

CHAPTER 30

The 42-Em Linotype

THE 42-PICA LINOTYPE (most commonly referred to as the 42-em machine) is basically of the same construction and characteristics as the 30-em Linotype models, but is designed to produce a slug 12 picas longer than the longest slug possible to be cast on the 30-em machines.

The additional 12-pica length capacity of the 42-pica machine greatly facilitates the production of type matter for many classes of trade requirements, making possible the casting on one slug wide-measure composition (up to and including 42 picas) which formerly could be produced only by the use of "butted" slugs. The advantages of casting type matter of this classification on a single slug are obvious, effecting a saving of time in composing and handling as well as insuring a more attractive and accurate finished product.

Both in size of type and length of line the 42-pica Linotype offers complete composition flexibility. Its range is anything from a few picas to 42 picas in length. In size it will handle 6 point just as easily as 36 point. Any length slug and any size face within the range of the machine can be cast without changes or adjustments other than those used on the 30-em machine. Liners, ejector and knife block have the same flexibility—are set in exactly the same way, and have the same exclusive advantages of the 30-em Linotype.

The 42-em Linotype can be supplied with the same wide selection of magazine equipment as the standard 30-em machine. It can be a one-, two-, three- or four-magazine machine with single or multiple distribution, with or without auxiliary magazines, to meet the individual need of each office.

Although the operation and maintenance of the 42-em Linotypes are almost exactly the same as for 30-em models, the introduction of certain features to meet the requirements of its added casting range has been necessary.

The assembling elevator is constructed to accommodate a 42-em line of matrices and spacebands, as are the first elevator jaws, vise jaws, mold disk and molds, and second elevator bar.

Adjustments for machine actions affected by adaption to the 42-em machine need only be increased by 12 picas (two inches) over adjustments used on the 30-em models. In short, the same principles of operation and maintenance used for the 30-em models will be found adaptable to the 42-em Linotype.

MOLD DISK AND MOLDS

The mold disk used on the 42-em Linotype is similar to the mold disks used on the 30-em models except for its necessarily increased diameter for the accommodation of the 42-em molds. It is water-cooled.

Forty-two em molds are similar in construction to the 30-em molds. The cap is rigidly clamped in the center as well as at both ends. Measure is adjustable up to 42 picas in length, and body sizes can be cast within the same range as on 30-em machines.

METAL POT AND DOUBLE PLUNGER

The metal pot on the 42-em Linotype is much larger than the metal pot used on the 30-em machine, and provides an ample supply of metal at an even temperature. In addition, it is equipped with two plungers in order that metal may be forced into the mold at high pressure, producing a clear face and a solid body.

To provide for the double plunger arrangement on the 42-em Linotypes the pot pump plunger lever is equipped to operate the two plungers simultaneously in the same manner as the single plunger is operated on the 30-em machines. If for any reason either of the two plungers is prevented from descending, a safety attachment known as the "equalizer" will not allow the plunger lever to operate.

The plungers and crucible wells are located side by side in such a position that with each cast the metal is forced evenly into the full length of the mold.

The double plunger arrangement together with increased metal heating capacity insures the production of good slugs on the 42-em machine.

