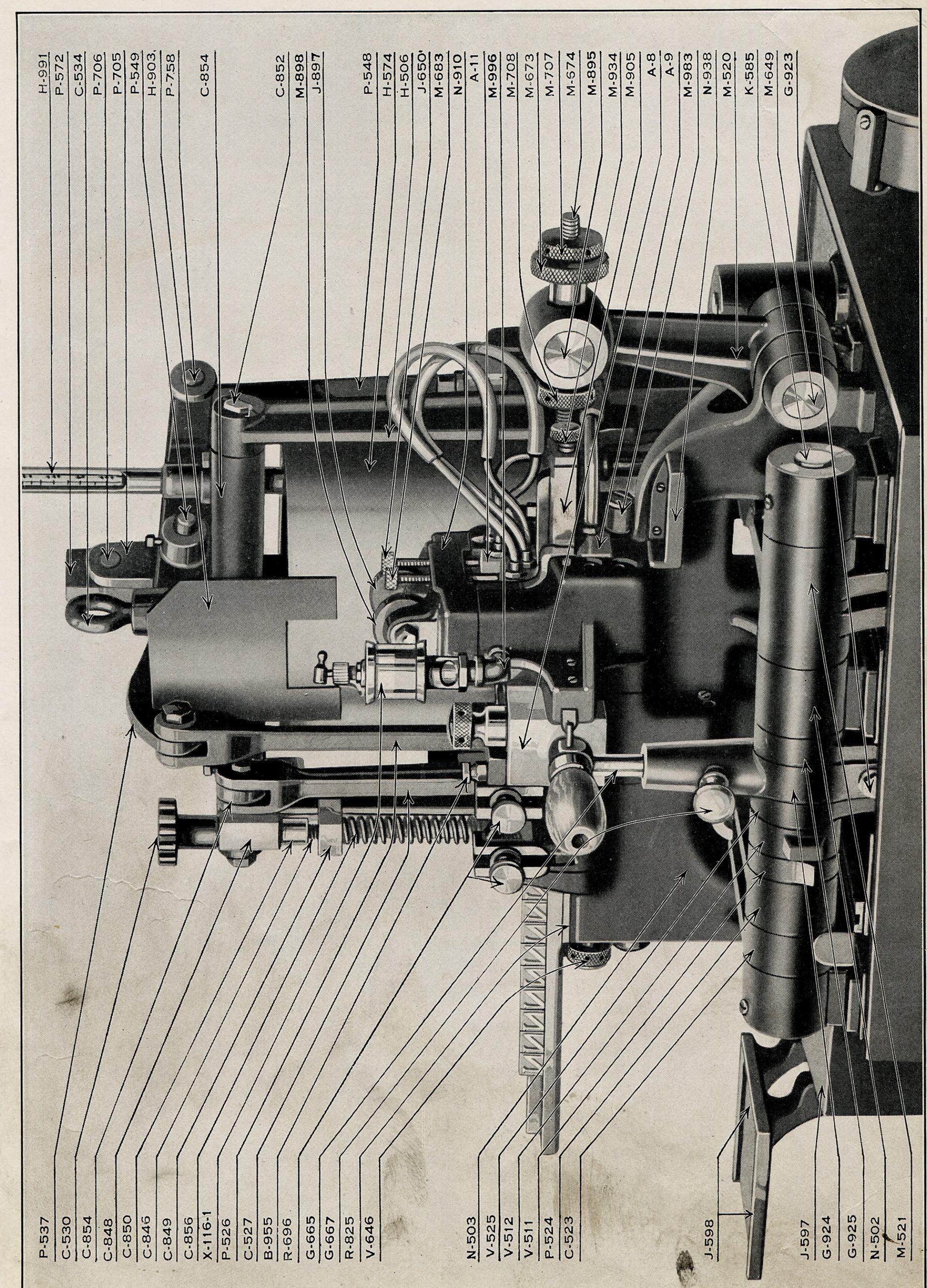

H-991
P-572
C-534
P-706
P-705
P-549
H-903
P-758
C-854
C-852
M-898
J-897
P-548
H-574
H-506
J-650
M-683
N-910
A-11
M-996
M-708
M-673
M-707
M-674
M-895
M-934
M-905
A-8
A-9
M-983
N-938
M-520
K-585
M-649
G-923
P-537
C-530
C-854
C-848
C-850
C-846
C-849
C-856
X-116-1
P-526
C-527
B-955
R-696
G-665
G-667
R-825
V-646
N-503
V-525
V-512
V-511
P-524
C-523
J-598
J-597
G-924
G-925
N-502
M-521

PLATE 2

A-14	Type Receiving Shoe, Assembled completely.
H-415	Pot Adjusting Screw.
N-502	Mold Stand (R. H.)
H-506	Pot Yoke.
V-512	Vertical Mold Blade Lever.
M-520	Mold Body Lever.
M-521	Mold Body Cam Lever.
P-526	Pump Lever Link.
C-527	Choker Lever Link.
C-529	Pump Link and Choker Bracket Plate.
C-530	Choker Spring Rod Adjusting Stud Nut.
C-534	Choker Lever Assembled.
P-537	Pump Lever.
B-545	Water Drain Cup.
H-571	Pot Crucible.
P-572	Pump.
H-573	Pot Jacket (Lower).
H-574	Pot Jacket (Upper).
H-575	Nozzle.
K-579	Cam Shaft.
K-585	Cam Lever Shaft.
H-593	Pot Yoke Lock Bracket.
R-630	Type Receiving Plate.
H-639	Nozzle Plate.
V-646	Vertical Mold Blade Adjusting Screw.
J-650	Jet Block Adjusting Screw (Small Head).
M-674	Mold Body Plate Adjusting Screw.
T-688	Foot Plow Stud Nut.
H-692	Pot Yoke Lock.
R-698	Type Stick.
P-705	Pump Links.
P-706	Pump Link Pin.
M-708	Mold Body Plate Adjusting Nut.
J-710	Jet Breaker.
H-749	Pot Yoke Handle.
P-758	Pump Lever Pin.
H-763	Pot Yoke Lock Handle.
B-798	Water Drain Pipe ¼″ Union.
R-825	Type Stick Plate.
H-834	Pot Yoke Stud.
C-846	Choker Spring Rod.
C-847	Choker Spring Block Guiding Rod.
C-848	Choker Spring Rod Block.
C-849	Choker Spring Rod Nut.
C-850	Choker Spring Rod Collar.
C-851	Choker and Pump Link Bracket.
C-852	Choker Lever Connecting Pins.
C-854	Choker Lever.
C-856	Choker Rod Spring.
M-895	Mold Body Lever Cross Block.
J-897	Jet Block Adjusting Eccentric.
M-898	Mold Top Block Adjusting Eccentric.
N-910	Mold Stand Cap.
V-914	Vertical Mold Blade Adjusting Shoe.
M-933	Mold Body Plate Connecting Pin.
B-955	Oil Cups.
T-974	Foot Plow.
T-976	Foot Plow Bracket.
V-984	Vertical Mold Blade Supporting Plug Set Screw.
X-114-11	Rear Pot Adjusting Screw.
X-120-3	Pot Screws.
X-121-2	Choker Lever Set Screws.

PLATE 2

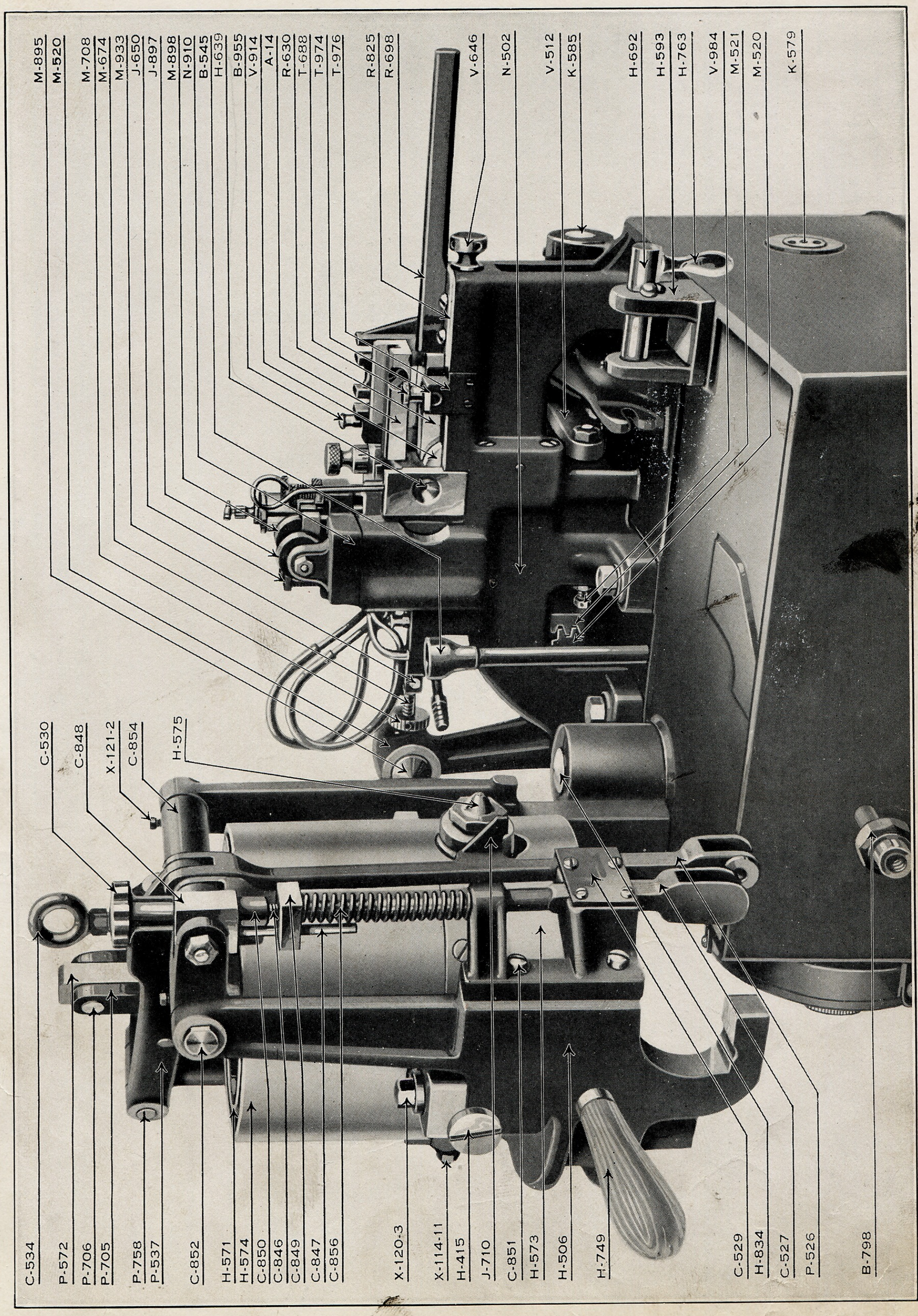

M-895
M-520
M-708
M-674
M-933
J-650
J-897
M-898
N-910
B-545
H-639
B-955
V-914
A-14
R-630
T-688
T-974
T-976
R-825
R-698
V-646
N-502
V-512
K-585
H-692
H-593
H-763
V-984
M-521
M-520
K-579
C-530
C-848
X-121-2
C-854
H-575
C-534
P-572
P-706
P-705
P-758
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C-852
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C-850
C-846
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C-847
C-856
X-120-3
X-114-11
H-415
J-710
C-851
H-573
H-506
H-749
C-529
H-834
C-527
P-526
B-798

PLATE 3

Cam Shaft and Gear Yoke Assembly

C-413	Choker Cam.
V-509	Vertical Mold Blade Cam.
P-510	Pump Cam.
M-513	Matrix Carrier Cam.
M-515	Mold Body Cam.
M-516	Mold Body Auxiliary Cam.
K-579	Cam Shaft.
P-781	Pump Cam Block.
S-803	Clutch Gear Yoke.
S-804	Clutch Shifting Knob.
S-807	Clutch Gear—Double.
S-809	Clutch Shaft.
S-810	Clutch Shifting Rod.
S-812	Yoke Gear, 7-inch.
S-814	Clutch Gear, 3½-inch.
S-821	Clutch Gear, 7-inch.
K-865	Cam Shaft Gear.
S-969	Clutch Gear Shifter Yoke.

PLATE 3

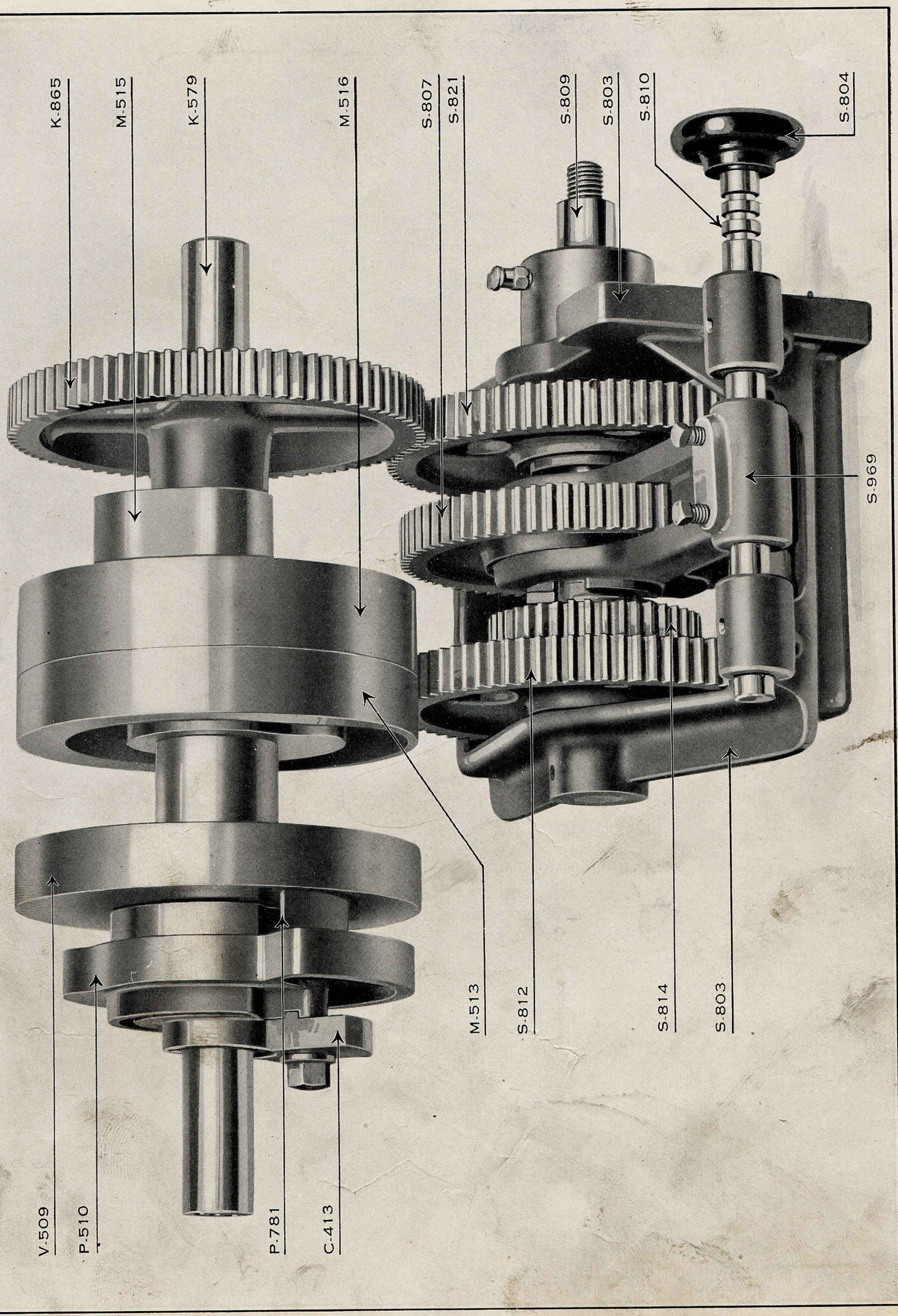

K-865
M-515
K-579
M-516
S-807
S-821
S-809
S-803
S-810
S-804
S-969
M-513
S-812
S-814
S-803
V-509
P-510
P-781
C-413

PLATE 4

S-541 Hand Wheel.
B-592 Base Door (Upper).
F-655 Friction Ring.
B-656 Motor Pinion.
B-702 Base and Mold Stand Key.
S-764 Hand Wheel Handle.
P-791 Pump Spring.
F-802 Friction Plate.
S-803 Clutch Gear Yoke.
S-804 Clutch Shifting Knob.
F-805 Friction Wheel.
F-806 Friction Wheel Clamping Ring.
S-807 Clutch Gear—Double.
F-808 Friction Wheel Shaft.
S-810 Clutch Shifting Rod.
S-812 Yoke Gear, 7-inch.
S-814 Clutch Gear, 3½-inch.
S-821 Clutch Gear, 7-inch.
F-822 Friction Plate Shaft Bearing.
F-824 Friction Plate Spring.
F-833 Friction Plate Shaft.
S-866 Clutch Shaft Retaining Latch.
P-867 Pump Spring Lever.
P-868 Pump Spring Lever Bracket.
B-888 Oil Pipe Feed Clamp.
B-889 Oil Feed Pipe.
B-890 Oil Feed Pipe.
B-957 Oil Hole Cover.
P-958 Pump Spring Lever Bracket Pin.
S-969 Clutch Gear Shifter Yoke.
F-972 Friction Plate Shaft Cover.
F-997 Grease Cup, ¼-inch Shank.

PLATE 4

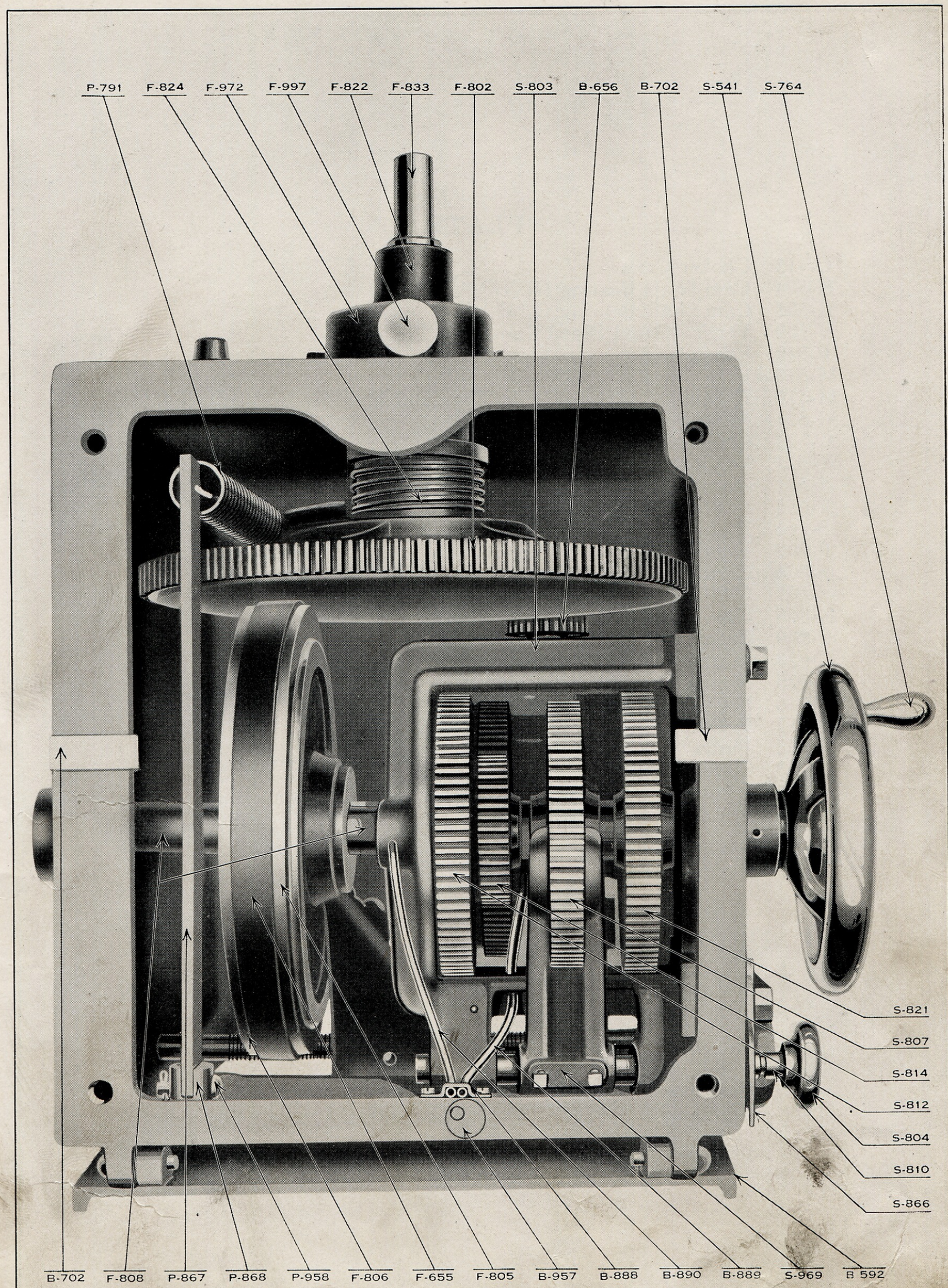

P-791
F-824
F-972
F-997
F-822
F-833
F-802
S-803
B-656
B-702
S-541
S-764
S-821
S-807
S-814
S-812
S-804
S-810
S-866
B-702
F-808
P-867
P-868
P-958
F-806
F-655
F-805
B-957
B-888
B-890
B-889
S-969
B 592

PLATE 5

C-413 Choker Cam.
K-504 Cam Shaft Bearing (R. H.).
K-505 Cam Shaft Bearing (L. H.).
V-509 Vertical Mold Blade Cam.
P-510 Pump Cam.
M-513 &
M-516 Assembled Matrix Carrier Cam and Mold Body Auxiliary Cam.
M-521 Mold Body Cam Lever.
C-523 Choker Cam Lever.
V-525 Vertical Mold Blade Cam Lever.
S-541 Hand Wheel.
F-655 Friction Ring (Fiber).
S-764 Hand Wheel Handle.
F-802 Friction Plate.
S-804 Clutch Shifting Knob.
S-807 Clutch Gear—Double.
K-865 Cam Shaft Gear.
P-899 Pump Tension Pulley.
G-923 Matrix Carrier Lever Screw.
G-925 Matrix Carrier Cam Lever.
F-946 Friction Wheel Shifter Yoke.
F-952 Friction Wheel Controlling Knob.
P-962 Pump Spring Chain.
F-963 Friction Wheel Adjusting Screw.
X-114-7 Adjusting Screw for Choker Cam Lever Roller.
X-120-9 Choker C[illegible] Screw.