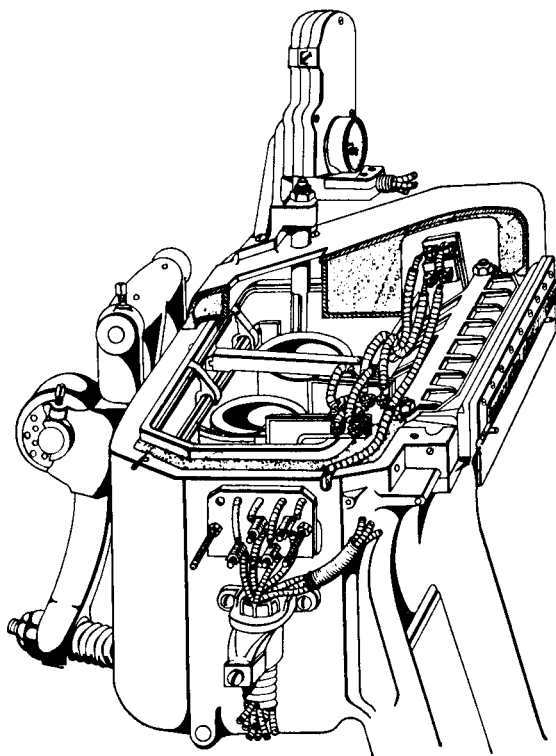


FIG. 1-30. View of 42-em electrically-heated metal pot with cover removed to show heaters and method of wiring.

Envelope Heaters and Control Equipment for 42-em Electric Pot

Until the advent of Lino-Therm heaters and Micro-Therm control for electric pots, the envelope heaters and control equipment described and illustrated in Chapter 13, and further illustrated in this chapter, were standard equipment on Linotype electric pots.

Crucible heaters of the same immersion type as on 30-em machines are employed. The same type unit control panel, the same temperature control and the same rheostat control of the mouthpiece heat are also used.

The crucible is larger so that more melted metal is always available for these larger slugs, and two metal pumps are provided so that sufficient metal may be rapidly forced to the mold.

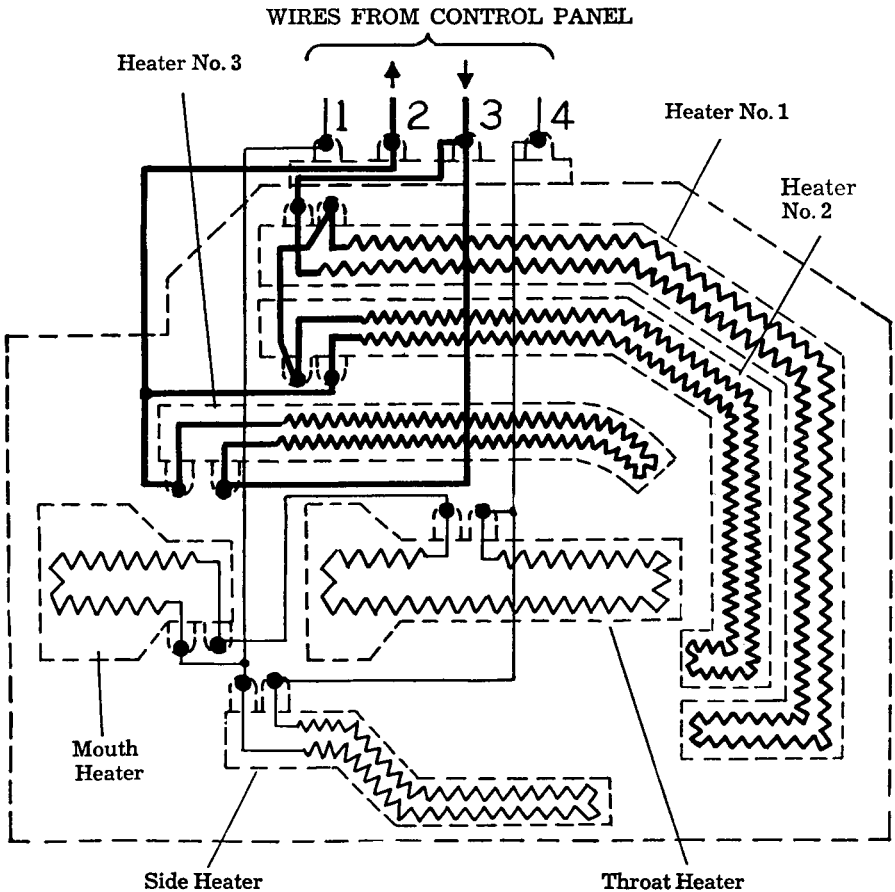


FIG. 2-30. This diagram shows the crucible heaters as connected in a 200-260 volt pot. The No. 1 and No. 2 heaters are wired in series and by following this diagram you will see that the current entering at terminal No. 3 passes through the windings of one heater and then through the other heater and back to the line through terminal No. 2. No. 3 heater in all pots is in parallel directly across the line.

In order to maintain the regular heating-up period, three crucible heaters are used, and for a better distribution of heat at the mouthpiece, a side mouth heater is used in addition to the regular mouth and throat type. Magnetic blowout coils are used on the magnet switch contacts in order to break the heavier current required without damage to contacts.

The average maximum current consumption of this pot is 2250 watts, and care should be taken that the wiring of the pot is of sufficient size. In no case should less than No. 10 B&S wire be used, and then only for short runs. If the pot location is more than 20 feet from the main use No. 8 B&S.

On the wiring diagrams note that No. 1 and No. 2 crucible heaters are connected in parallel on the 110-volt pot and in series on the 220-volt pot, and that the No. 3 crucible heater is always connected in parallel on all voltages. Also note that the mouth heater and the throat heater are connected in series with each

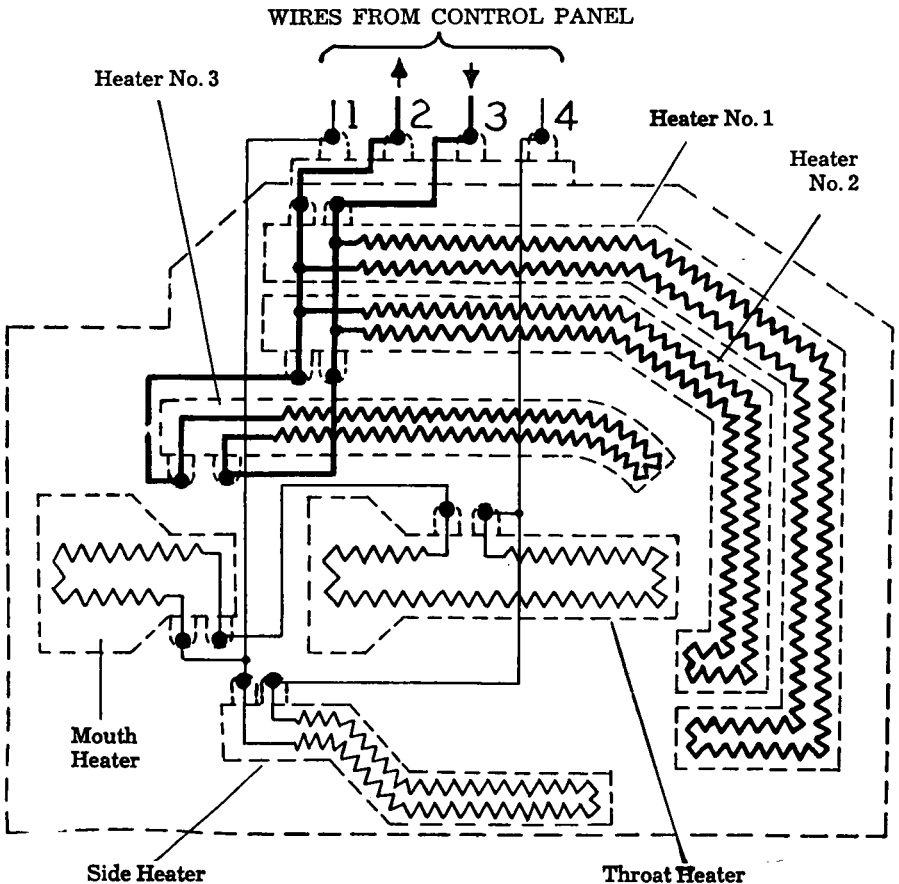


FIG. 3-30. This diagram shows the crucible heaters wired as in 100-130 volt pot—in parallel, directly across the line. Follow the arrow and you will note that current flows from terminal No. 3 through each heater separately and back to the line through terminal No. 2.

other and in parallel with the side mouth heater, then in series with the rheostat, so that regulating the rheostat varies the temperature of all of the three heaters.