PLATE 5

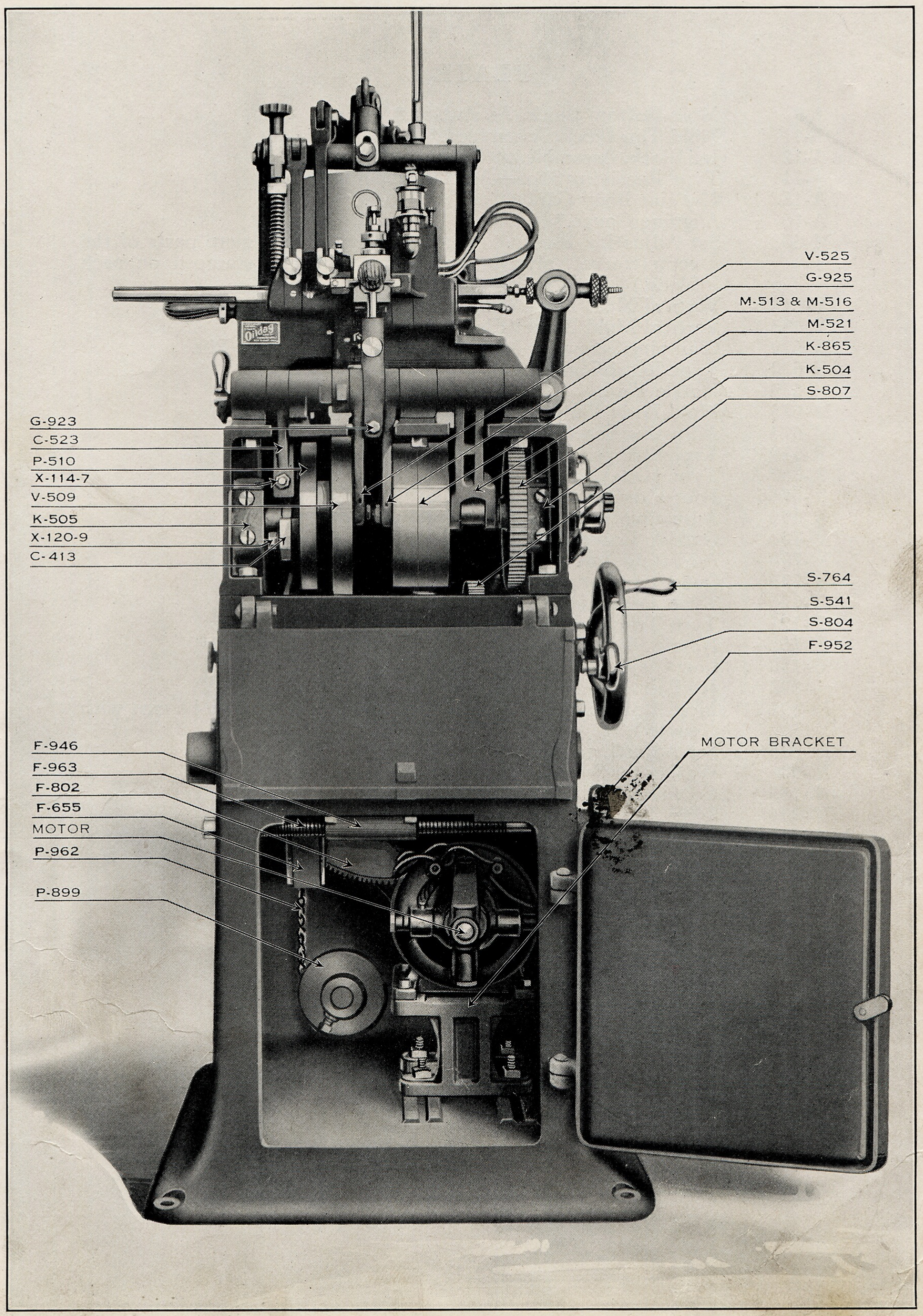
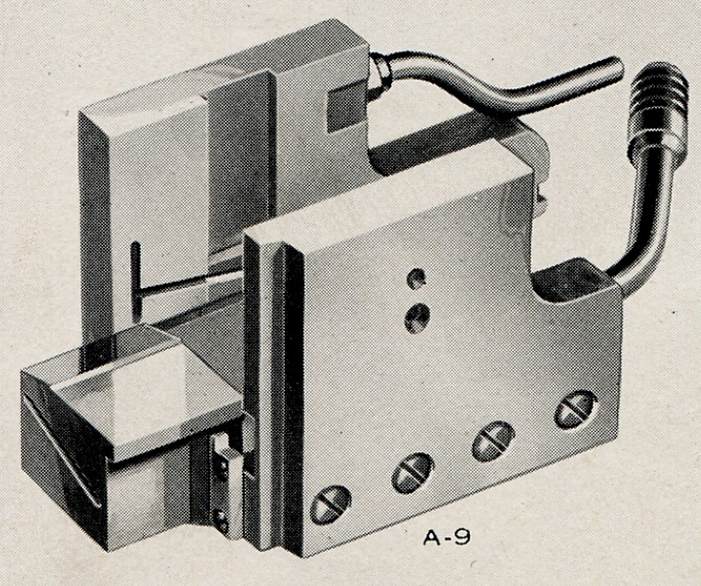

V-525
G-925
M-513 & M-516
M-521
K-865
K-504
S-807
G-923
C-523
P-510
X-114-7
V-509
K-505
X-120-9
C-413
S-764
S-541
S-804
F-952
MOTOR BRACKET
F-946
F-963
F-802
F-655
MOTOR
P-962
P-899

PLATE 6

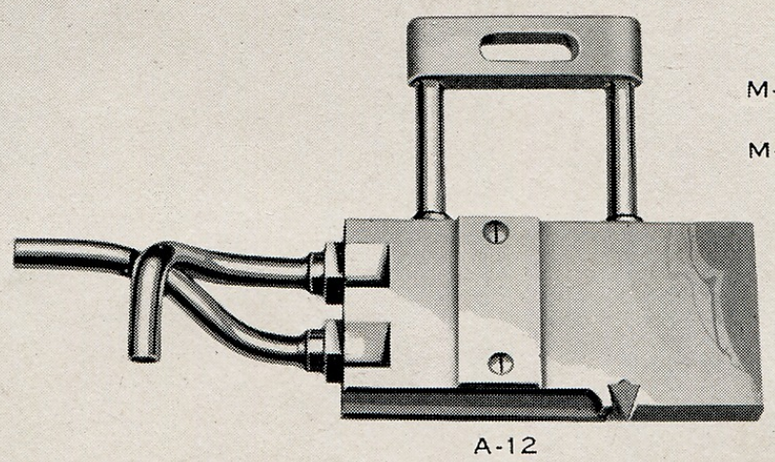
A-9	Mold Bottom Block, Assembled.*
A-11	Mold Top Block, Assembled.*
A-12	Jet Block, Assembled.*
A-14	Type Receiving Shoe—Assembled completely.
A-15	72-Point Body Gauge.
A-16	Aligning Gauge.*
M-608	Set Adjusting Blocks. (When ordering one or more parts of the complete set, always specify size which is stamped on each block.)
V-612	Vertical Mold Blade (Linotype).
V-613	Vertical Mold Blade (Electrotype).
M-629	Clamping Screw for Mold Body Plate-Connecting Pin.
R-630	Type Receiving Plate.
H-639	Nozzle Plate.
M-673	Mold Body Plate Inside Locknut.
M-674	Adjusting Screw for Mold Body Plate.
R-679	Type Stripper Spring.
R-680	Type Nick Cutters.
T-688	Foot Plow Stud Nut.
R-696	Adjusting Screw for Type Receiving Shoe.
M-707	Outside Locknut for Mold Body Plate.
M-708	Adjusting Nut for Mold Body Plate.
T-725	Quad Trimming Knife.
T-726	Type Trimming Knife (Lower).
T-727	Type Trimming Knife (Upper).
H-768	Nozzle Plate Handle.
G-788	Low Quad Matrices.
J-893	Jet Ejector—Three sizes, Nos. 1, 2 and 3.
M-894	Mold Body. (When ordering give point size type to be cast with same.)
M-905	Set Adjusting Liner.
M-906	Washer for Set Adjusting Liner Screw.
M-933	Connecting Pin for Mold Body Plate.
M-934	Screw for Set Adjusting Liner.
M-935 & M-942	Set Adjusting Liner Banking Plate and Mold Body Plate, Assembled.*
T-974	Foot Plow—Three sizes, Nos. 1, 2 and 3.
T-975	Foot Plow Adjusting Screw.
T-976	Foot Plow Bracket.
L-989	Lining Standards.
E-1000	Equipment Box. (Equipment not included.)
X-108-17	Screws for Foot Plow Bracket.
X-108-A-1	Type Trimming Knife Screw.
X-108-A-2	Foot Plow Screw.
X-128-7	8-Point Linotype Quad Matrix.

*No parts furnished separately, can be fitted only at factory.

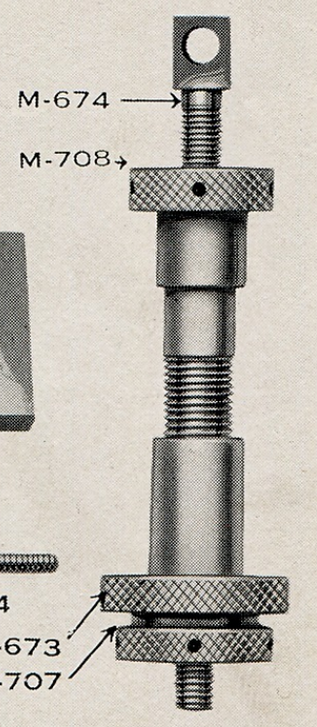
PLATE 6



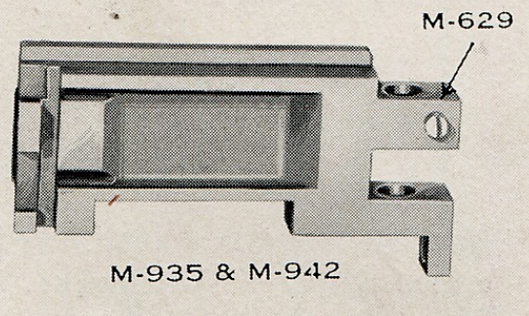
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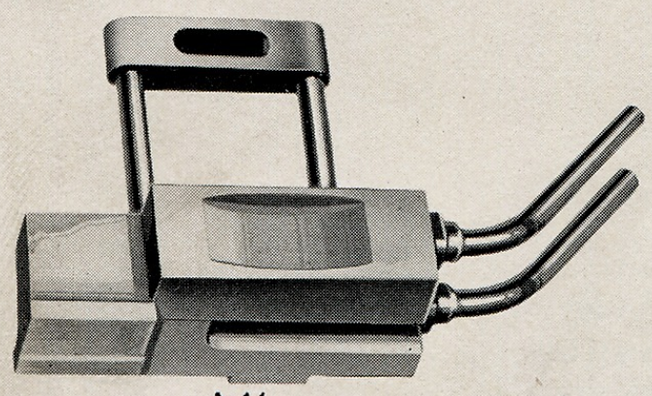
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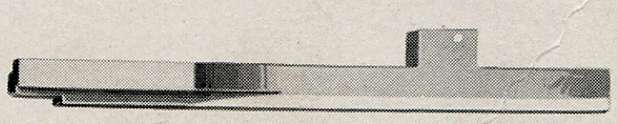
M-674
M-708
M-934
M-673
M-707



M-629
M-935 & M-942



A-11



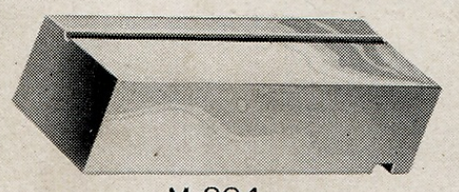
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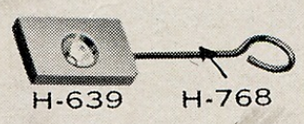
M-906



M-933



M-894



H-639
H-768

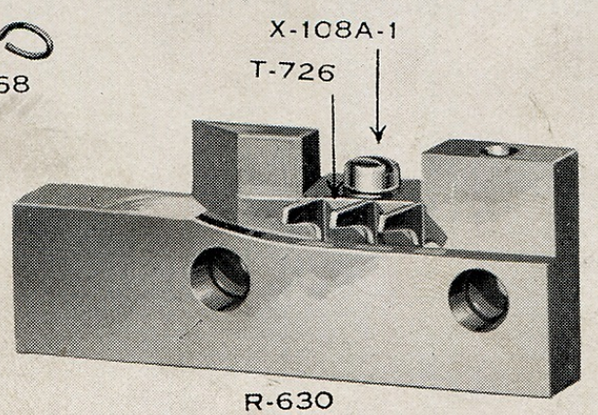
T-725



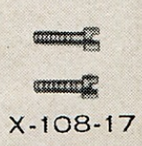
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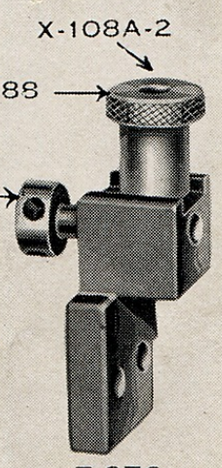
M-894



X-108A-1
T-726
R-630

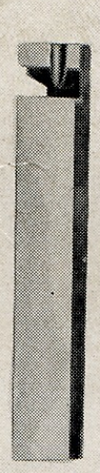


X-108-17

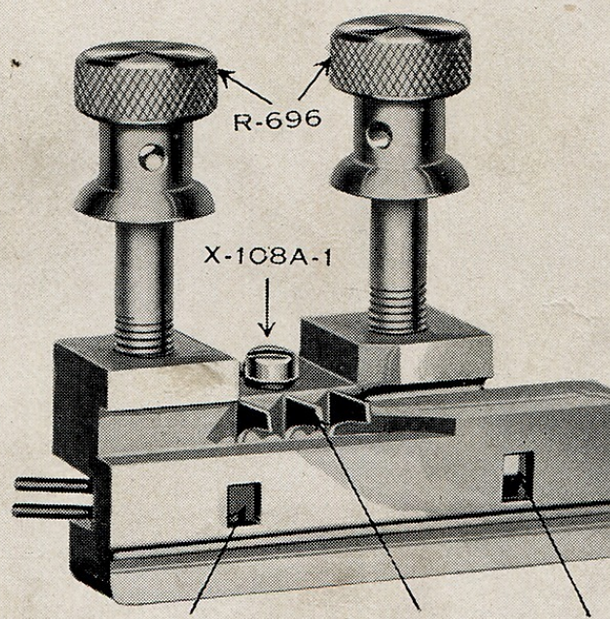


X-108A-2
T-688
T-975
T-976

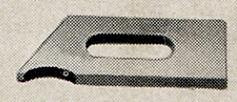
E-1000



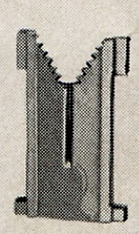
J-893



R-696
X-108A-1
R-680
A-14
T-727
R-679



T-974



X-128-7



V-613



A-16



V-612

M-608

L-989

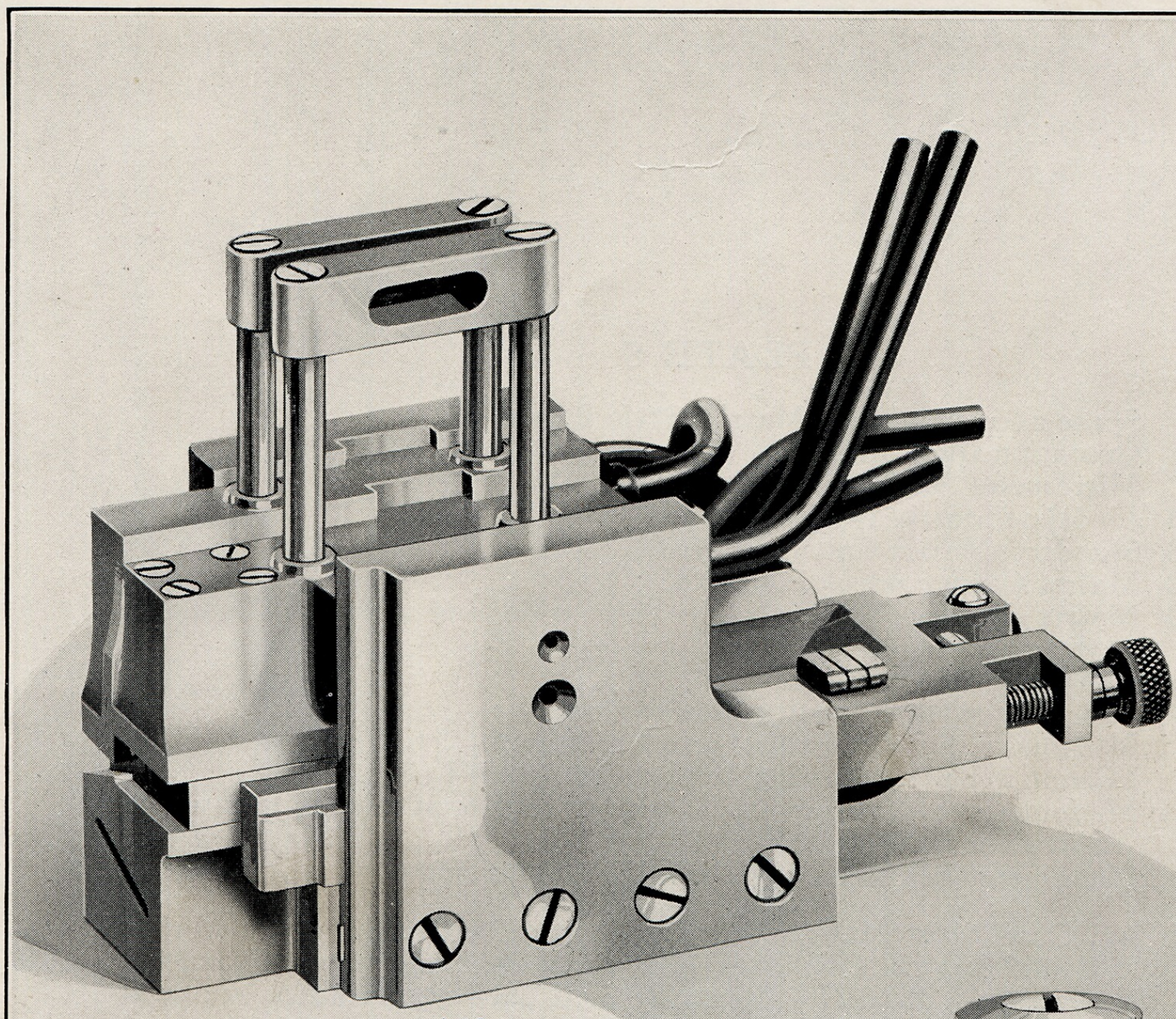
G-788

PLATE 7

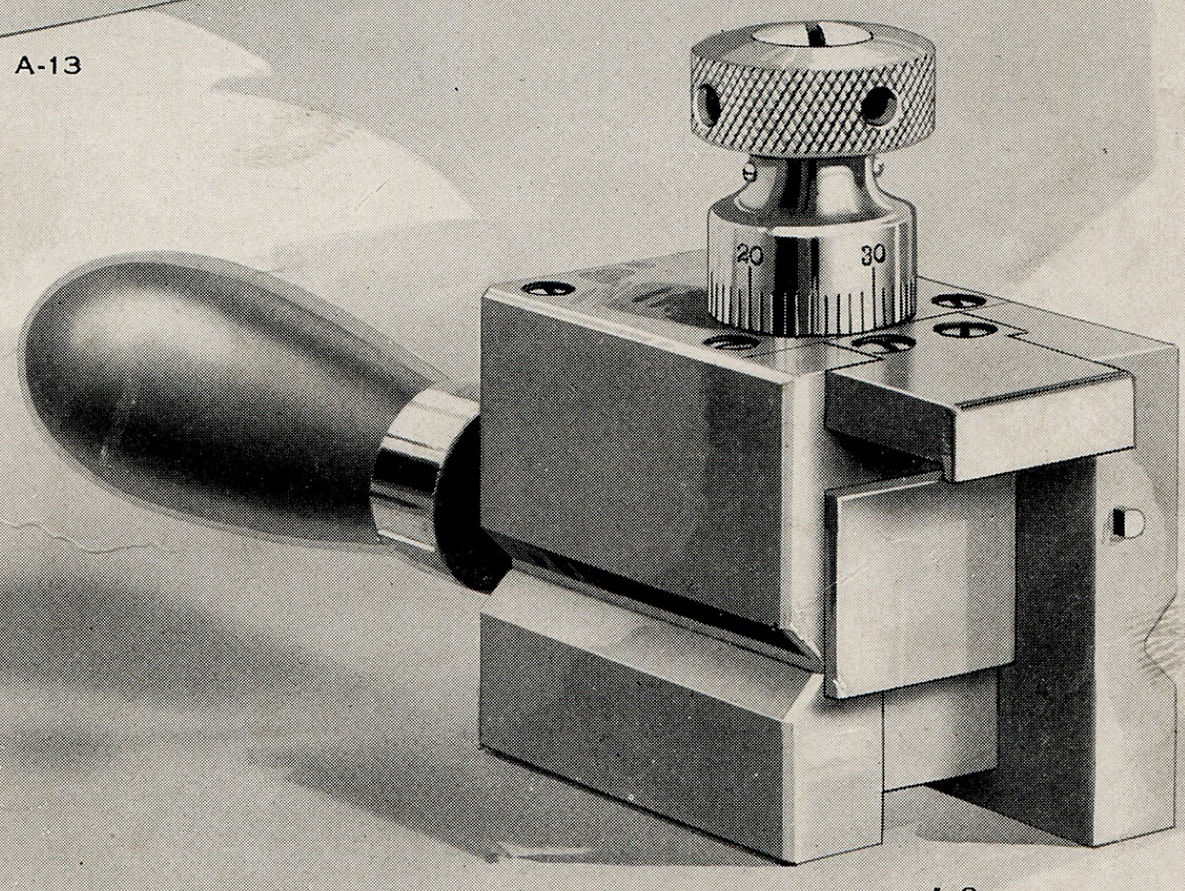
A-8	Matrix Carrier Complete.*
A-13	Type Mold—Complete.
G-721	Linotype Matrix Holder.
G-723	Linotype Matrix Holder Clamp.
G-928	Matrix Holder—Thompson Wide.
G-929	Matrix Holder—Thompson Narrow.
X-108-11	Screw for Linotype Matrix Holder Clamp.

*No parts furnished separately, can be fitted only at factory.

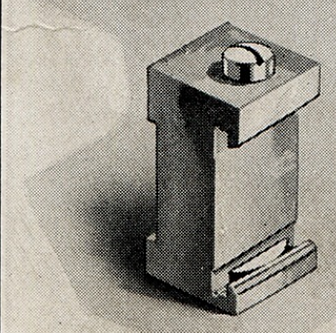
PLATE 7



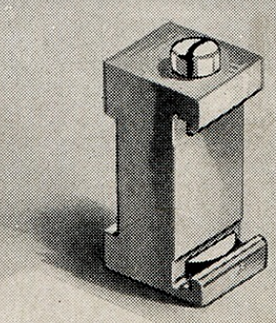
A-13



A-8



G-928



G-929

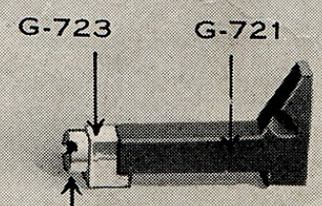


PLATE 8

A-4-B Space and Quad Steel Matrix, Style B.*
A-5-B Quotation Quad Matrix.*
A-6-B Micrometer Set Adjusting Device.
A-10-B Linotype Matrix Holder, Style B.*
A-11-B Standard Matrix Carrier, Style B.
A-12-B Matrix Carrier Adjusting Block.
A-13-B Matrix Holder, Style B, for both wide and narrow Thompson Matrices.*
A-32-B Thompson Style Matrix.
201 Micrometer Set Adjusting Device Body.
202 Micrometer Set Adjusting Device Stop Nut.
204 Micrometer Set Adjusting Device Graduated Collar.
206 Micrometer Set Adjusting Device, Knurled Knob for measuring Screw for
207 Micrometer Set Adjusting Device Clamping Screw.

*Space and Quad Steel Matrix, Quotation Quad Matrix, Linotype Matrix Holder Style B and Matrix Holder Style B for wide and narrow Thompson Matrices, illustrated on Plate No. 8, can be used only on machines equipped with Micrometer Set Adjusting Device.