The complete control panel is not interchangeable with the 30-em control panel, although most of the parts such as magnet coils, resistance coils, contact points and contact fingers, are interchangeable.

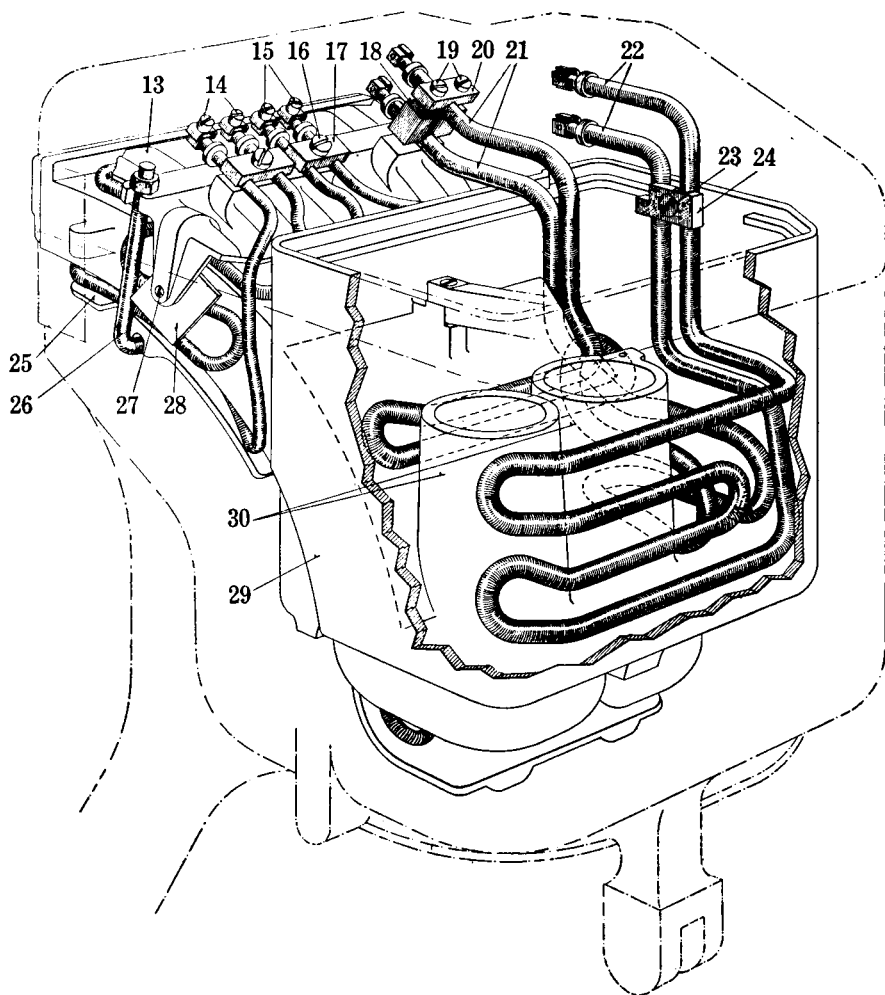


FIG. 4-30. Lino-Therm electrically heated metal pot in section showing heating units. The parts are: throat heaters top clamp 13, right-hand throat heater 14, left-hand throat heater 15, throat heaters end clamp screws 16, throat heaters end clamp 17, crucible heater intermediate end clamp 18, crucible heater top end clamp screws 19, crucible heater top end clamp 20, side crucible heater 21, end crucible heater 22, crucible heaters side clamp screw 23, crucible heater side clamp 24, right- and left-hand throat heaters lower clamp 25, right- and left-hand throat heaters clamp bolt 26, right- and left-hand throat heaters side clamp screw 27, right- and left-hand throat heaters side clamp 28, crucible 29, crucible pump wells 30.

None of the heaters are interchangeable with the 30-em, but the temperature control and its parts are interchangeable. This equipment will cover the liberal voltage range of 100-130 volt or 200-260 volt.

For the 100-130 volt equipment, a 10 ampere fuse is used in the throat heater and a 30 ampere fuse in the main circuit.

For the 200-260 volt equipment, a 5 ampere fuse is used in the throat heater and a 15 ampere fuse in the main circuit.

Lino-Therm Heaters and Micro-Therm Electric Temperature Control for 42-em Electric Pot

Lino-Therm heaters for the 42-em metal pot are of the same type and construction as those already described for the 30-em metal pot. They differ from the latter only in size due to the larger pot and its somewhat different contours, both outside and inside, requiring the heaters to be formed to these contours and to extend over sufficient area to heat the greater amount of metal. This difference in shape is more noticeable in the crucible heaters than in the throat and mouth-piece heaters.

Because all heaters, whether for 100 to 130 volt or for 200 to 260 volt current, are always connected in parallel (never in series) it follows that two separate and distinct groups of heaters are supplied, one group for each of the above specified range of voltages. Heaters of each of the two groups serve for both alternating and direct current of the proper voltages.

Fig. 4-30 shows clearly the two crucible heaters and the method of clamping them to the 42-em pot crucible. This figure also shows the method of clamping the

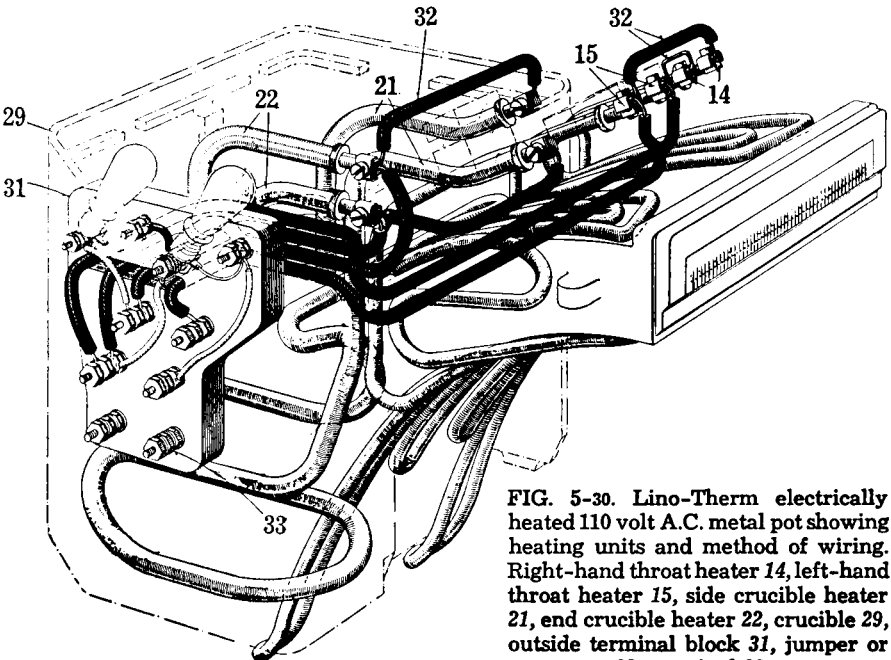


FIG. 5-30. Lino-Therm electrically heated 110 volt A.C. metal pot showing heating units and method of wiring. Right-hand throat heater 14, left-hand throat heater 15, side crucible heater 21, end crucible heater 22, crucible 29, outside terminal block 31, jumper or connector 32, terminal 33.

two heaters for the throat and mouthpiece. These latter heaters so closely resemble in shape those used on the 30-em pot that they require no further illustration than contained in Figs. 4 and 5-30. Fig. 5-30 shows particularly how all heaters are connected in parallel and how insulated wires lead from them to the terminal block on the outside of the pot jacket.

The Micro-Therm control for the 42-em metal pot is in every way similar to that of the 30-em metal pot described in Chapter 13.