PLATE 8

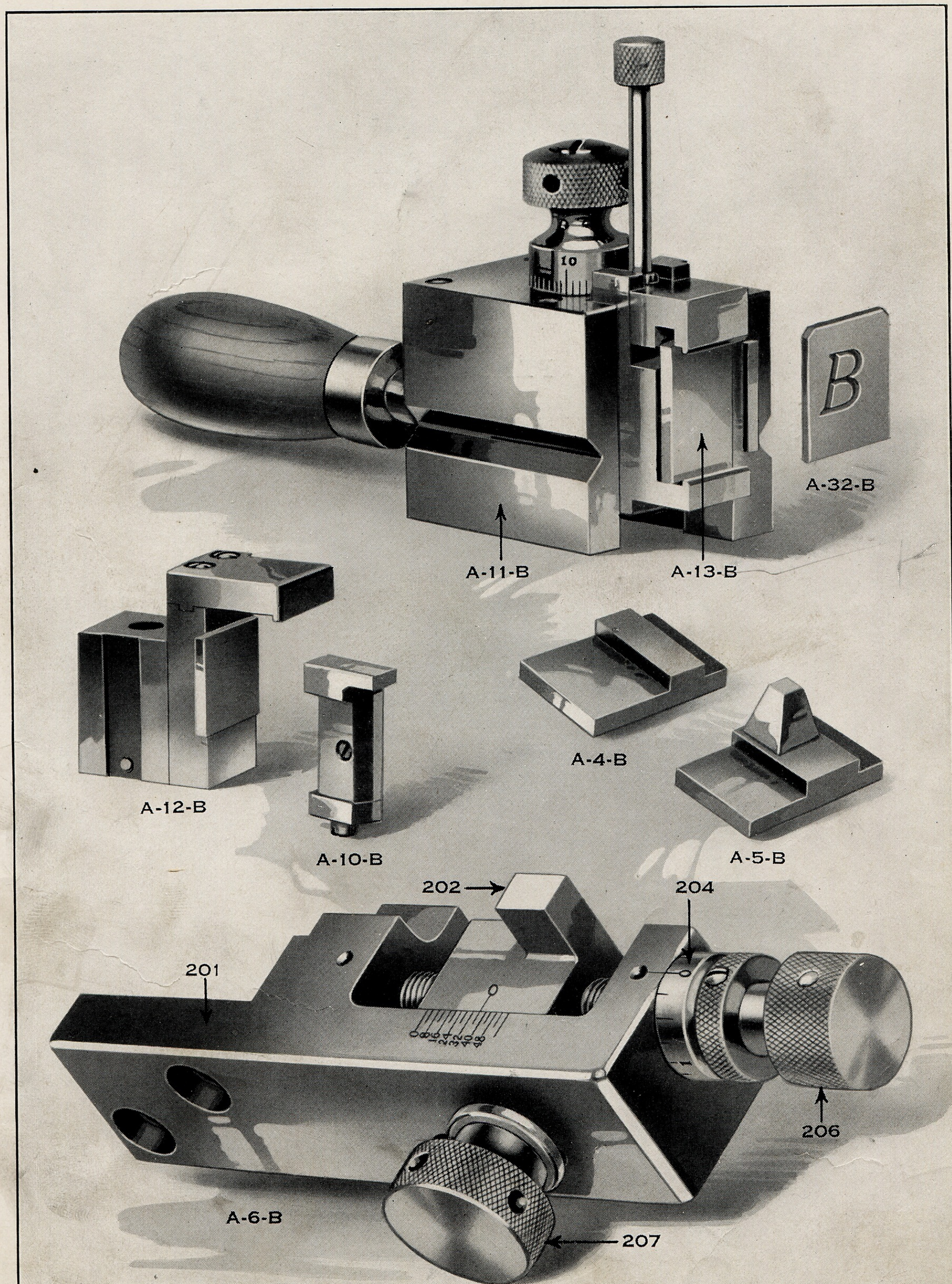


PLATE 9

Special Adjustable Side Wall Matrix Carrier.
Special Adjustable Matrix Holder for Foundry Style Matrices.

PLATE 9

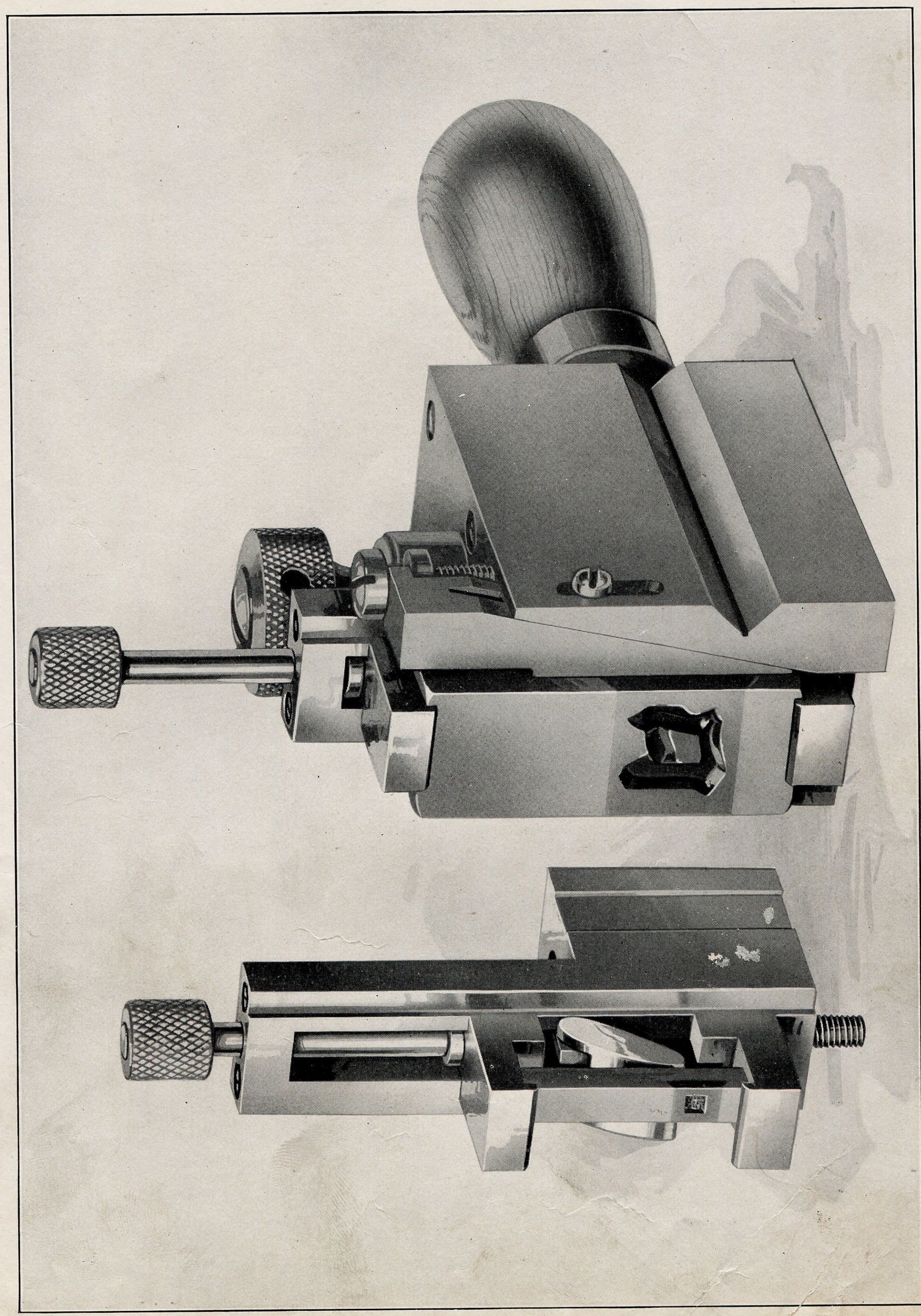


PLATE 10

M-673 Mold Body Plate Inside Locknut.
R-696 Receiving Block Screw.
M-707 Mold Body Plate Outside Locknut.
M-708 Adjusting Nut for Mold Body Plate.
1004 Body Blade Link.
1083 Rule Matrix Set Screw.
1085 Stroke Adjusting Thimble.
1087 Stroke Adjusting Stud.
1088 Stroke Adjusting Finger Guide Stud.
1104 Receiving Block.
1131 Cutter Cam.
1161 Stroke Adjusting Back Stop Finger.
1163 Product Supporting Spring Clamp.
1164 Brace—Lower.
1165 Brace—Upper.
1166 Brace—Turnbuckle.
1324 Cutter Cam Lever Shoulder Screw.
1330 Cutter Cam Roller Bar Guide Cover.
1334 Cutter Bracket.
1335 Cutter Block.
1336 Cutter Table.
1337 Cutter Table Back Guide.
1338 Gauge Rod Outboard Bearing.
1341 Cutter Cam Lever.
1342 Cutter Cam Lever Fulcrum Stud.
1343 Cutter Lever Connecting Rod End.
1344 Cutter Lever Connecting Rod.
1350 Cutter Block Bar.
1351 Gauge Rod.
1352 Gauge and Spring Rod Tie Block.
1353 Cutter Cam Roller Bar.
1359 Product Spacer Hinge.
1360 Product Spacer.
1371 Stationary Cutter.
1375 Gauge Finger—Short.
1376 Gauge Finger—Long.
1377 Gauge Finger Set Screw.
1378 Cam Lever Spring.
1379 Cam Lever Spring Stud (Long).

PLATE 10

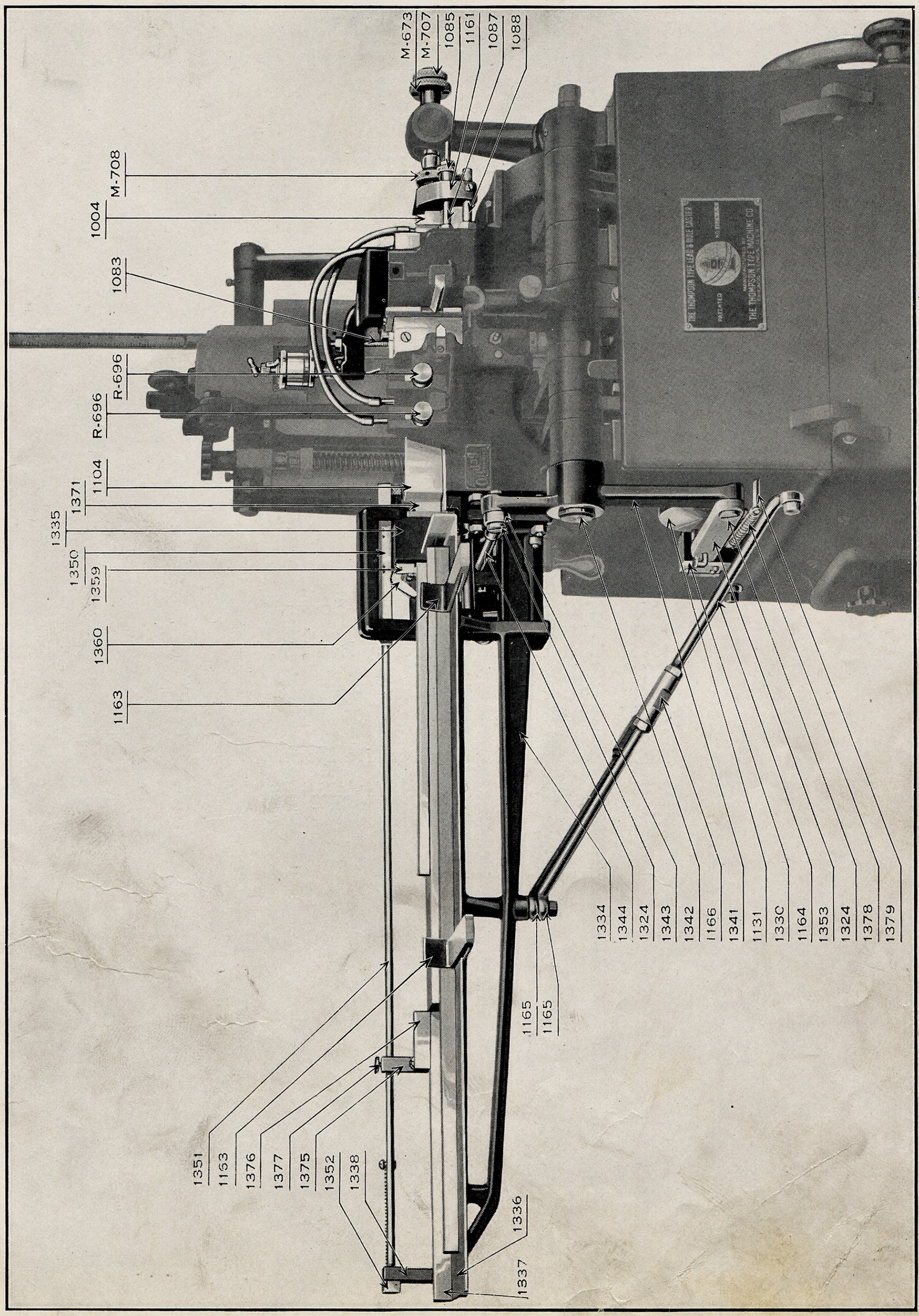

M-673
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M-708
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R-696
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PLATE 11

1082 Mold Stand Cap.
1083 Rule Matrix Set Screw.
1090 Knife Block Set Screw Bracket.
1092 Vertical Mold Blade.
1105 Trimming Knife Block.
1106 Trimming Knife.
1109 Stripper Cam Spring.
1131 Cutter Cam.
1162 Cutter Trigger Spring.
1164 Brace—Lower.
1165 Brace—Upper.
1166 Brace—Turnbuckle.
1329 Cutter Cam Roller Bar Guide.
1330 Cutter Cam Roller Bar Guide Cover.
1334 Cutter Bracket.
1335 Cutter Block.
1336 Cutter Table.
1337 Cutter Table Back Guide.
1338 Gauge Rod Outboard Bearing.
1340 Cutter Block Guide Rod—Lower.
1341 Cutter Cam Lever.
1345 Cutter Lever Connecting Rod Pin.
1346 Cutter Lever.
1349 Cutter Block Bar Retaining Plate.
1350 Cutter Block Bar.
1351 Gauge Rod.
1352 Gauge and Spring Rod Tie Block.
1353 Cutter Cam Roller Bar.
1354 Cutter Cam Roller Bar Stop Block.
1375 Gauge Finger—Short.
1377 Gauge Finger Set Screw.

PLATE 11

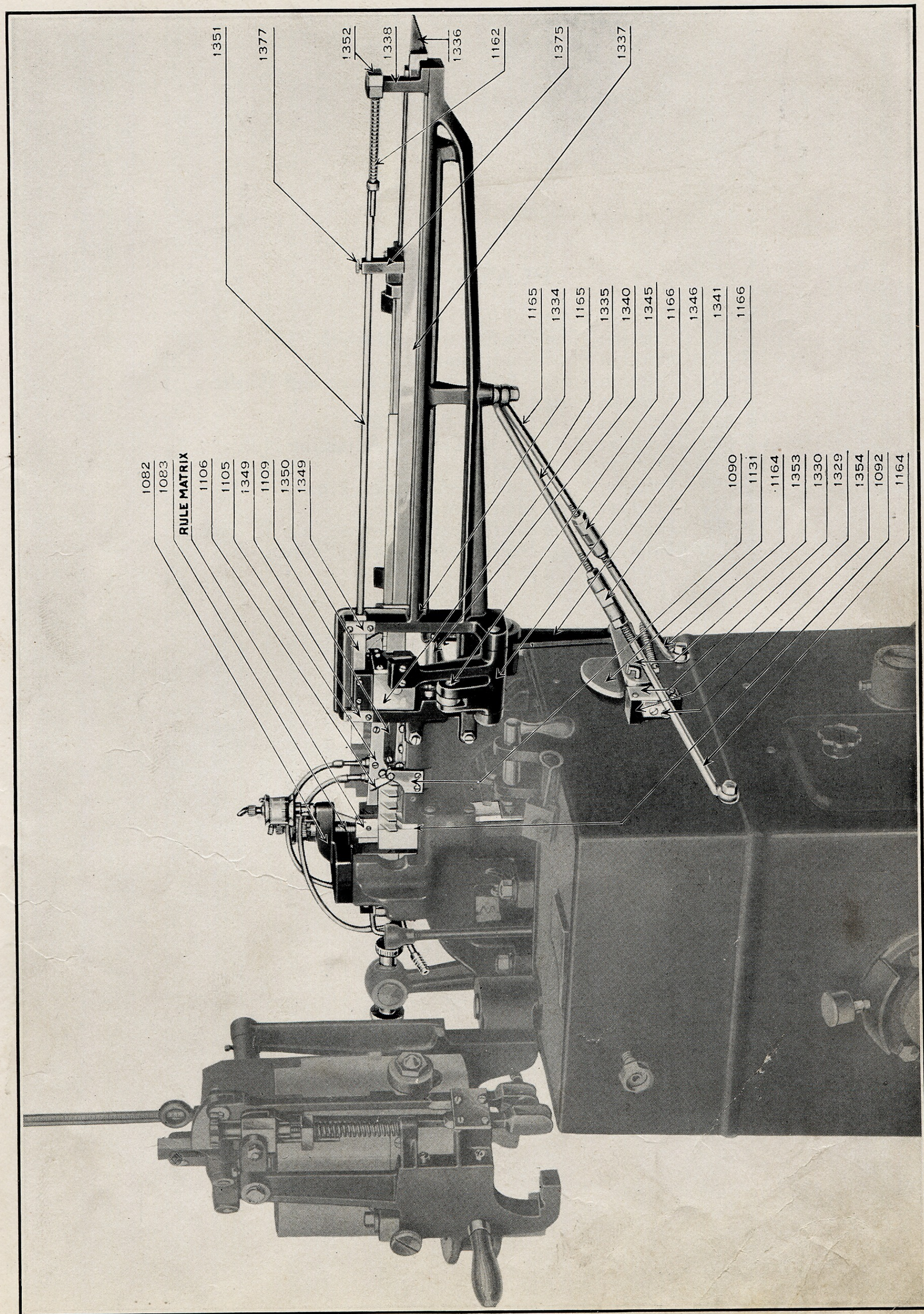
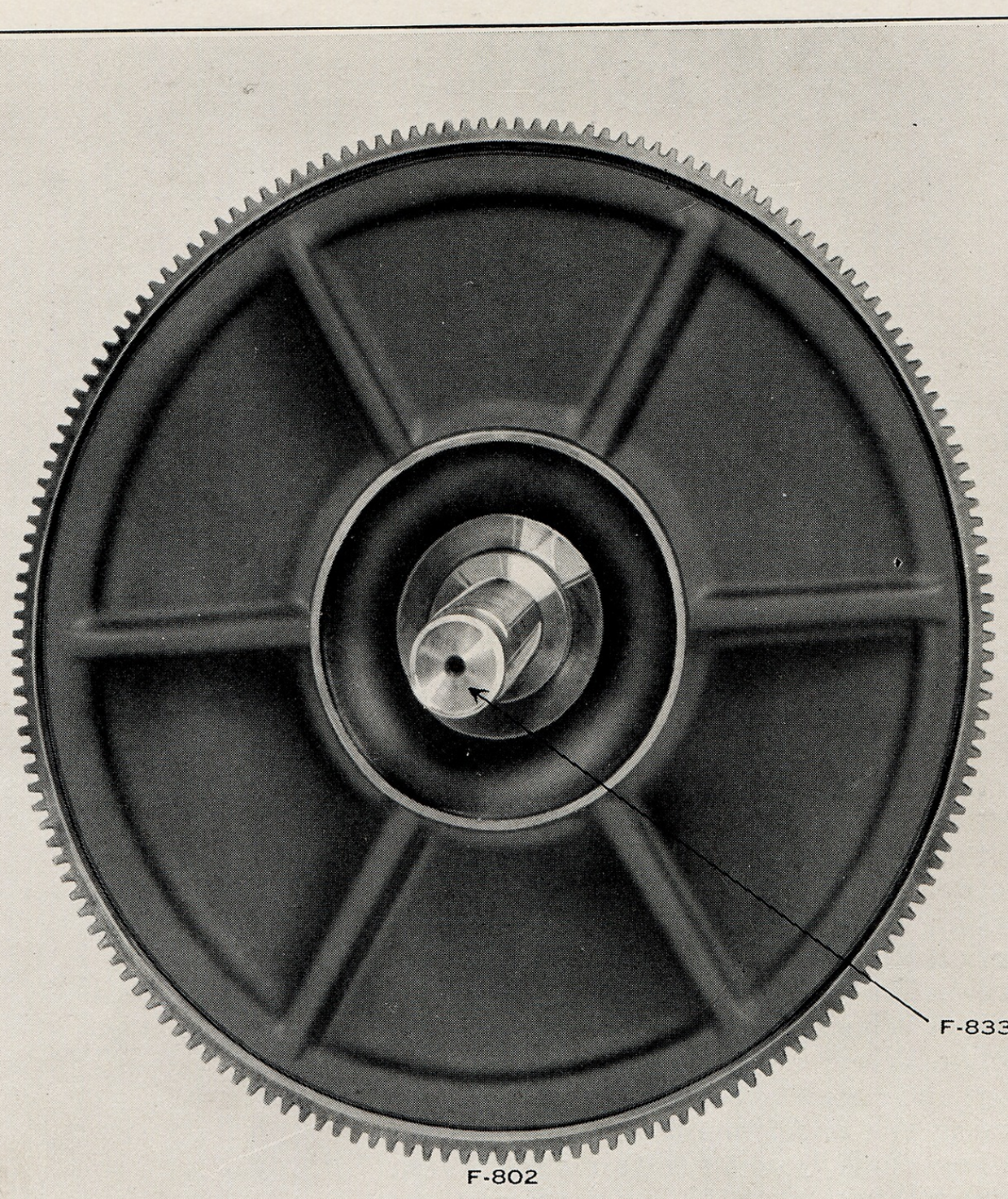
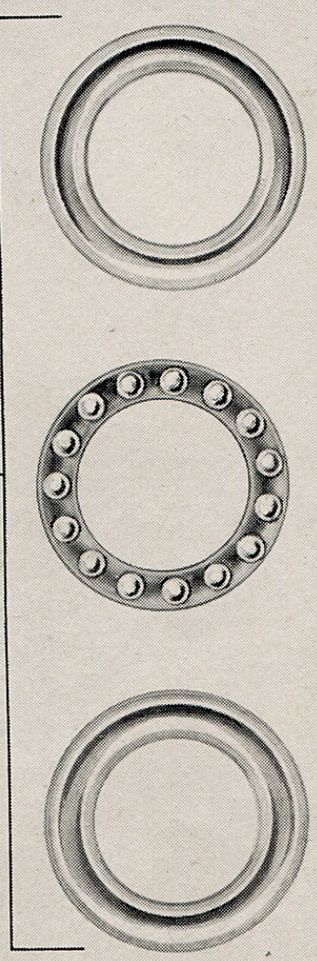

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RULE MATRIX
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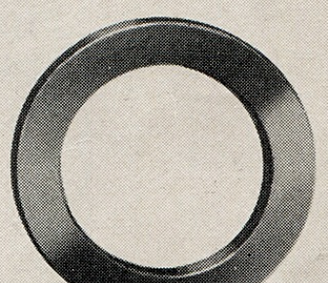
PLATE 12

F-802 Friction Plate.
F-819 Friction Plate Shaft—Spring Bushing.
F-822 Friction Plate Shaft-bearing.
F-823 Friction Plate—Ball Bearing Thrust and Washers.
F-824 Friction Plate Spring.
F-826 Friction Plate Spring—Stop Collar.
F-827 Friction Plate Spring-Tension Adjusting Nut.
F-833 Friction Plate Shaft.
F-869 Friction Plate Spring—Adjusting Pins.
F-972 Friction Plate Shaft-Cover.
F-997 Friction Plate Shaft Bearing Grease Cup ¼″ Shank.
X-120-7 Friction Plate Shaft Bearing—Cap Screws.

PLATE 12

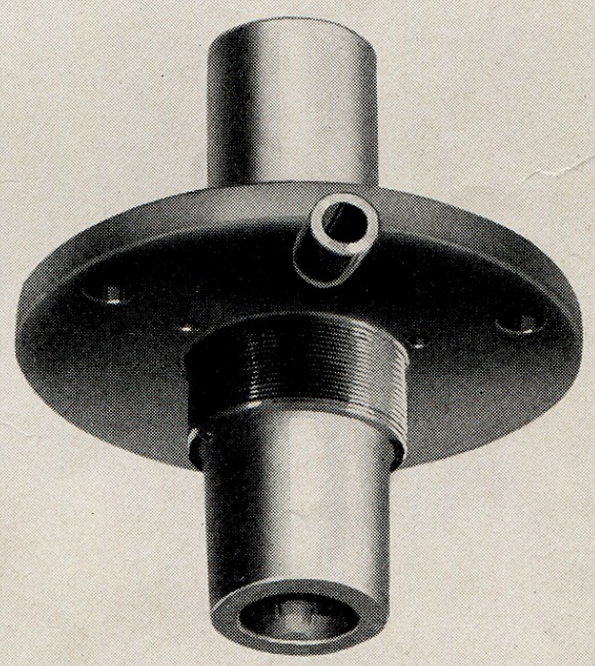

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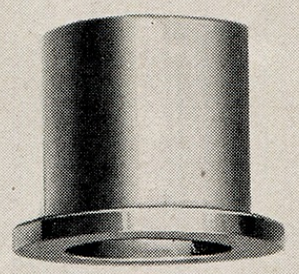

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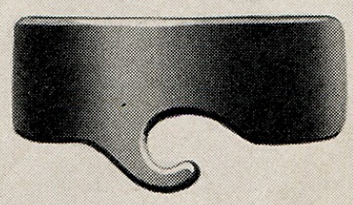

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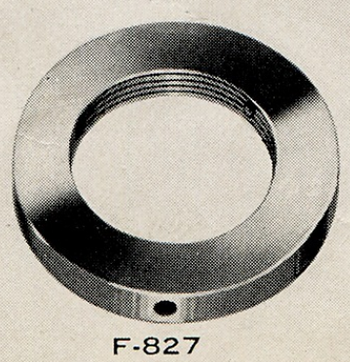
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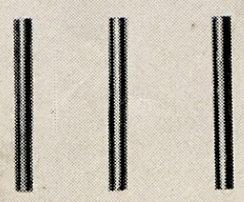

X-120-7

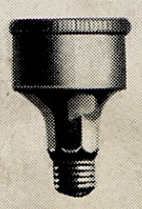

F-822


F-819


F-972


F-827


F-869


F-997


F-824

PLATE 13

F-655	Friction Ring—(Fibre).
F-805	Friction Wheel.
F-806	Friction Wheel Clamping Ring.
F-808	Friction Wheel Shaft.
S-811	Speed Gear—7″.
S-813	Speed Gear—3½″.
F-817	Friction Shaft Bearing Bushing.
S-820	Speed Gear—4″.
F-861	Friction Wheel Shaft Collar.
F-946	Friction Wheel Shifter Yoke.
F-950	Friction Wheel Shaft Key.
F-952	Friction Wheel Controlling Knob.
F-963	Friction Wheel Adjusting Screw.
F-967	Friction Ring Shifter Yoke Retaining Ring.
F-977	Friction Wheel Adjusting Screw Collar.
F-998	Friction Wheel Shifter Yoke—Grease Cup ⅛″ Shank.
X-105-1	Friction Ring Shifter Yoke Retaining Ring Screws.
X-106-3	Friction Wheel Clamping Ring Screws.
X-108-12	Friction Wheel Shaft Key Screws.
X-111-10	Friction Wheel Controlling Knob Pin.
X-111A-4	Large and Small Speed Gear Pin.
X-111A-7	Friction Wheel Adjusting Screw Collar Pin.
X-114-4	Friction Shaft Bearing Bushing Set Screw.
X-114-5	Friction Wheel Shaft Collar Set Screw.
X-119-4	Speed Gear—Medium—Taper Pin.

PLATE 13

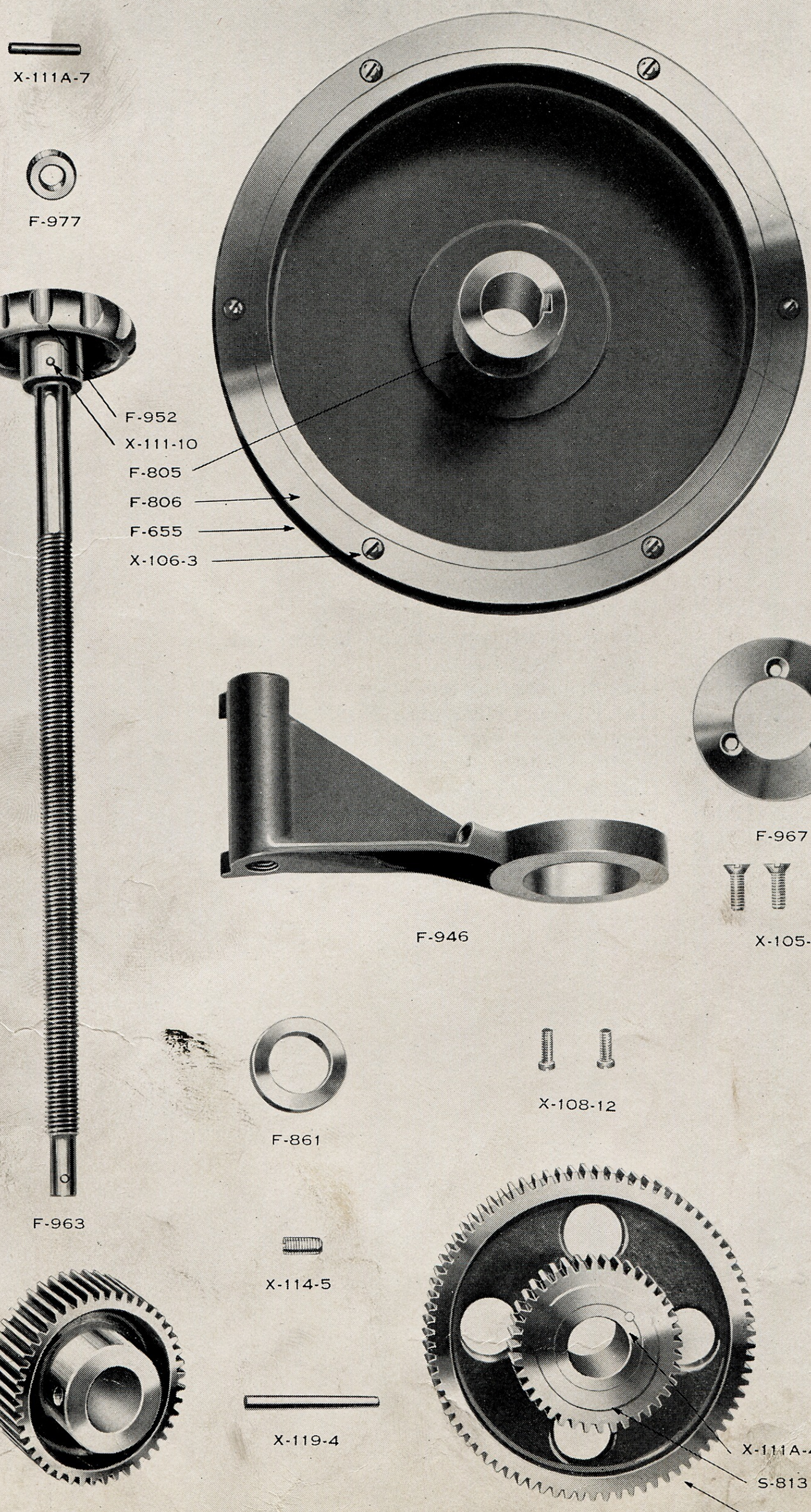
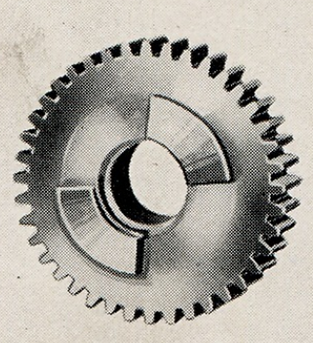

X-111A-7
F-977
F-998
X-114-4
F-952
X-111-10
F-805
F-806
F-655
X-106-3
F-817
F-967
F-946
X-105-1
F-963
F-861
X-108-12
X-114-5
S-820
X-119-4
X-111A-4
S-813
S-811
F-950
F-808

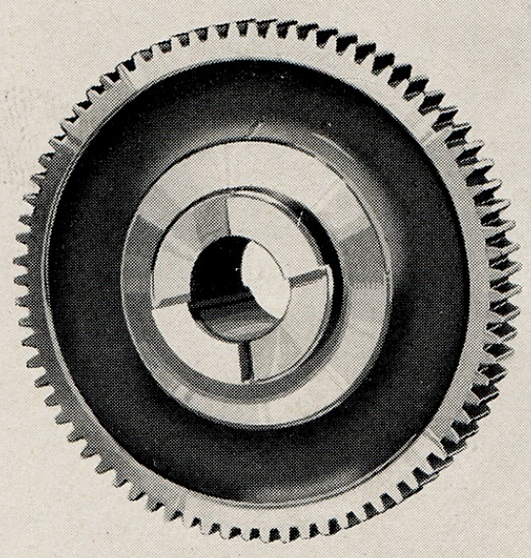
PLATE 14

S-541	Hand Wheel.
S-764	Hand Wheel Handle.
S-803	Clutch Gear Yoke.
S-804	Clutch Shifting Knob.
S-807	Clutch Gear—Double.
S-809	Clutch Shaft.
S-810	Clutch Shifting Rod.
S-812	Yoke Gear—7″.
S-814	Clutch Gear—3½″.
S-821	Clutch Gear—7″.
S-866	Clutch Shaft Retaining Latch.
S-882	Clutch Shaft Key—Hand Wheel end.
S-883	Clutch Shaft Key.
S-969	Clutch Gear Shifter Yoke.
X-102-5	Hand Wheel Retaining Nut.
X-108A-6	Clutch Shaft Retaining Latch Screw.
X-119-4	Clutch Gear Taper Pin.
X-120-4	Clutch Gear Yoke Cap Screws.
X-120-6	Clutch Gear Yoke Adjusting Screws.
X-121-3	Clutch Gear Shifter Yoke Set Screws.

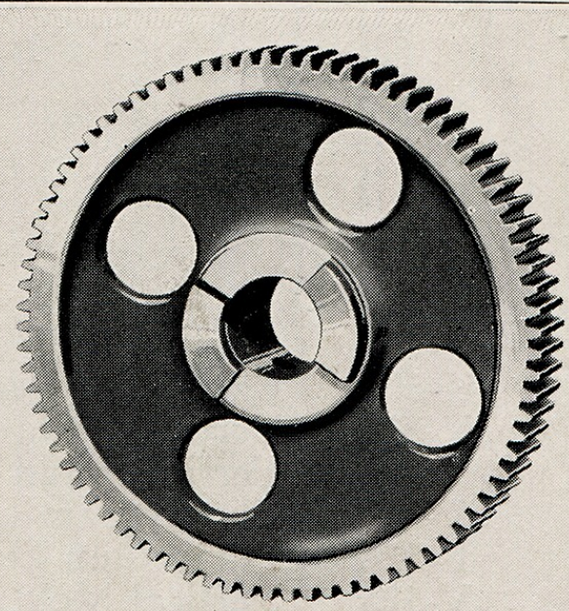
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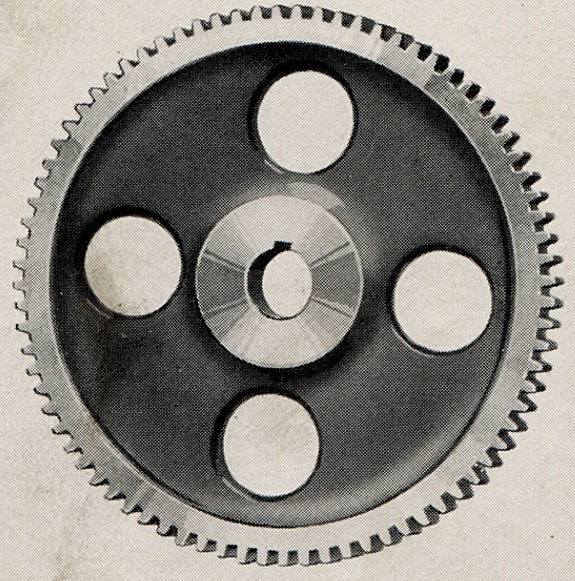
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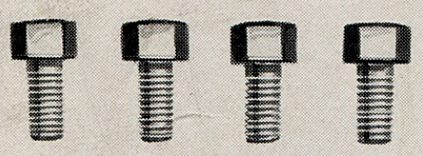
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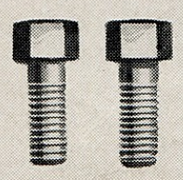
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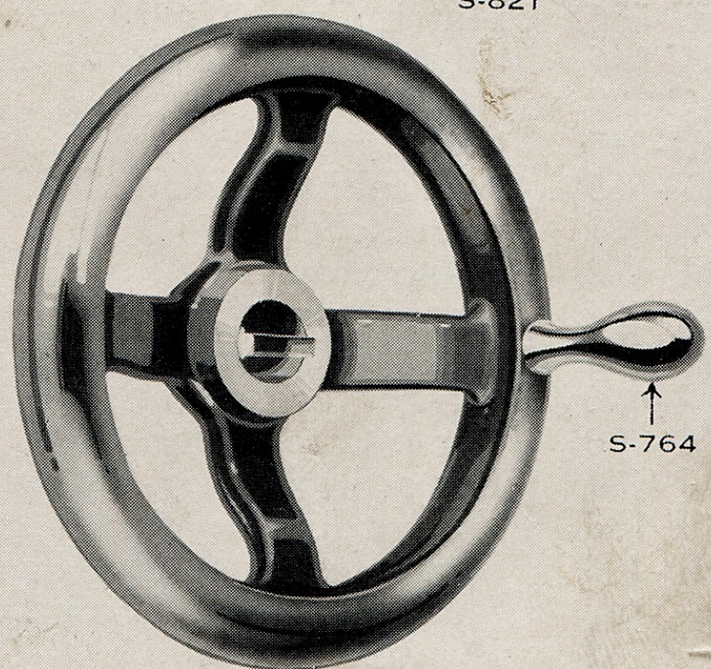
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X-120-6



X-120-4



S-764

S-541



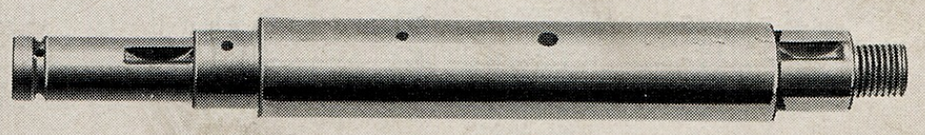
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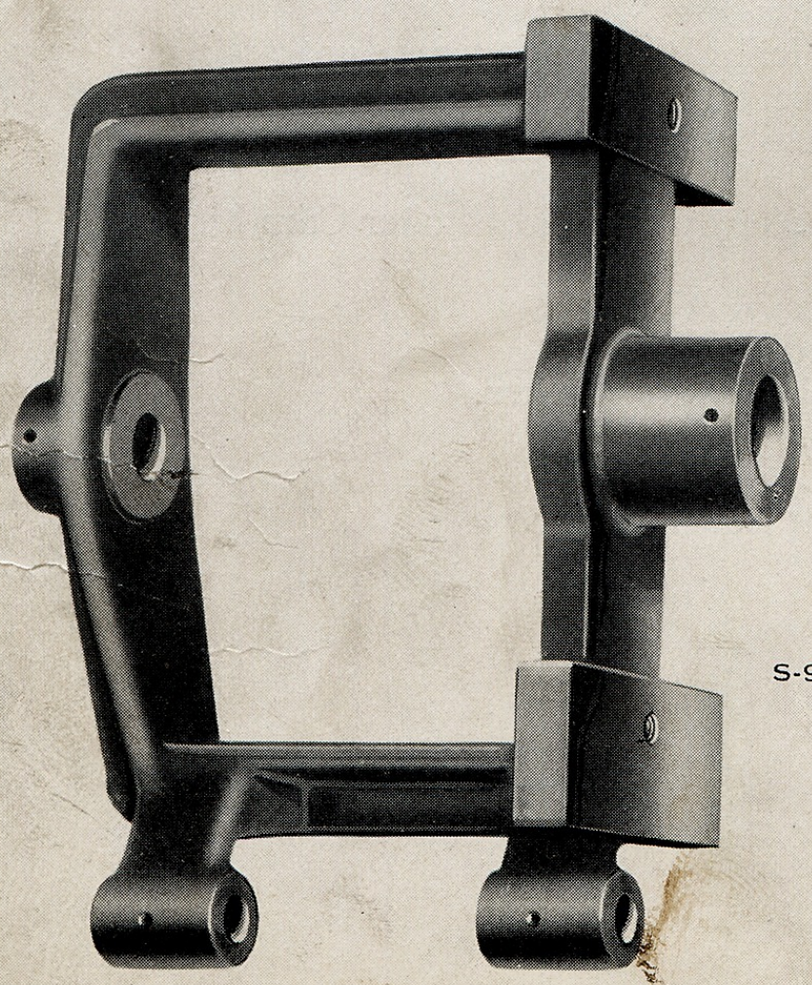
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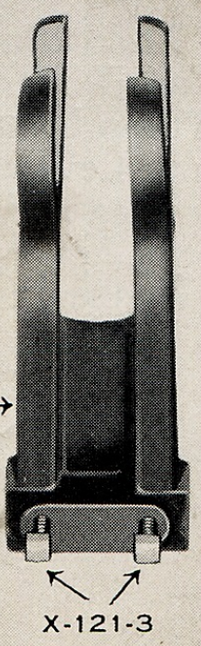
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S-809



S-803



S-969

X-121-3



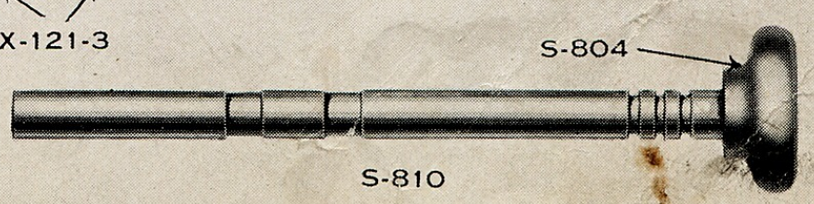
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S-866



X-108A-6



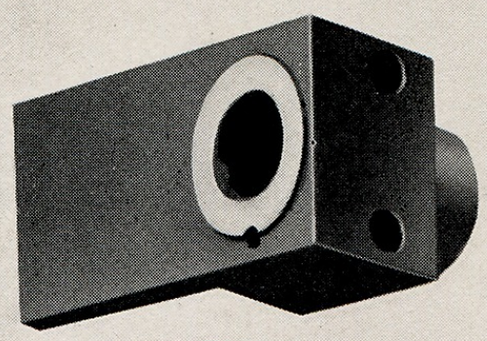
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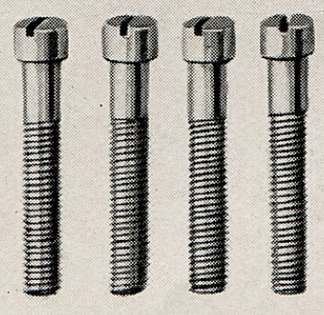
S-810

PLATE 15

K-504 Cam Shaft Bearing, R. H.
K-505 Cam Shaft Bearing, L. H.
V-511 Vertical Mold Blade Lever Yoke.
V-512 Vertical Mold Blade Lever.
C-523 Choker Cam Lever.
P-524 Pump Cam Lever.
V-525 Vertical Mold Blade Cam Lever.
G-536 Matrix Carrier and Vertical Mold Blade Cam Lever Roller Studs.
V-546 Stud for Vertical Mold Blade Lifting Block.
C-577 Spring for Choker Cam Lever Roller.
K-585 Cam Lever Shaft.
V-615 Vertical Mold Blade Lifting Block.
K-631 Cam Rollers.
P-682 Pump Stop.
V-684 Upper Adjusting Screw for Vertical Mold Blade Lever.
V-685 Lower Adjusting Screw for Vertical Mold Blade Lever.
P-686 Washer for Pump Cam Roller Stud.
P-780 Pump Cam Roller Stud.
P-784 Pump Stop Screw.
P-785 Washer for Pump Stop.
P-786 Spring for Pump Stop Screw.
C-843 Spring for Choker Cam Lever.
P-912 Pump Lever Rod.
C-964 Choker Cam Lever Roller Pin.
C-965 Choker Cam Lever Roller Yoke.
C-966 Choker Cam Lever Roller.
C-971 Choker Cam Lever Yoke Pin.
X-102-3 Upper Locknut for Choker Cam Lever Roller Adjusting Screw and Vertical Mold Blade Lever Adjusting Screw.
X-102-4 Locknut for Matrix Carrier, Vertical Mold Blade Cam Lever Roller Studs, and Vertical Mold Blade Lifting Block Stud.
X-104-1 Lower Clamping Screw for Vertical Mold Blade Adjusting Screw.
X-104-7 Screws for Cam Shaft Bearing.
X-108-9 Screws for Choker Cam Lever Roller Spring and Choker Cam Lever Spring.
X-108A-5 Screw for Vertical Mold Blade Lever Yoke.
X-109-3 Screw for Pump Cam Roller Stud Washer.
X-111-1 Locating Pin for Pump Cam Roller Stud Washer.
X-112-1 Cotter Pin for Pump Lever Rod.
X-114-4 Set Screws for Cam Lever Shaft.
X-114-7 Adjusting Screw for Choker Cam Lever Roller.
X-125-1 Pump Lever Rod Washer.

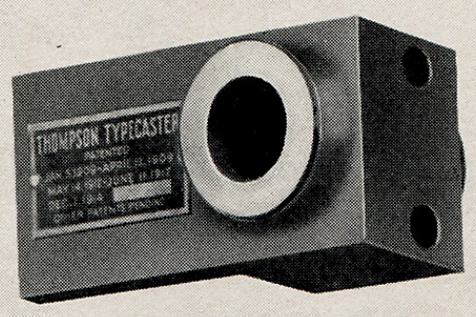
PLATE 15


K-505

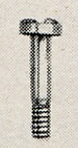

X-104-7


C-843

X-108-9



K-504


P-784


C-577

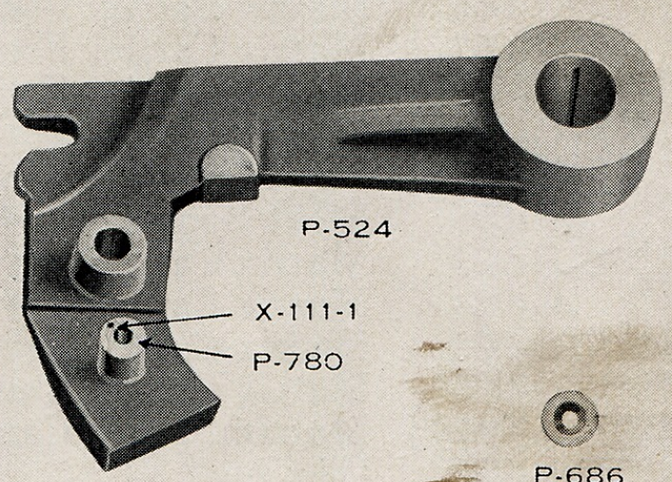

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X-114-7

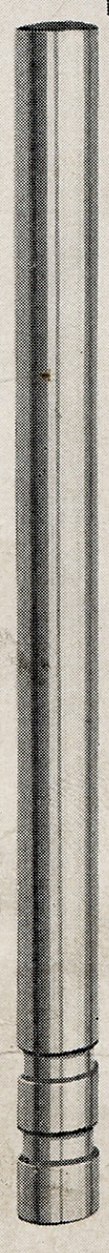

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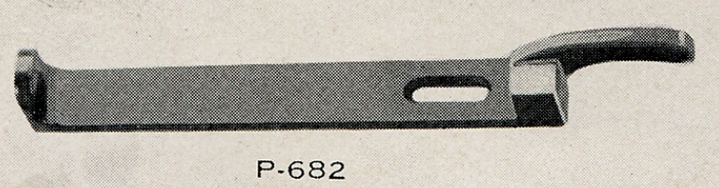

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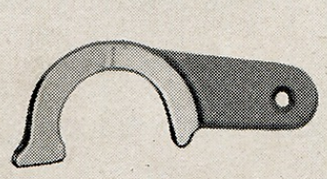

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P-524

P-686

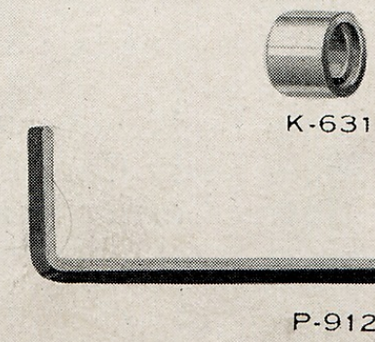

K-585


P-682


V-511

X-112-1


X-125-1


P-912

K-631


X-109-3

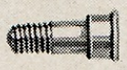

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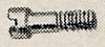

V-684


X-102-3


V-615


X-102-4

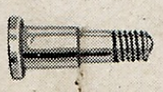

V-546


X-104-1


V-685


V-525

V-512


G-536


X-102-4

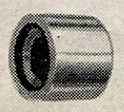
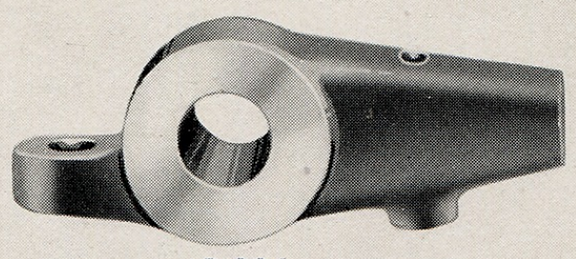
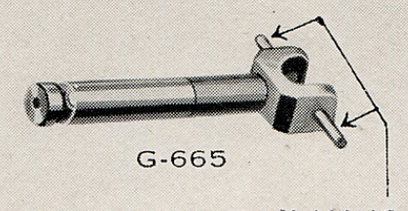

K-631

PLATE 16

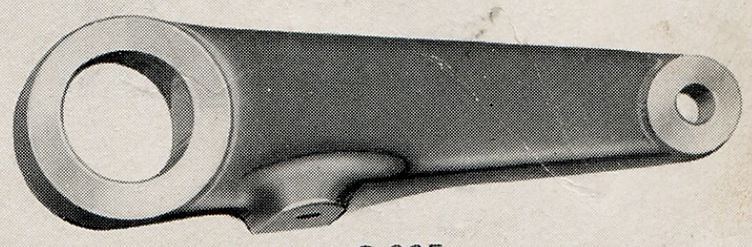
M-520 Mold Body Lever.
M-521 Mold Body Cam Lever.
M-535 Mold Body Cam Lever Roller Stud.
G-536 Matrix Carrier and Vertical Mold Blade Cam Lever Roller Studs.
M-628 Mold Body Cam Lever Roller.
K-631 Cam Rollers.
M-649 Mold Body Lever Shaft.
G-665 Matrix Carrier Fork.
G-667 Matrix Carrier Fork Releasing Knob.
G-668 Matrix Carrier Fork Releasing Pin.
G-760 Matrix Carrier Fork Releasing Pin Spring.
N-872 Cap Screws for Mold Stand Cap.
M-895 Mold Body Lever Cross Block.
G-923 Matrix Carrier Lever Screw.
G-924 Matrix Carrier Lever.
G-925 Matrix Carrier Cam Lever.
G-926 Matrix Carrier Cam Lever Spring.
G-947½ Matrix Carrier Cam Lever Screw Nut.
B-955 Oil Cups.
G-987 Matrix Carrier Concave Washer.
M-996 Street Elbow for R. H. Mold Stand Oil Cup.
X-102-4 Nut for Matrix Carrier and Vertical Mold Blade Cam Lever Roller Studs.
X-104-2 Mold Body Lever Clamping Screws.
X-108-6 Mold Body Cam Lever Roller Stud Oil Hole Closing Screw.
X-111-12 Matrix Carrier Fork Pins.
X-116-1 Sight Feed Oiler for Mold.