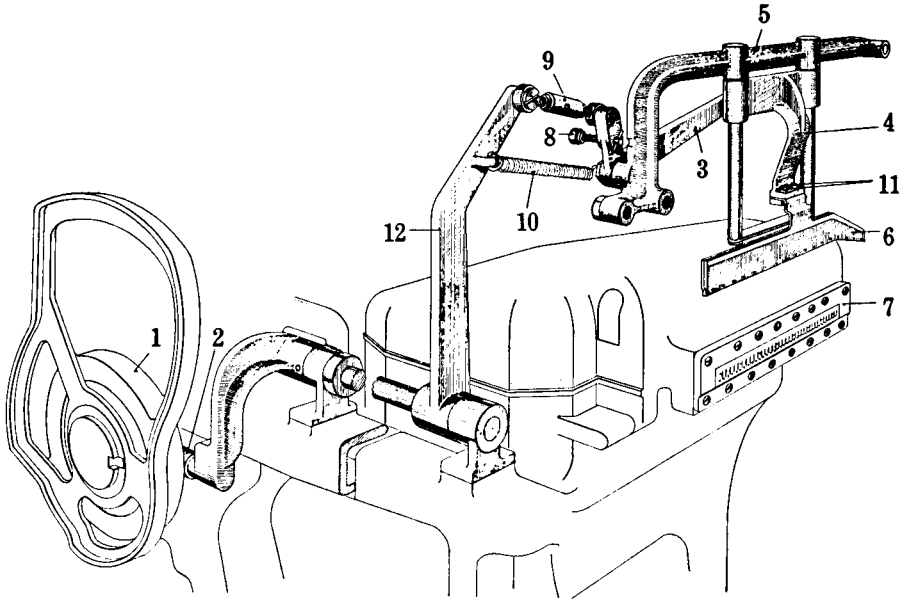


FIG. 6-30. View showing details of pot mouthpiece wiper used on 42-pica Linotypes. This device is also available as optional equipment on 30-pica machines.

Pot Mouthpiece Wiper

Fig. 6-30 shows the vertical mouthpiece wiper. The bracket 5 is bolted on the rear of the face plate. The wiper is operated by means of the spring 10 and the side cam 1 which is a part of the first elevator cam. When the machine revolves and the roller 2 passes the cut-out in the side of the cam 1, the spring 10 (one end of which is attached to the lever 12, the other to the stud upon which the bell-crank lever 3 fulcrums) pulls the lever 12 to the right. The lever 12 is connected by the turn-buckle 9 to the bell-crank lever 3 which operates the slide 4 carrying the mouthpiece wiper 6, so that the right-hand movement of lever 12 moves the wiper downward over the mouthpiece 7.

The locking pin 8 is to be used when the machine is backed up. This will prevent the mouthpiece wiper from dropping downward against the mouthpiece. The locking pin is held out with a spring, and when the wiper is to be made inoperative the pin is pushed in while the wiper is fully up and the knob turned slightly so that the cross-pin will hook behind the casting.

The mouthpiece wiper 6 is fastened to the slide 4 with clamping screws 11, and must be carefully adjusted so it will have an even pressure over the entire length of the mouthpiece. This adjustment must be made when the metal pot is fully back into place, and after all adjustments have been made on the metal pot.