PLATE 16


G-924


G-665

X-111-12


G-925

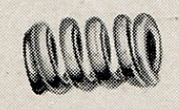

G-923


G-667


G-760


G-668


G-947 ½


G-926


G-987

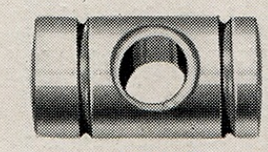

G-536


X-102-4

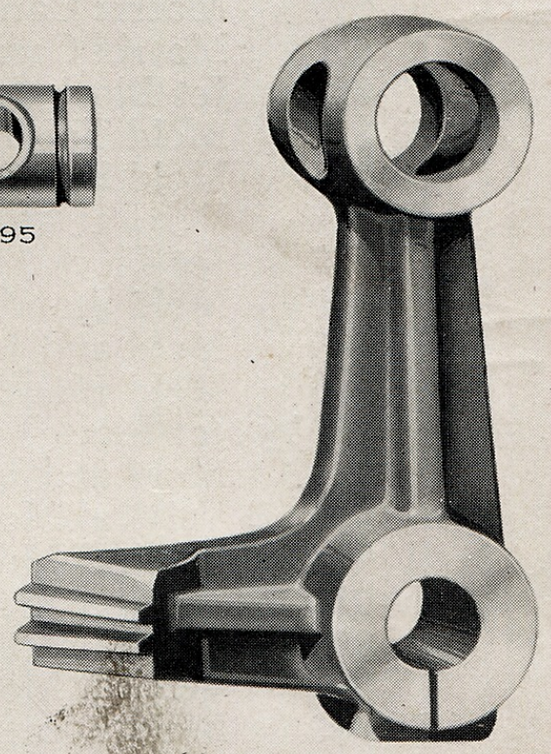

K-631


M-521


X-108-6

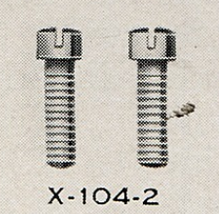

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M-535

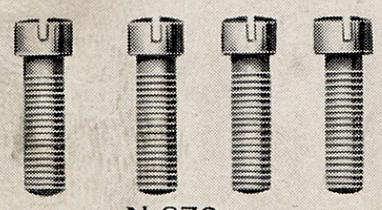

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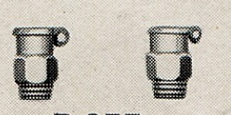

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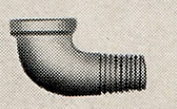

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X-104-2


M-649


N-872


B-955


M-996

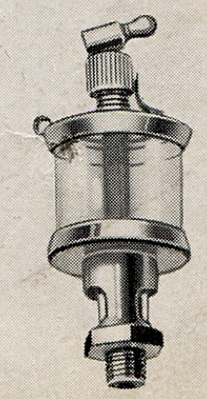
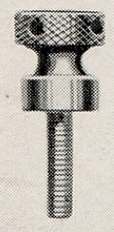

X-116-1

PLATE 17

N-502 & N-503 Assembled—Mold Stand complete. **These parts are never shipped separately.**

V-646 Vertical Mold Blade Adjusting Screw.
J-650 Jet Block Adjusting Screw—Small Head.
G-669 Matrix Carrier Slide Gib.
G-670 Matrix Carrier Slide, L. H.
G-671 Matrix Carrier Slide, R. H.
M-683 Mold Block Adjusting Screw—Small Head.
J-691 Jet Block Adjusting Screw—Large Head.
M-693 Mold Block Adjusting Screw—Large Head.
G-694 Matrix Carrier Slide Adjusting Screw—Short.
G-695 Matrix Carrier Slide Adjusting Screw—Long.
J-897 Jet Block Adjusting Eccentric.
M-898 Mold Top Block Adjusting Eccentric.
N-910 Mold Stand Cap.
V-914 Vertical Mold Blade Adjusting Shoe.
J-937 Jet Block Lifting Yoke.
N-938 Mold Stand Tray.
M-939 Mold and Jet Block Lifting Stud Nuts.
M-940 Mold Block Lifting Studs.
J-940½ Jet Block Lifting Stud.
M-941 Mold and Jet Block Fulcrum Studs.
V-943 Vertical Mold Blade Adjusting Screw Plug.
V-954 Vertical Mold Blade Gib Screw.
V-956 Vertical Mold Blade Gib.
V-960 Vertical Mold Blade Supporting Plug.
V-978 Vertical Mold Blade Adjusting Screw Spring.
M-983 Mold Locating Screw.
V-984 Vertical Mold Blade Supporting Plug Set Screw.
V-985 Vertical Mold Blade Supporting Plug Set Screw Nut.
X-102-1 Nuts for Mold Block Adjusting Screw and Mold and Jet Block Fulcrum Studs.
X-102-2 Vertical Mold Blade Gib Screw Lock Nut.
X-108-4 Mold Stand Tray Screws.
X-108-10 Matrix Carrier Slide Gib Adjusting Screw.
X-108-16 Matrix Carrier Slide (L. H.) Clamping Screw.
X-108-17 Matrix Carrier Slide (L. H.) Clamping Screw.
X-108-18 Matrix Carrier Slide (R. H.) Clamping Screw.
X-111-18 Mold and Jet Block Eccentric Pins.
X-111A-8 Vertical Mold Blade Adjusting Shoe Fulcrum Pin.
X-114-9 Vertical Mold Blade Gib Adjusting Screw.

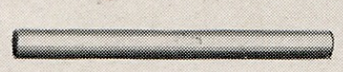
PLATE 17



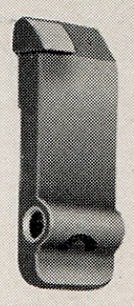
V-646



V-943



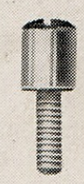
X-111A-8



V-914



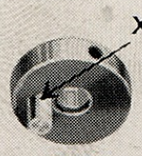
V-978



M-983

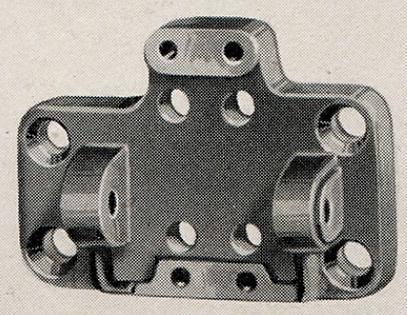


M-941

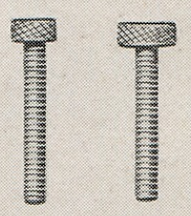


X-111-18

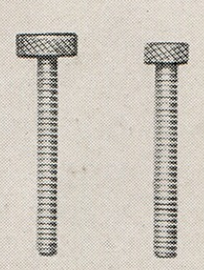
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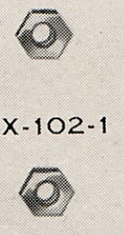
N-910



M-683 M-693



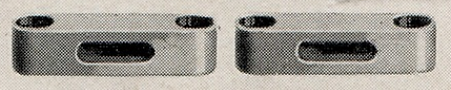
J-691 J-650



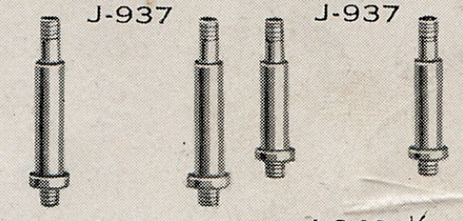
X-102-1



M-939 M-939



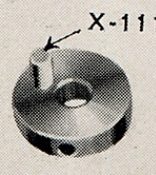
J-937 J-937



M-940 J-940 ½



X-102-1



X-111-18

M-898



M-941

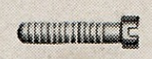
N-502 & N-503



V-956



X-114-9



V-954



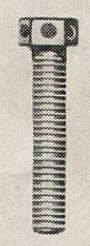
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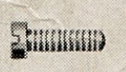
V-960



V-985



V-984



X-108-16

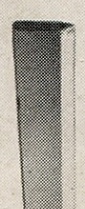


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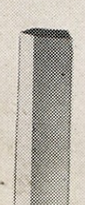
X-108-10



G-669



G-670



G-671



G-695



X-108-18



G-694



N-938



X-108-4



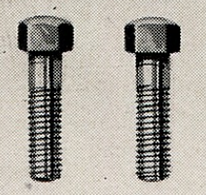
PLATE 18

H-416	Pot Adjusting Screw Pins.
H-417	Rear Pot Adjustment Pin.
P-526	Pump Lever Link.
C-527	Choker Lever Link.
C-530	Choker Spring Rod Adjustment Stud Nut.
C-531	Assembled Choker. (Parts not sold separately.)
C-534	Choker Valve Lever.
P-537	Pump Lever.
P-544	Pump and Choker Lever Link Pins.
P-549	Pump Connecting Pin.
H-571	Pot Crucible.
P-572	Pump.
H-573	Pot Jacket—Lower.
H-574	Pot Jacket—Upper.
H-575	Nozzle.
C-580	Choker Valve Bushing.
P-705	Pump Links.
P-706	Pump Link Pin.
J-710	Jet Breaker.
C-755	Choker Lever Link Connecting Pin.
P-758	Pump Lever Pin.
C-782	Choker Lever Adjusting Screw Washer.
C-792	Choker Link Spring.
C-845	Choker Link Pin.
C-846	Choker Spring Rod.
C-847	Choker Spring Block Guiding Rod.
C-848	Choker Spring Rod Block.
C-849	Choker Spring Rod Nut.
C-850	Choker Spring Rod Collar.
C-852	Choker Lever Connecting Pins.
C-854	Choker Lever.
C-856	Choker Rod Spring.
H-945	Pot Screw Washers.
X-102-3	Nut for Choker Link Pin and Pump & Choker Lever Link Pins.
X-108-8	Jet Breaker Screws.
X-109-4	Pot Jacket Screws.
X-119-1	Taper Pin for Choker Spring Rod Adjustment Stud Nut and Choker Spring Rod Collar.
X-120-1	Choker Valve Fork Adjusting Screw.
X-120-3	Pot Screws.
X-121-1	Pump Lever Set Screw.
X-121-2	Choker Lever Set Screws.

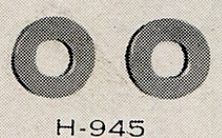
PLATE 18



H-574



X-120-3



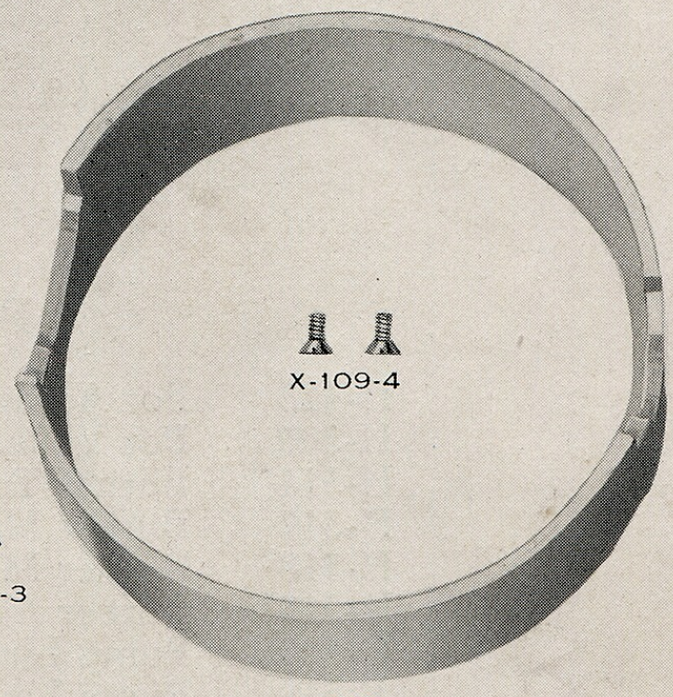
H-945



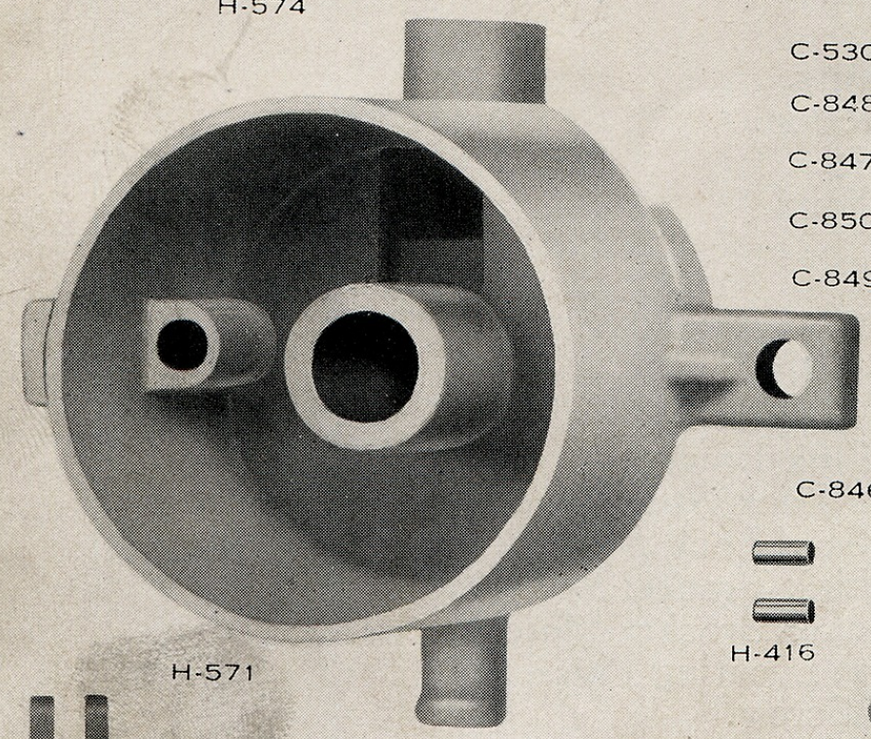
C-845



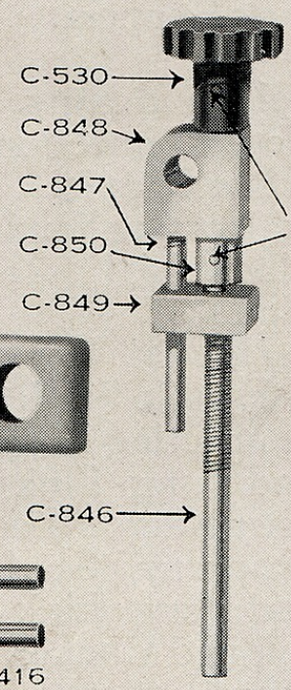
X-102-3



H-573



H-571



C-530
C-848
C-847
C-850
C-849
C-846



C-792



C-856

H-416



H-417



P-549

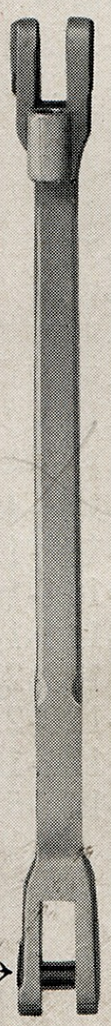
P-544



X-102-3



P-758



C-527



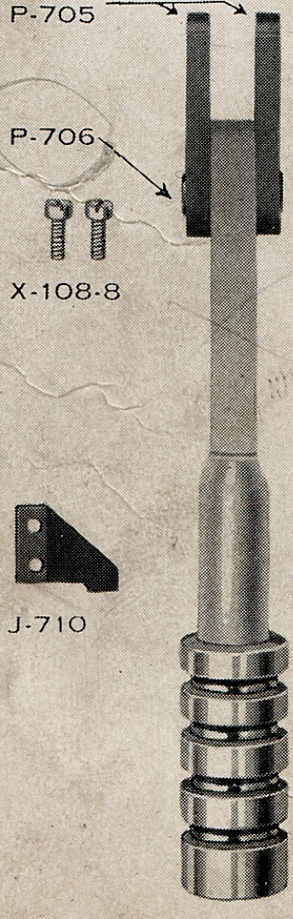
C-782



X-120-1



C-534



P-705
P-706



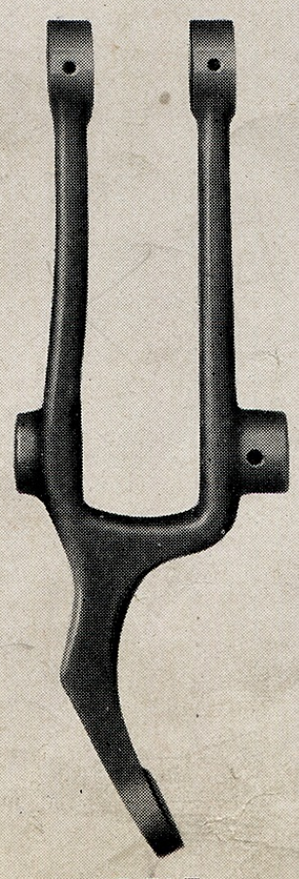
H-575

X-108-8



C-580

J-710



P-537



C-852



X-121-1



C-755

C-852

C-854

X-121-2



P-526

P-572

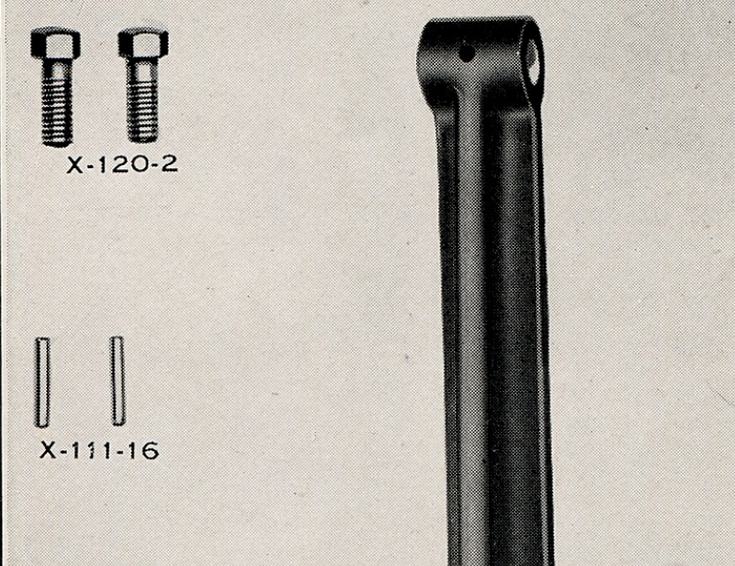


C-531

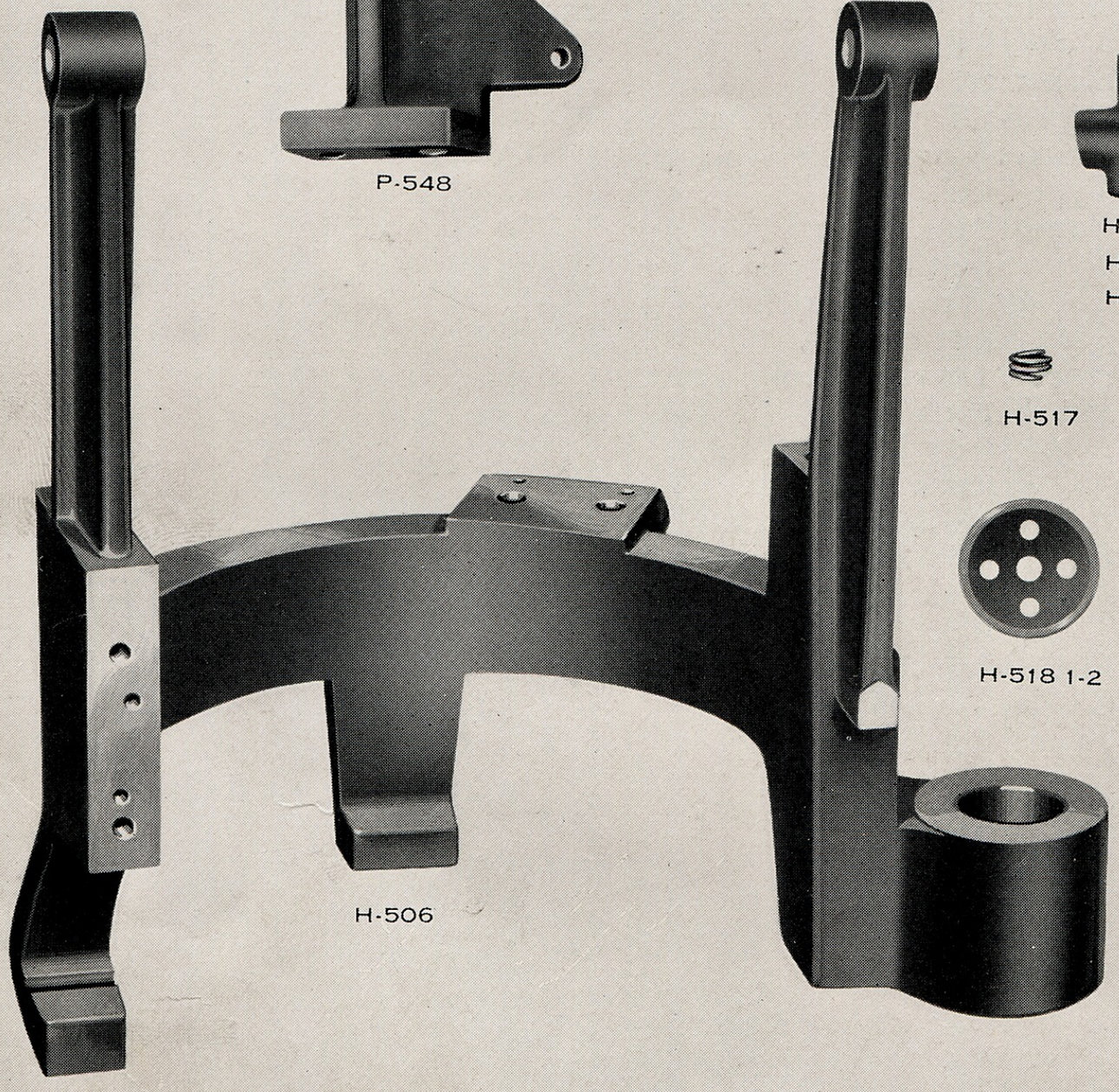
PLATE 19

H-415	Pot Adjusting Screw.
H-506	Pot Yoke.
H-514	Burner Top Plate.
H-517	Burner Mixer Plate Spring.
H-518	Burner Mixer.
H-518½	Burner Air Regulating Plate.
C-529	Pump Link and Choker Bracket Plate.
P-548	Pump Lever Support.
H-599	Burner.
H-600	Burner Bolts and Nuts.
H-712	Burner Hose Connection.
H-713	Burner Mixer Nipple.
H-714	Burner Supporting Stud.
H-715	Burner Elbow ⅛."
H-716	Burner Pipe ⅛."
H-749	Pot Yoke Handle.
H-766	Pot Yoke Handle Stud.
H-836	Burner Connecting Nipple.
C-851	Choker and Pump Link Bracket.
X-102-3	Pot Adjusting Screw Lock Nut—(Rear).
X-102-4	Burner Supporting Stud Lock Nut.
X-104-4	Choker and Pump Link Bracket Screws.
X-108-15	Pump Link and Choker Bracket Plate Screws.
X-111-16	Pump Lever Support Locating Pins.
X-114-11	Rear Pot Adjusting Screw.
X-119-2	Choker and Pump Link Bracket Locating Pins.
X-120-2	Pump Lever Support Screws.
X-121-1	Pump Lever Fulcrum Pin Set Screw.
X-121-5	Burner Set Screw.

PLATE 19

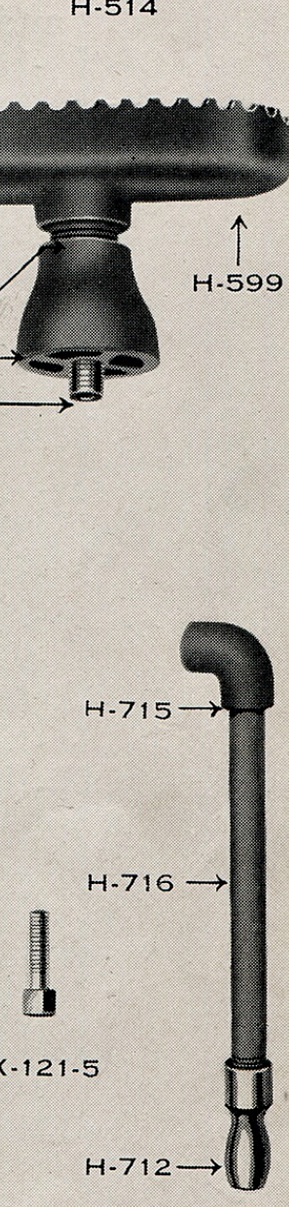


P-548



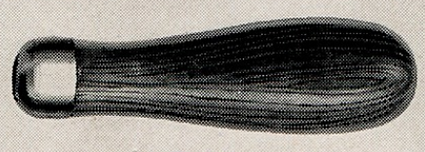
H-506

H-518 1-2



H-715
H-716
H-712

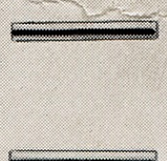
X-121-5



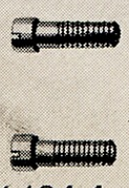
H-749



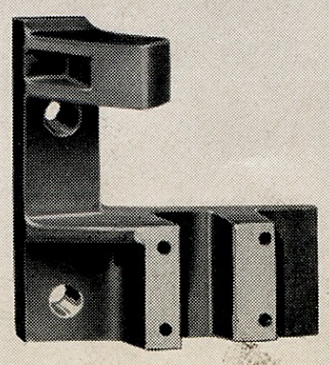
H-766



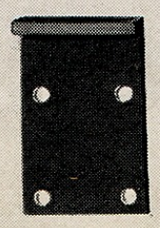
X-119-2



X-104-4



C-851



C-529



X108-15



H-415

H-514

H-517

H-599
H-836
H-518
H-713

X-114-11

X-102-3

H-600

X-111-16

X-120-2

X-102-4

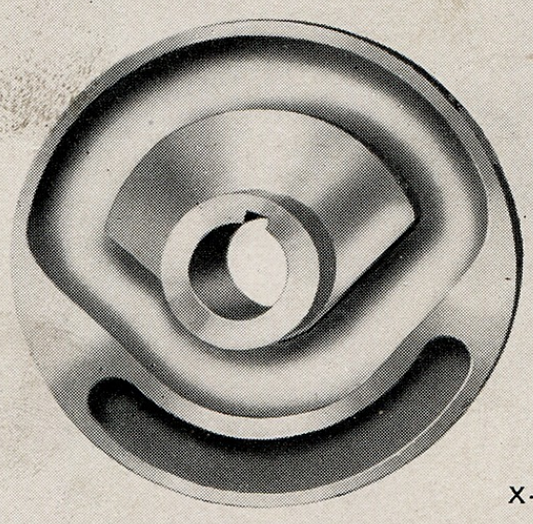
H-714

X-121-1

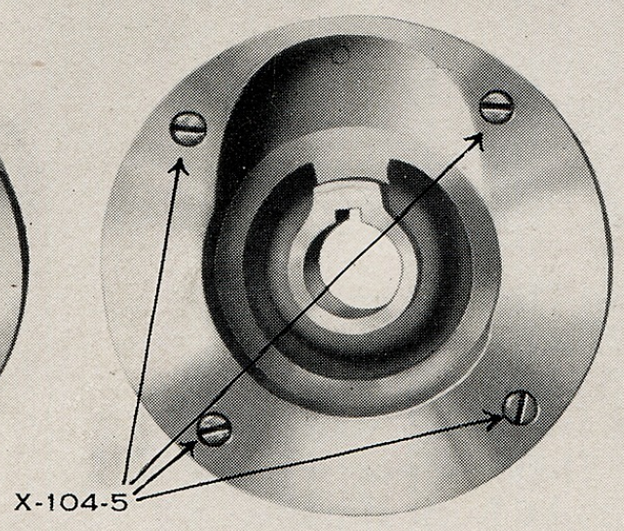
PLATE 20

C-413	Choker Cam.
V-509	Vertical Mold Blade Cam.
P-510	Pump Cam.
M-513 and M-516	Assembled, Matrix Carrier and Mold Body Auxiliary Cams—(Parts not furnished separately).
M-515	Mold Body Cam.
E-550	Skimmer.
K-579	Cam Shaft with Key Assembled.
C-690	Choker Cam Screw Washer.
R-698	Type Stick.
P-781	Pump Cam Block.
R-825	Type Stick Plate.
C-837	Choker Tripper Tool.
K-865	Cam Shaft Gear.
H-979	Nozzle Driving Tool.
E-981	Pin Wrench.
M-982	Mold Body Lifting Tool.
E-990	"S" Wrench.
E-993	Box Wrench for Nozzle.
X-103-1	Pump Cam Block Screw.
X-104-5	Matrix Carrier and Mold Body Auxiliary Cam Screws.
X-106-1	Type Stick Plate Screws.
X-111-19	Pump Cam Block Dowels.
X-120-9	Choker Cam Screws.
X-127-1	Type Stick Screws.
X-128-2	Ladle.
X-128-3	Small Screw Driver.
X-128-4	Large Screw Driver.

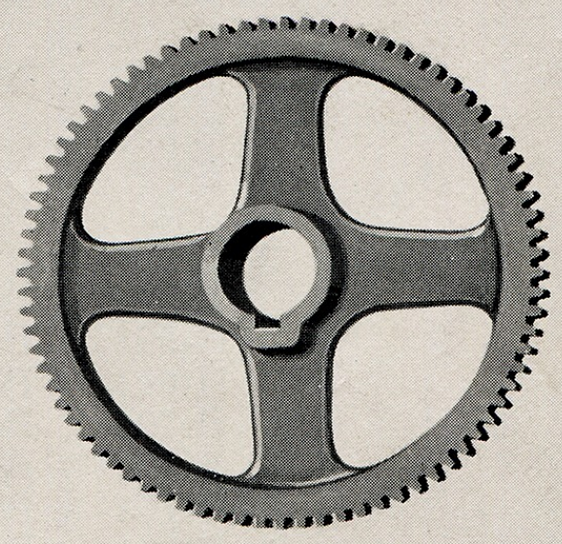
PLATE 20



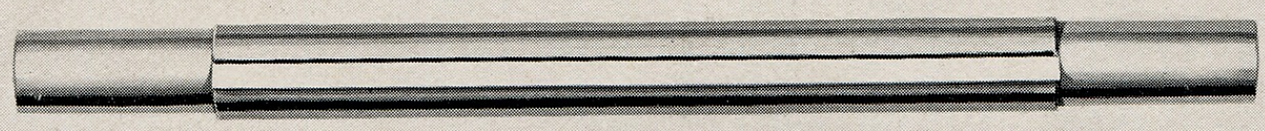
V-509



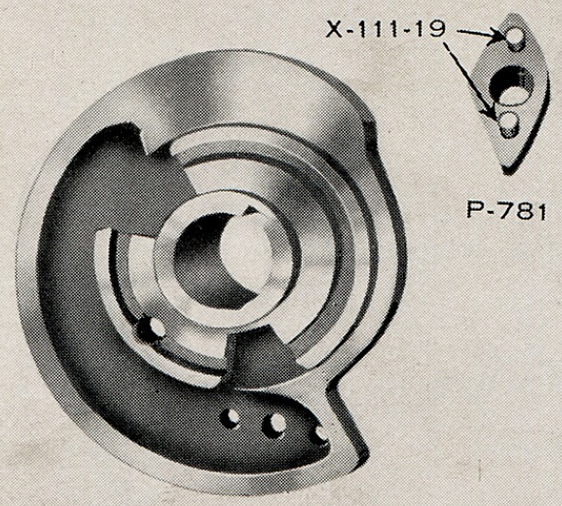
M-513 & M-516



K-865

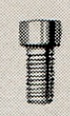


K-579



P-510

P-781



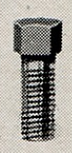
X-103-1



C-413



C-690



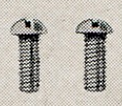
X-120-9



M-515



H-979



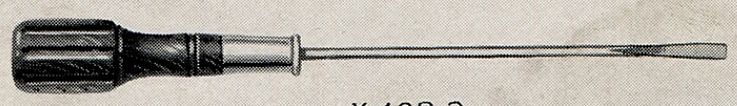
X-106-1



E-981



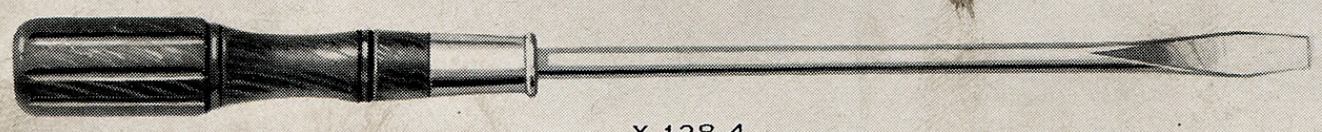
R-698



X-128-3



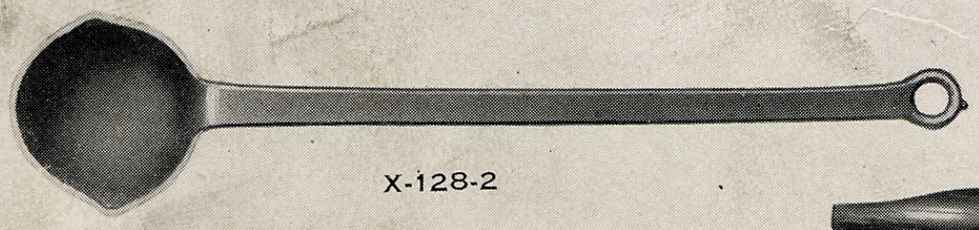
M-982



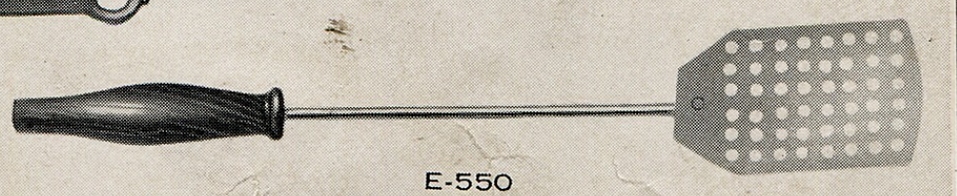
X-128-4



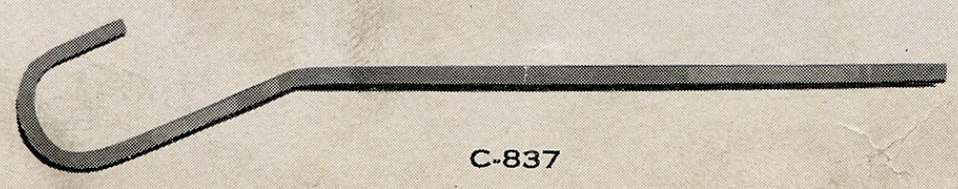
E-993



X-128-2



E-550



C-837

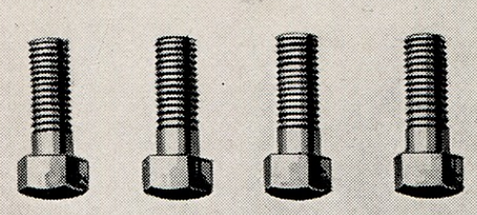


E-990

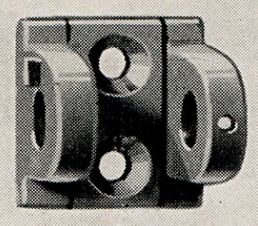
PLATE 21

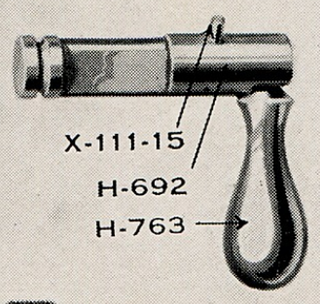
B-545	Water Drain Cup.
H-593	Pot Yoke Lock Bracket.
H-692	Pot Yoke Lock.
B-702	Base and Mold Stand Key.
B-750	Base Door—Upper Spring.
H-763	Pot Yoke Lock Handle.
P-791	Pump Spring.
B-798	Water Drain Pipe ¼" Union.
B-799	Water Drain Pipe ¼" Elbow.
H-834	Pot Yoke Stud.
P-867	Pump Spring Lever.
P-868	Pump Spring Lever Bracket.
B-888	Oil Feed Pipe Clamp.
B-889	Oil Feed Pipe—Long.
B-890	Oil Feed Pipe—Short.
P-899	Pump Spring Tension Pulley.
P-900	Pump Spring Tension Ratchet.
P-901	Pump Spring Tension Ratchet Pawl.
P-902	Pump Spring Tension Ratchet Pawl Stud.
B-908	Water Drain Pipe—Horizontal.
B-909	Water Drain Pipe—Vertical.
B-955	Friction Wheel Shaft Bearing, Oil Cups.
B-957	Oil Hole Cover.
P-958	Pump Spring Lever Bracket Pin.
P-961	Pump Spring Tension Pulley Shaft.
P-962	Pump Spring Chain.
B-973	Pump Cam Cover Plate.
X-102-6	Pot Yoke Stud Nut.
X-105-2	Pot Yoke Lock Bracket Screws.
X-108-5	Oil Feed Pipe Clamp Screws.
X-108-9	Base Door—Upper—Spring Screw.
X-108-19	Pump Cam Cover Plate Screw.
X-109-1	Oil Hole Cover Screw.
X-111-15	Pot Yoke Lock Stop Pin.
X-111-19	Pump Spring Tension Ratchet Pin.
X-111A-3	Pump Spring Chain Pin.
X-112-1	Pump Spring Lever Bracket Pin Cotter Key.
X-114-1	Pot Yoke Lock Retaining Set Screw.
X-120-5	Base Cap Screws.
X-120-8	Mold Stand Cap Screws—Long.
X-120-12	Mold Stand Cap Screws—Short.
X-121-4	Pump Spring Tension Pulley Set Screw.

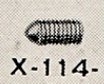
PLATE 21


X-120-12

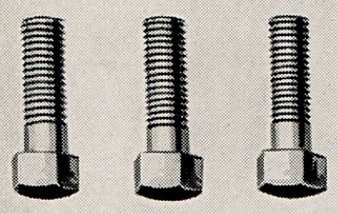

X-105-2

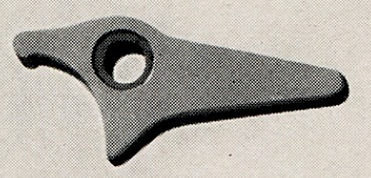

H-593


X-111-15
H-692
H-763


X-114-1

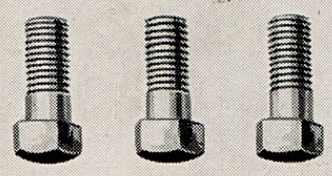

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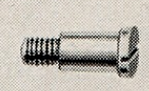

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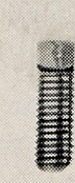

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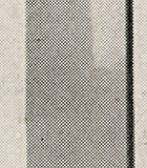

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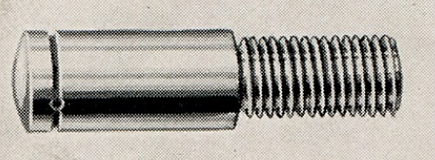

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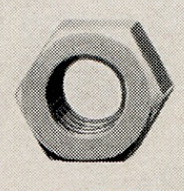

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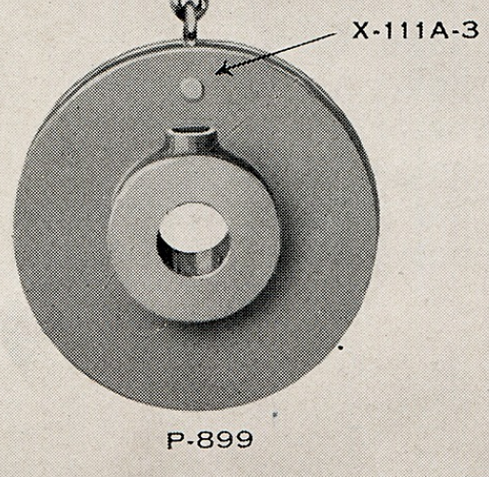

P-902

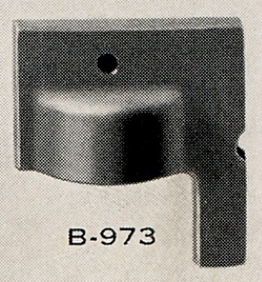

X-121-4


P-868


H-834

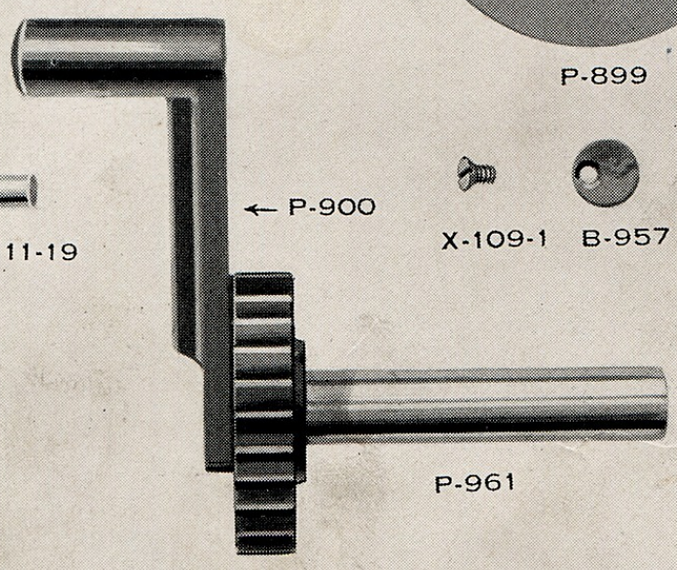

X-102-6


X-111A-3


B-973


X-108-19

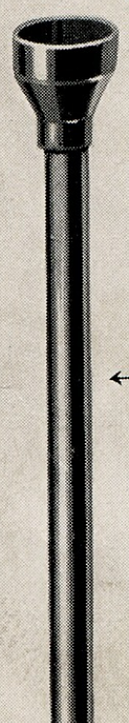
P-899

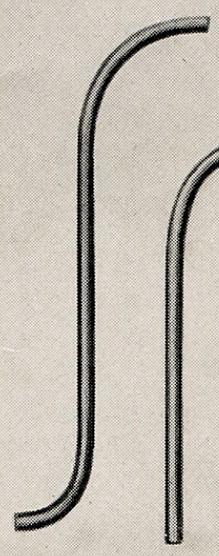

P-900
P-961

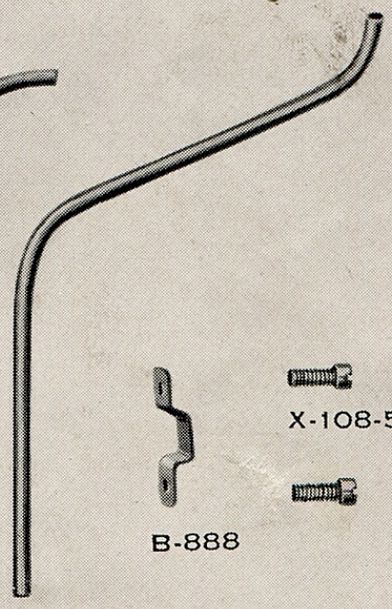
X-109-1

B-957

X-111-19

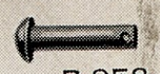

B-545
B-909


B-890


B-889

B-888

X-108-5

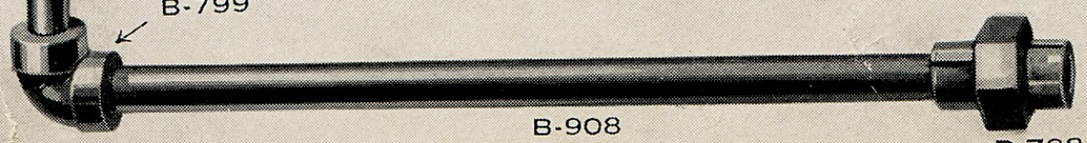

P-958

X-112-1


B-750

X-108-9


B-955


B-799
B-908
B-798


B-702

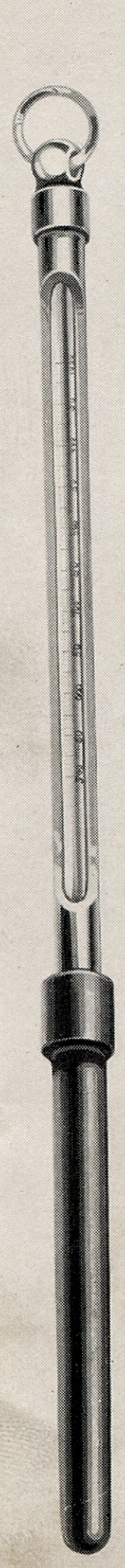
PLATE 22

E-414 Jet Shute Extension.
E-418 Metal Feeder.
E-551 Ingot Mold.
H-858 Metal Pot Splash Guard—(Inside).
E-876 Matrix Block Driving Tool.
H-903 Metal Pot Splash Guard—(Outside).
H-991 Thermometer.
X-121-6 Metal Feeder—Burner Set Screw.
X-128-1 Oil Can.
X-128-5 1 Lb. can of "Gredag."
X-128-6 No. 1 size can of concentrated "Oildag."
X-128-8 Metal Feeder Burner.

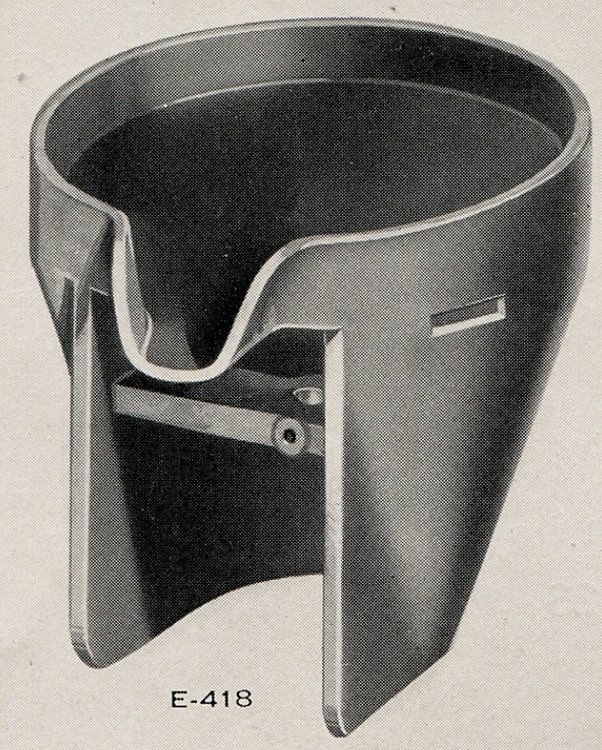
Old Style Choker Parts

C-519 Choker Cam.
C-532 Choker Valve Fork
H-575 Nozzle.
C-576 Choker Valve.
C-771 Choker Valve Seat Bushing.
C-772 Choker Valve Bushing.