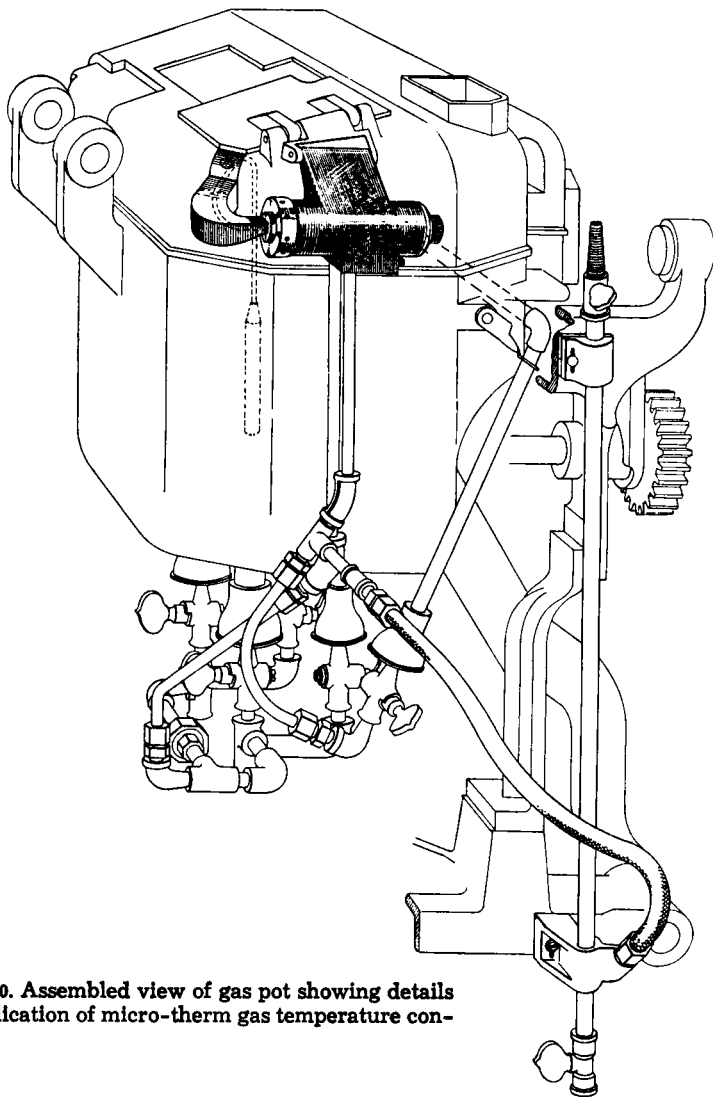


FIG. 7-30. Assembled view of gas pot showing details and application of micro-therm gas temperature control.

MAINTENANCE

The maintenance on a 42-em machine is practically the same as on a 30-em machine, with the exception that the two pot pump plungers must both be kept clean so that each plunger will exert an equal amount of pressure in the pot pump plunger wells.

Justification—As the casting of lines longer than 30 ems requires the use of a large number of spacebands, it is very important that the machine justifies

properly. The justification and vise closing levers must be well lubricated where they fulcrum on the shaft at the rear end of the levers; the vise justification rods must be oiled and kept free from gum; the spacebands must be thoroughly clean with just enough graphite on them to make them slide freely; and the matrices and spacebands must slide easily into the first elevator jaws.

Also see that there is the proper clearance between the center screw in the first elevator slide and the vise cap, as described in Chapter 10 under the heading, Movement of the First Elevator.

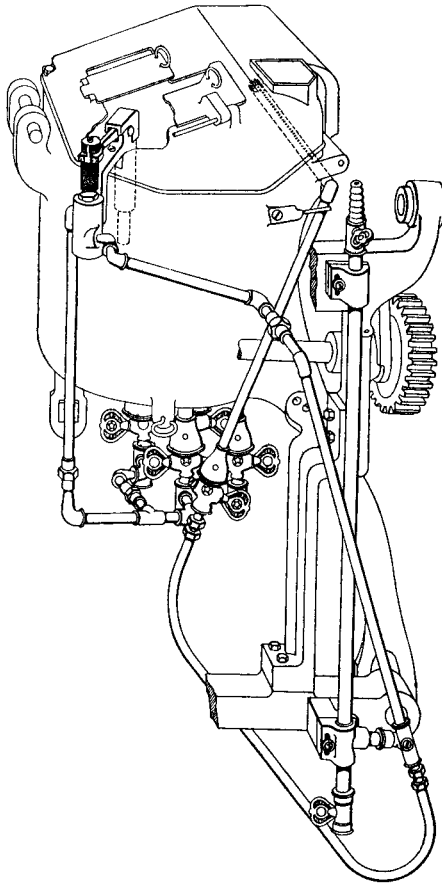


FIG. 8-30. Assembled view of gas pot, burners and connections for 42-em Linotype equipped with former gas thermostat.