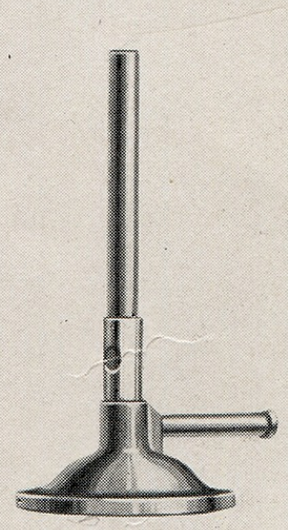
PLATE 22



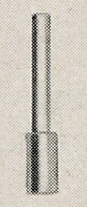
H-991



E-418



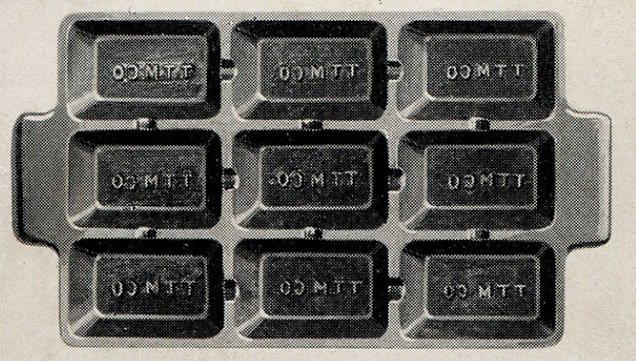
X-128-8



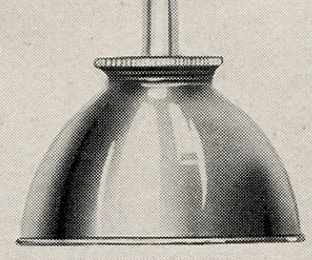
E-876



X-121-6

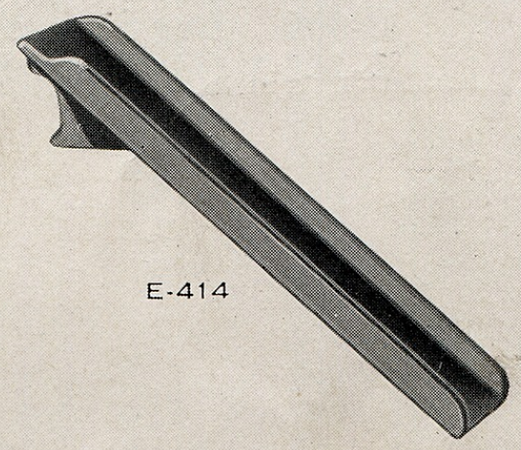


E-551

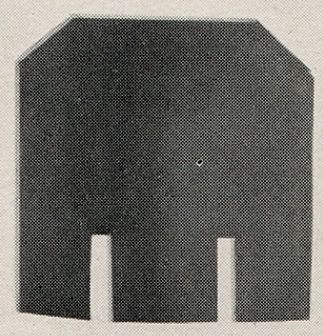


X-128-1

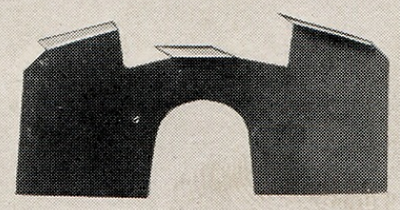




E-414



H-903



H-858

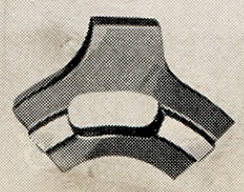


X-128-5



X-128-6

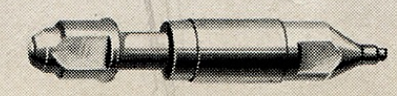
C-532



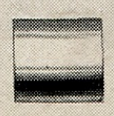
C-519



C-771



C-576



C-772

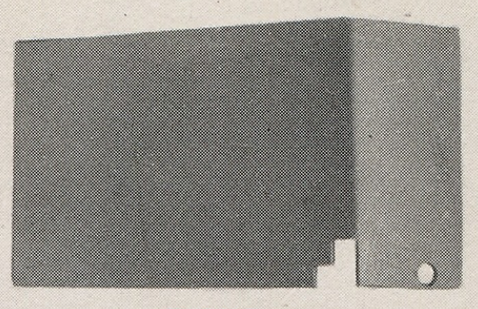


H-575

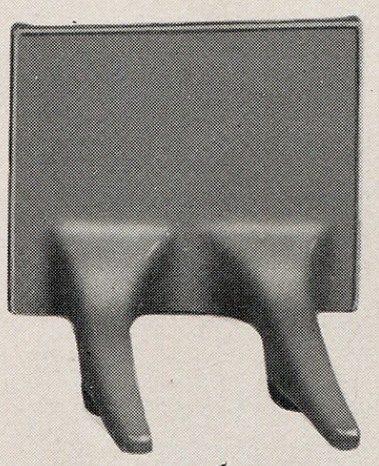
PLATE 23

B-590 Base Door—Lower.
B-592 Base Door—Upper.
B-595 Base Door Knob.
B-596 Base Door Knob Latch.
J-597 Jet Box.
J-598 Type Box Bracket.
B-689 Base Door Knob Latch Pin.
B-800 Machine Base—Bottom.
B-801 Machine Base—Top.
F-885 Friction Wheel Oil Guard Spacer.
F-886 Friction Plate Oil Guard.
F-887 Friction Wheel Oil Guard.
B-949 Base Door—Side.
B-951 Base Door Pins.
B-999 Lag Screws for Machine Base.
X-123-1 Oil Guard Bolts.

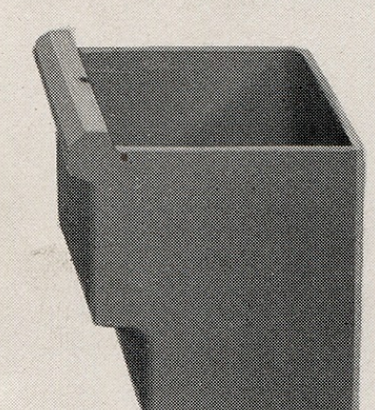
PLATE 23



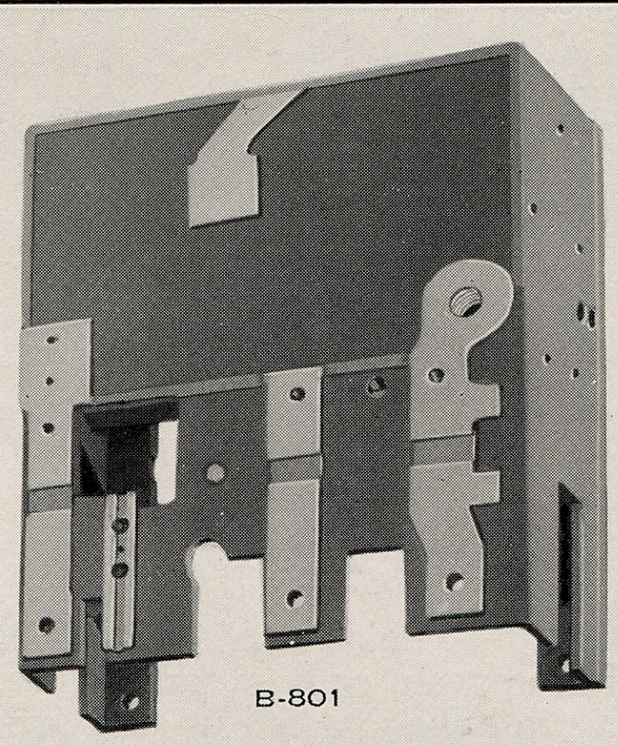
F-886



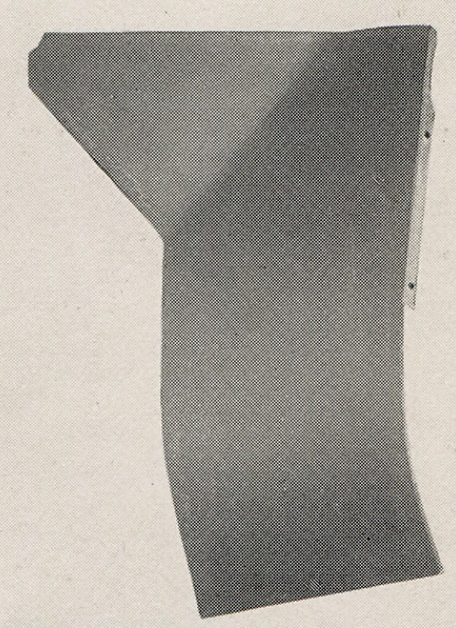
J-598



J-597



B-801



F-887



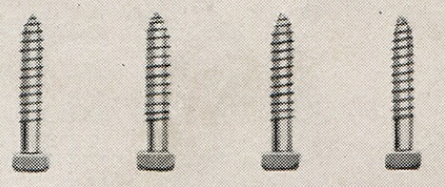
B-592



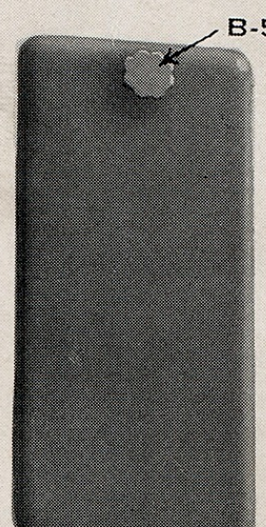
X-123-1



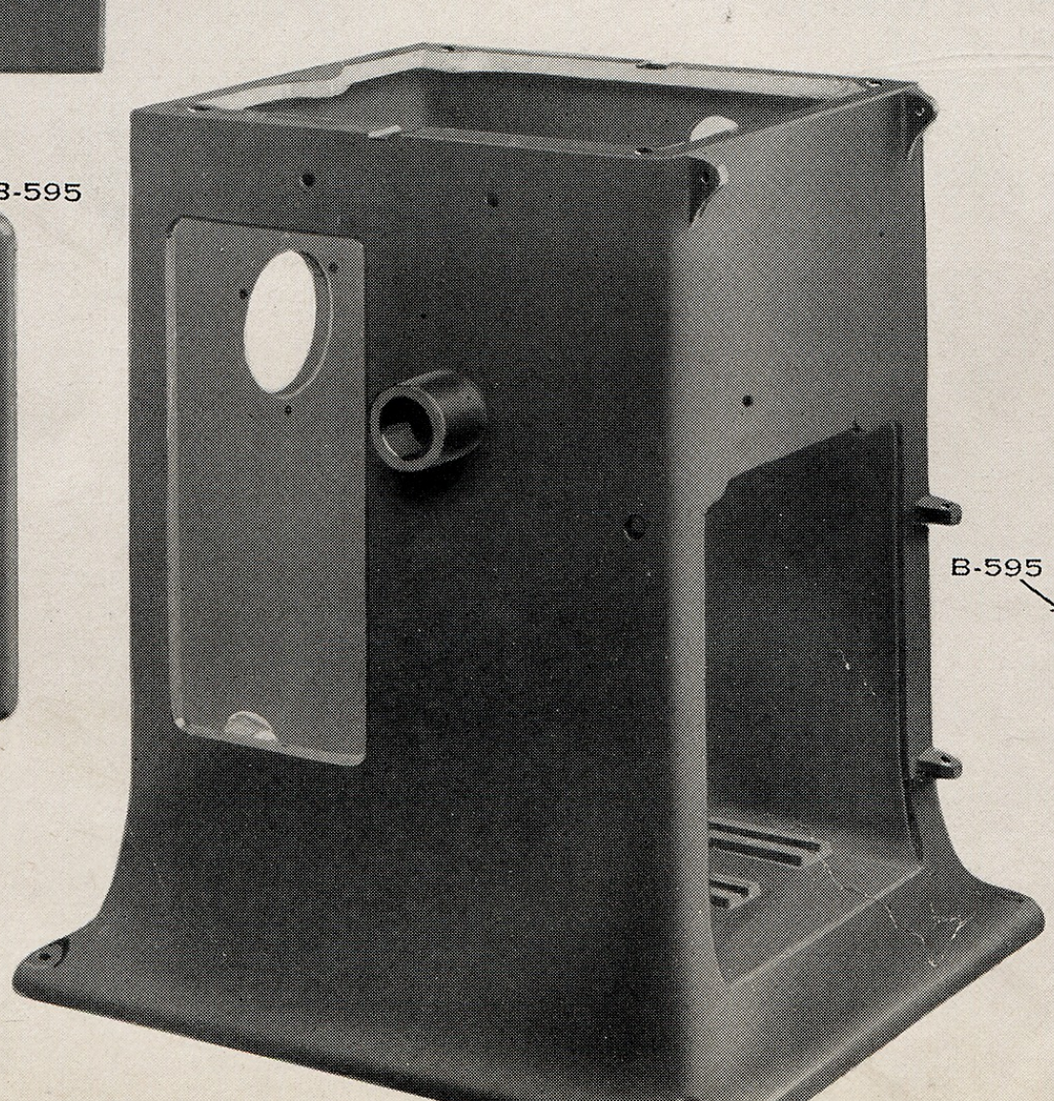
F-885



B-999



B-949

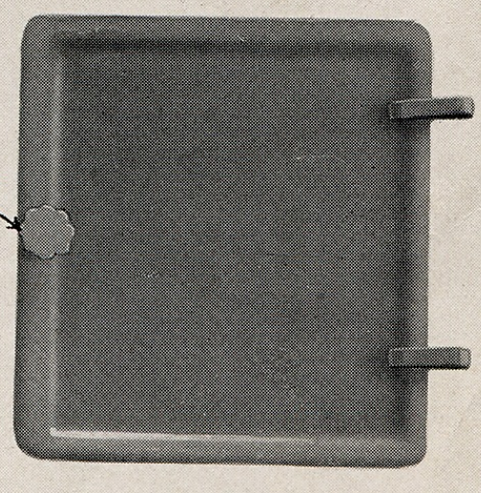


B-800

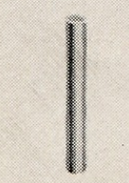


B-596

B-689



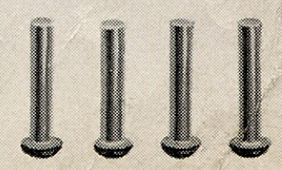
B-590



B-689



B-596



B-951

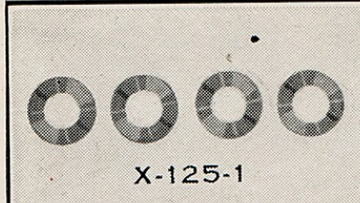
PLATE 24

¼ Horse Power Motor—When ordering a duplicate motor always furnish us with all the data that appears on the name plate of the old motor. When ordering a new one, give voltage and tell us whether current is D. C. or A. C. If it is A. C., we must know whether current is single, double or three phase and the frequency in cycles.

Motor Brackets—When ordering duplicate or new motor brackets be sure to furnish all data on motor as called for under heading "¼ Horse Power Motor." The dimensions of motors for various current requirements differ and if we are to furnish brackets of the proper height we must have detailed information concerning the motor with which they must be used.

B-656	Motor Pinion.
B-936	Motor Bracket Bolts and Nuts.
X-108A-10	Motor Switch Screws.
X-110-3	Rheostat Screws.
X-120-11	Motor Screws.
X-124-1	Motor Pinion Gib Key.
X-125-1	Motor Screw Washers.
X-126-1	Motor Rheostat.
X-126-2	Motor Switch Block.
X-126-3	Motor Switch.
X-126-4	Motor Circuit Porcelain Insulation Tubes.

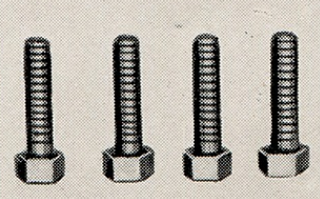
PLATE 24



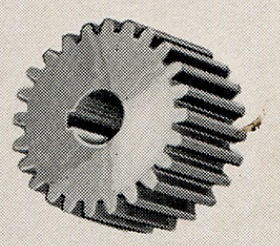
X-125-1



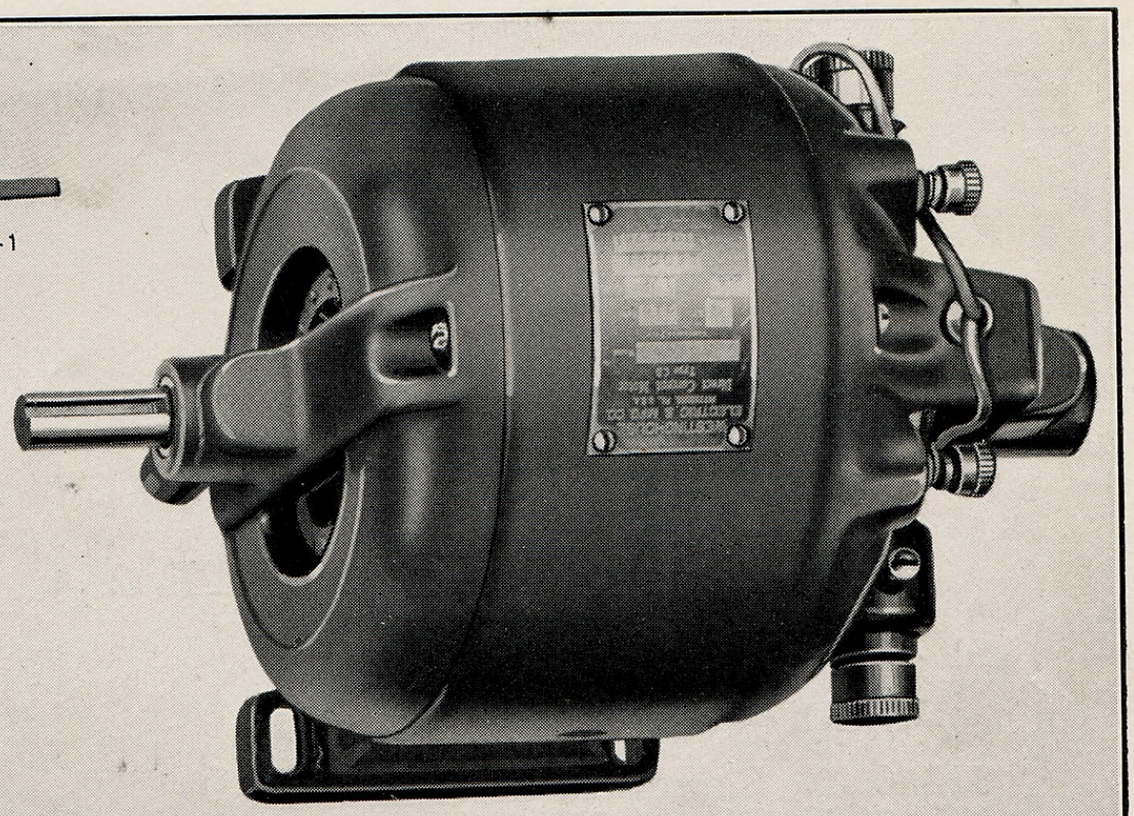
X-124-1



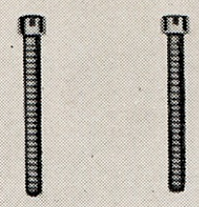
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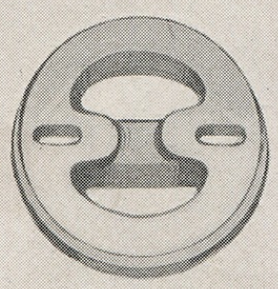
B-656



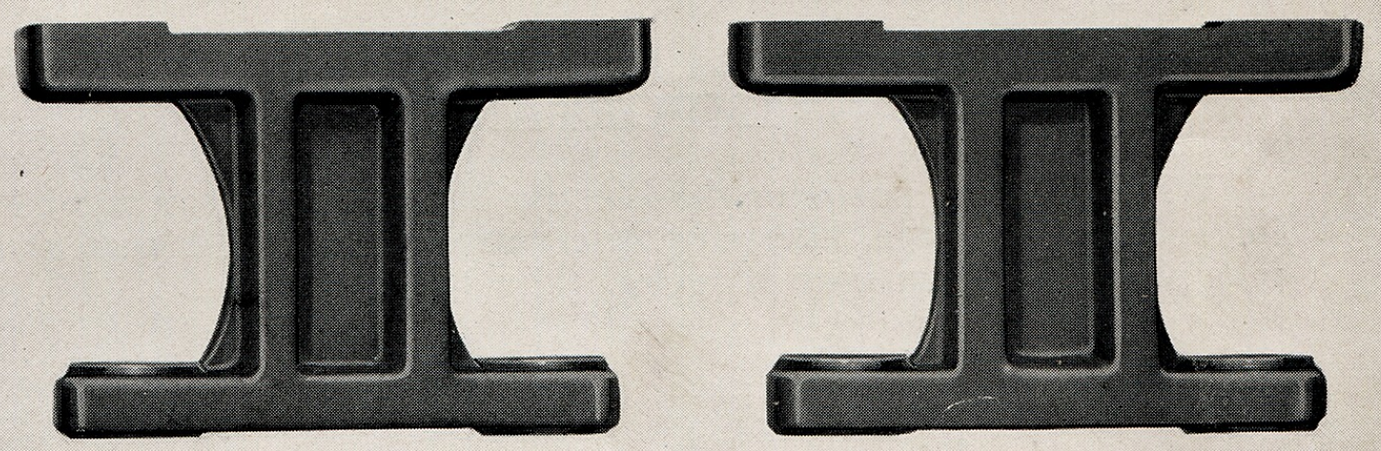
MOTOR



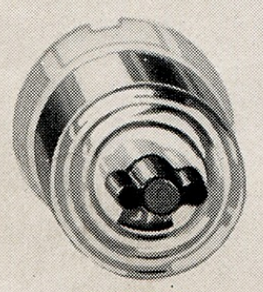
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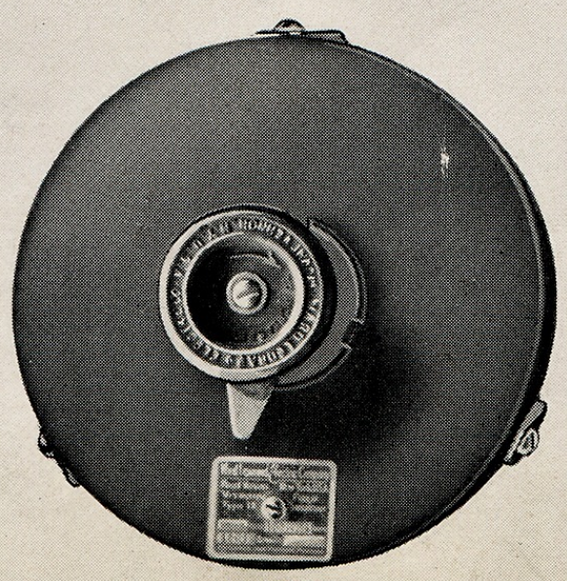
X-126-2



MOTOR BRACKETS



X-126-3



X 126-1

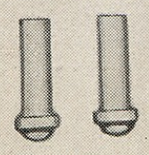




X-110-3



B-936



X-126-4

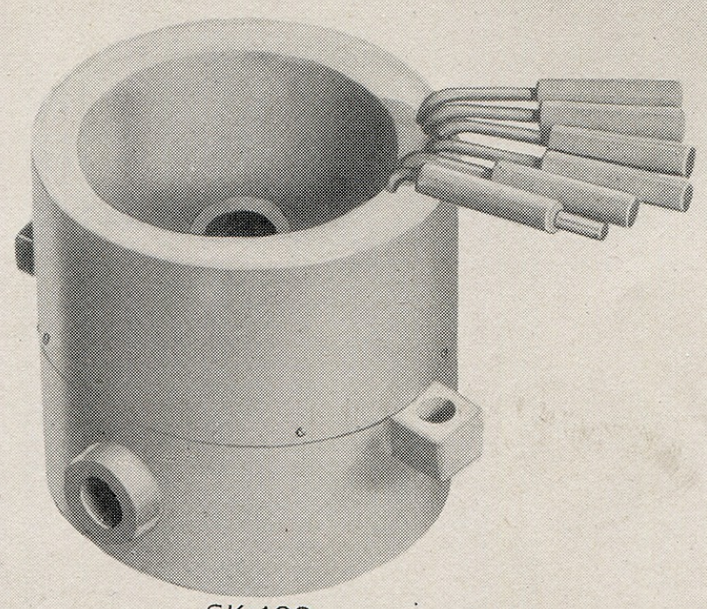
PLATE 25

SK-100 Electric Metal Pot.
SK-100-A Throat Control Rheostat.
SK-100-B Dynamic Thermometer.
SK-100-C Control Panel (Enclosed).
SK-100-D Rheostat Stud Nuts for rear of panel.
SK-100-E Rheostat Stud Nut Washers for rear of panel.
SK-100-F Rheostat Stud Spacers.
SK-100-G Rheostat Stud Nut Washers for front of panel.
SK-100-H Rheostat Stud Nuts—Blind—for front of panel.
SK-100-J Rheostat Studs.

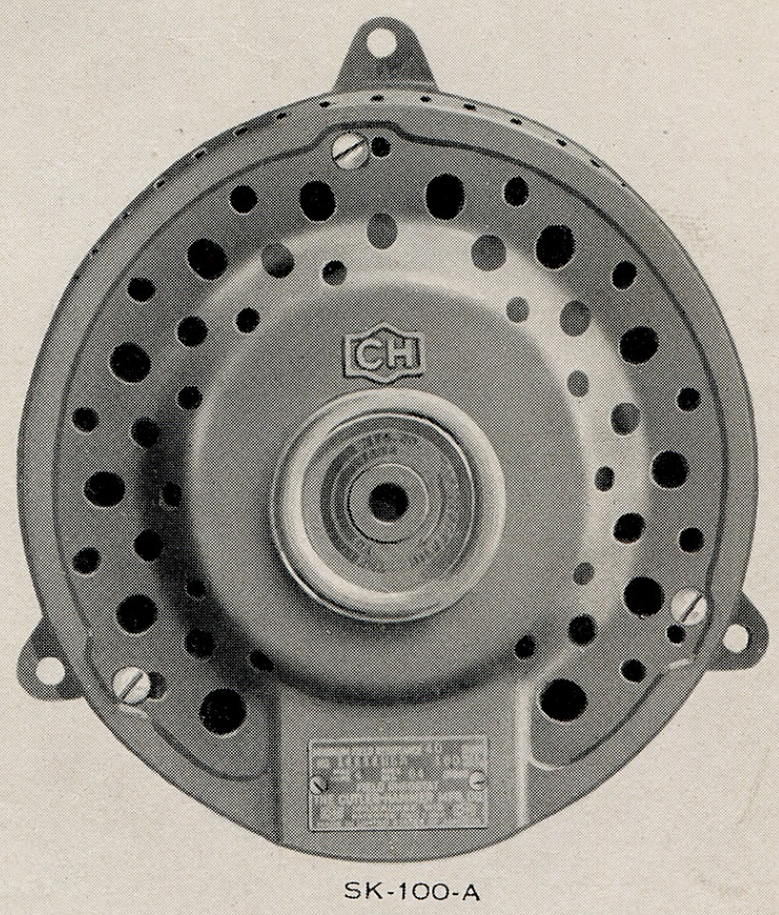
IMPORTANT NOTE

When ordering parts for the Electric Metal Pot always furnish the following information: Voltage, Direct or Alternating Current. If current is Alternating give phase and frequency in cycles.

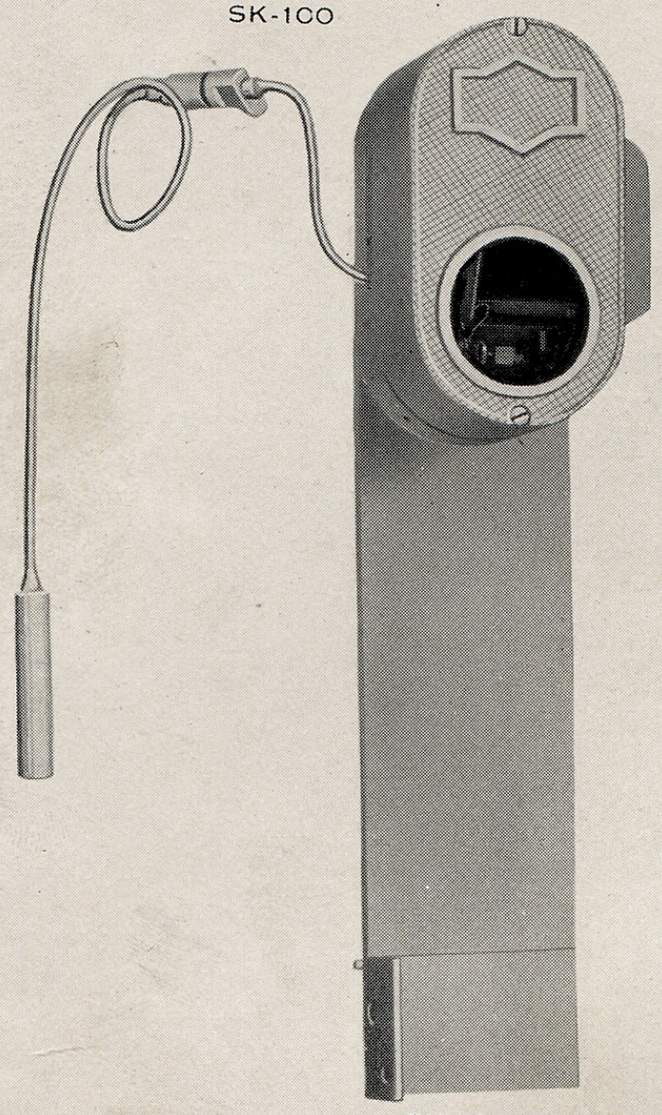
PLATE 25



SK-100



SK-100-A



SK-100-B



SK-100-D



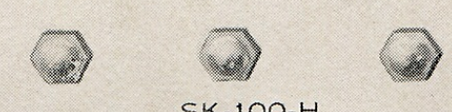
SK-100-E



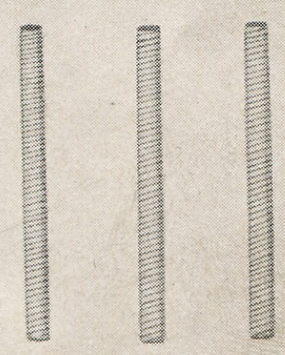
SK-100-F



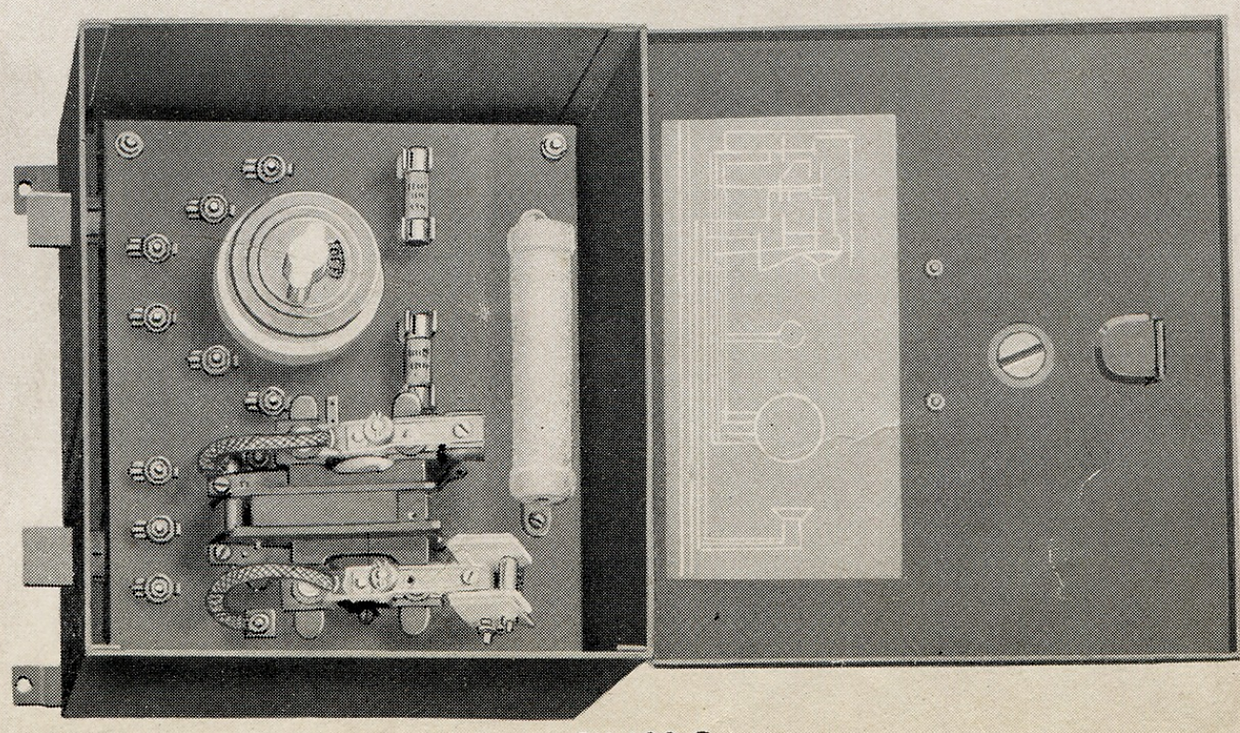
SK-100-G



SK-100-H



SK-100-J

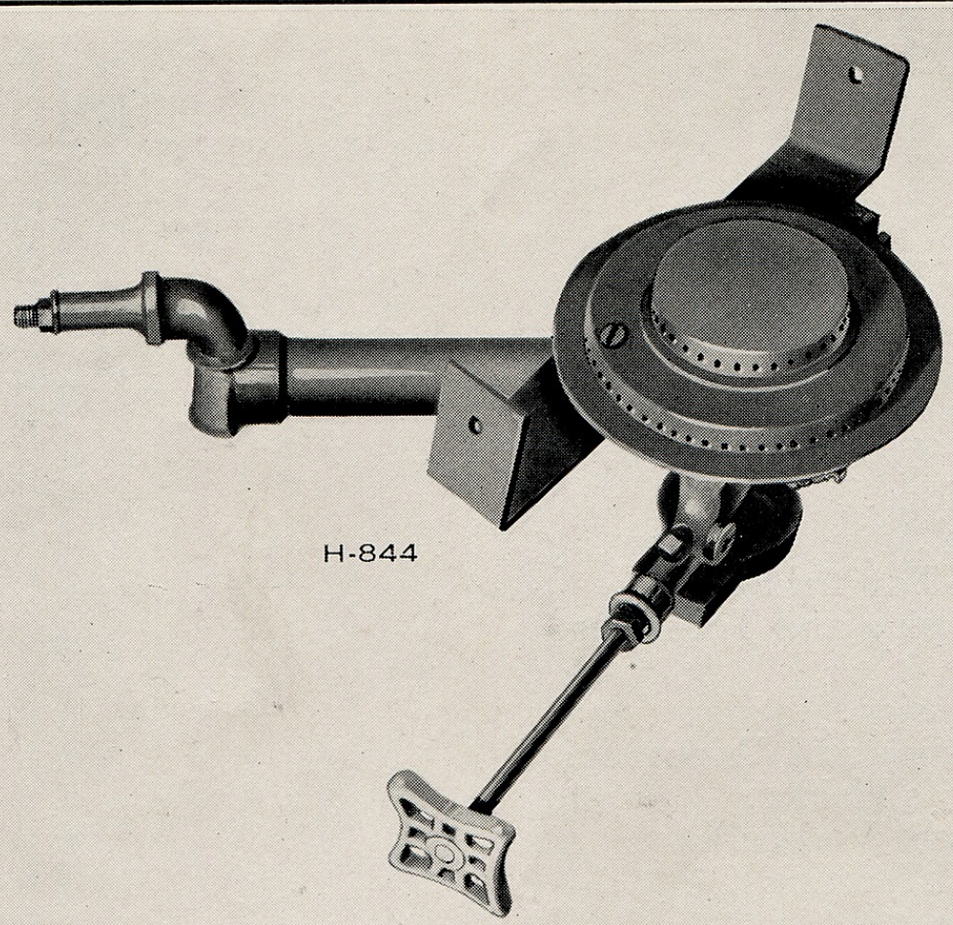


SK-100-C

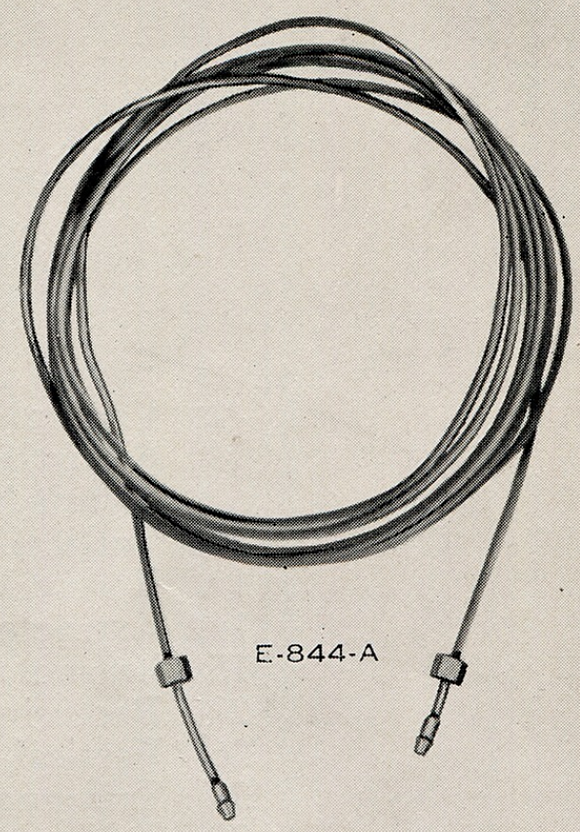
PLATE 26

H-844	Gasoline Burner.
E-844-A	Fuel Feed Pipe.
E-844-B	Fuel Pressure Tank.
E-844-C	Air Pump.

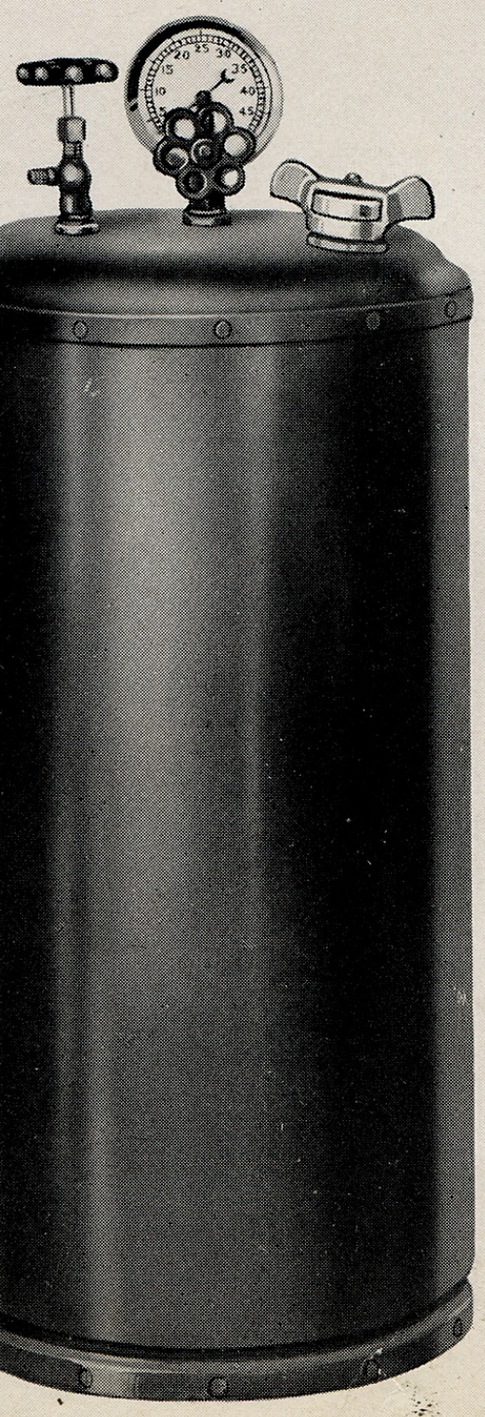
PLATE 26



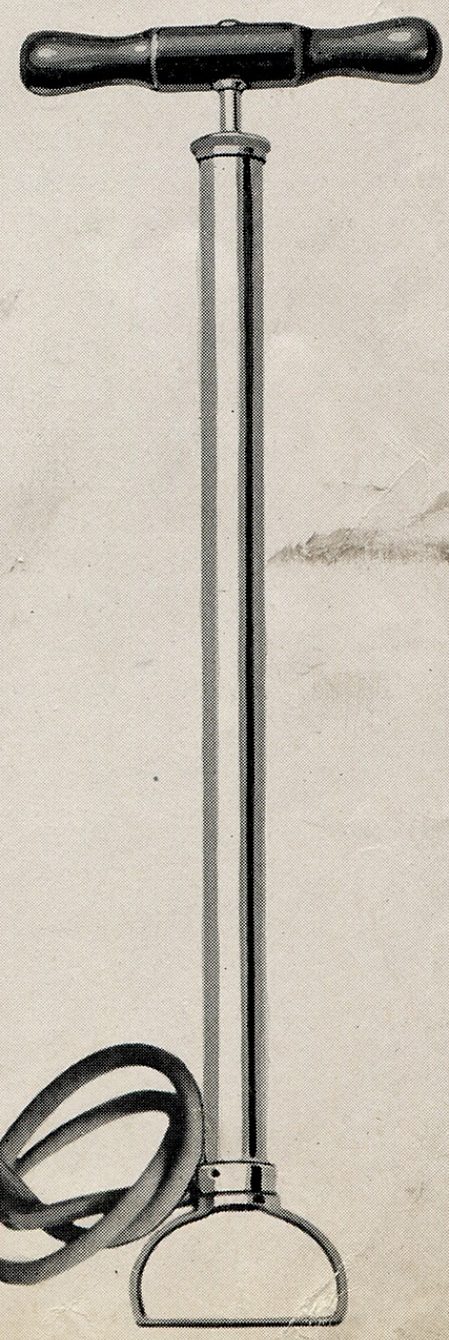
H-844



E-844-A



E-844-B



E-844-C

PLATE 27

2 Vertical Mold Blade Type Support.
4 Adjusting Screw, Bridge.
Knurled Nut, Bridge Adjusting Screw.
65 Vertical Mold Blade Top Bridge.
12 Receiving Plate, Kerning and Trimming.
14 Extractor Slide.
15 Extractor Slide Extension.
20 Receiving Shoe, Kerning and Trimming.
26 Vertical Kerning Knife Holder.
27 Trimming Knife (Right Vertical).
28 Trimming Knife (Left Vertical).
30 Retainer, Space Plate.
31 Screw, Space Plates.
32 Stud for Vertical Kerning Knife Holder.
33 Plate for Vertical Kerning Knife Holder.
34 Washer for Vertical Kerning Knife Stud.
35 Vertical Kerning Knife Link.
37 Vertical Kerning Knife Lever.
39 Washer for Vertical Kerning Knife Bushing.
40 Stud for Vertical Kerning Knife Lever Link.
41 Vertical Kerning Knife Lever Link.
42 Spring for Vertical Kerning Knife.
43 Stud, Vertical Kerning Knife Spring.
44 Roller, Vertical Kerning Knife Lever Link.
45 Pin, Vertical Kerning Knife Lever Link Roller.
46 Stud, Kerning Knife Link Spring.
47 Housing for Vertical Kerning Knife Lever Link.
48 Housing Cover for Vertical Kerning Knife Lever Link.
49 Cam, Kerning and Trimming.
50 Lever for Cam Roller.
51 Roller, Cam Lever.
52 Stud, Cam Lever Roller.
53 Stud, Cam Lever Spring.
54 Spring, Cam Lever.
55 Bushing, Cam Lever.
56 Washer, Cam Lever Bushing
59 Connecting Rod.
60 Link, Bell Crank Connecting.
61 Bell Crank.

PLATE 27

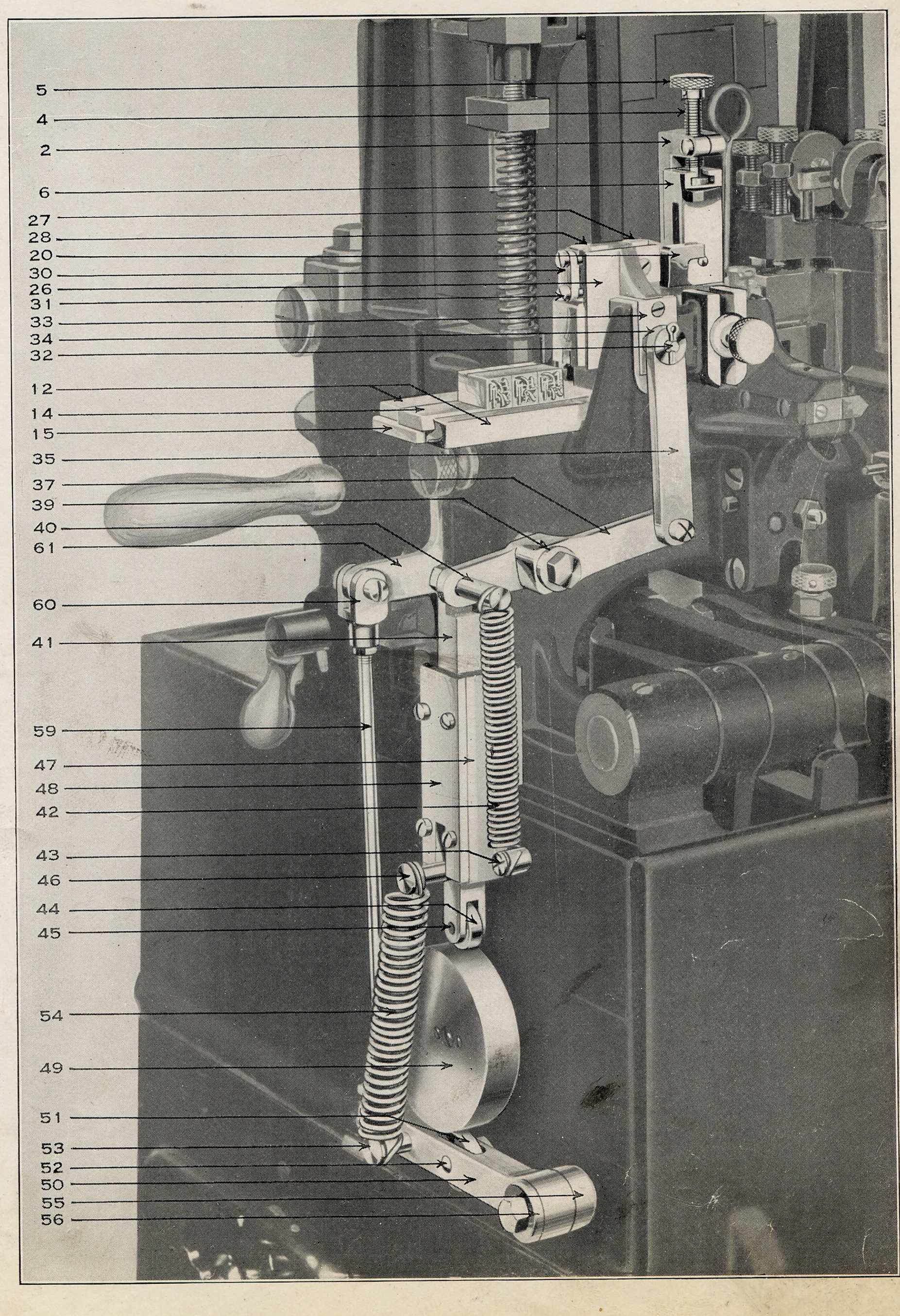

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PLATE 28

2 Vertical Mold Blade Type Support.
4 Adjusting Screw, Bridge.
5 Knurled Nut, Bridge Adjusting Screw.
6 Vertical Mold Blade Top Bridge.
7 Screw, Top Bridge Connecting.
12 Receiving Plate, Kerning and Trimming.
14 Extractor Slide.
15 Extractor Slide Extension.
20 Receiving Shoe, Kerning and Trimming.
22 Receiving Shoe Stripper Spring, Plate for.
23 Stud for Receiving Shoe Stripper Spring Plate.
25 Spring for Receiving Shoe Stripper Spring Plate.
27 Trimming Knife (Right Vertical).
28 Trimming Knife (Left Vertical).
29 Vertical Kerning Knife Space Plates.
30 Retainer, Space Plate.
37 Vertical Kerning Knife Lever.
40 Stud for Vertical Kerning Knife Lever Link.
41 Vertical Kerning Knife Lever Link.
42 Spring for Vertical Kerning Knife.
44 Roller, Vertical Kerning Knife Lever Link.
45 Pin, Vertical Kerning Knife Lever Link Roller.
46 Stud, Kerning Knife Link Spring.
47 Housing for Vertical Kerning Knife Lever Link.
48 Housing Cover for Vertical Kerning Knife Lever Link.
49 Cam, Kerning and Trimming.
50 Lever for Cam Roller.
53 Stud, Cam Lever Spring.
54 Spring, Cam Lever.
55 Bushing, Cam Lever.
56 Washer, Cam Lever Bushing.
57 Stud, Cam Lever Connecting Link.
58 Link, Cam Lever Connecting.
59 Connecting Rod.
60 Link, Bell Crank Connecting.
61 Bell Crank.
63 Washer, Bell Crank Bushing.
64 Jet Breaker (Stationary) Stem.