(No Model.) 2 Sheets—Sheet 1.

L. W. TRACY.

MACHINE FOR COVERING ELECTRICAL CONDUCTORS WITH LEAD.

No. 451,960. Patented May 12, 1891.

Fig. 1,

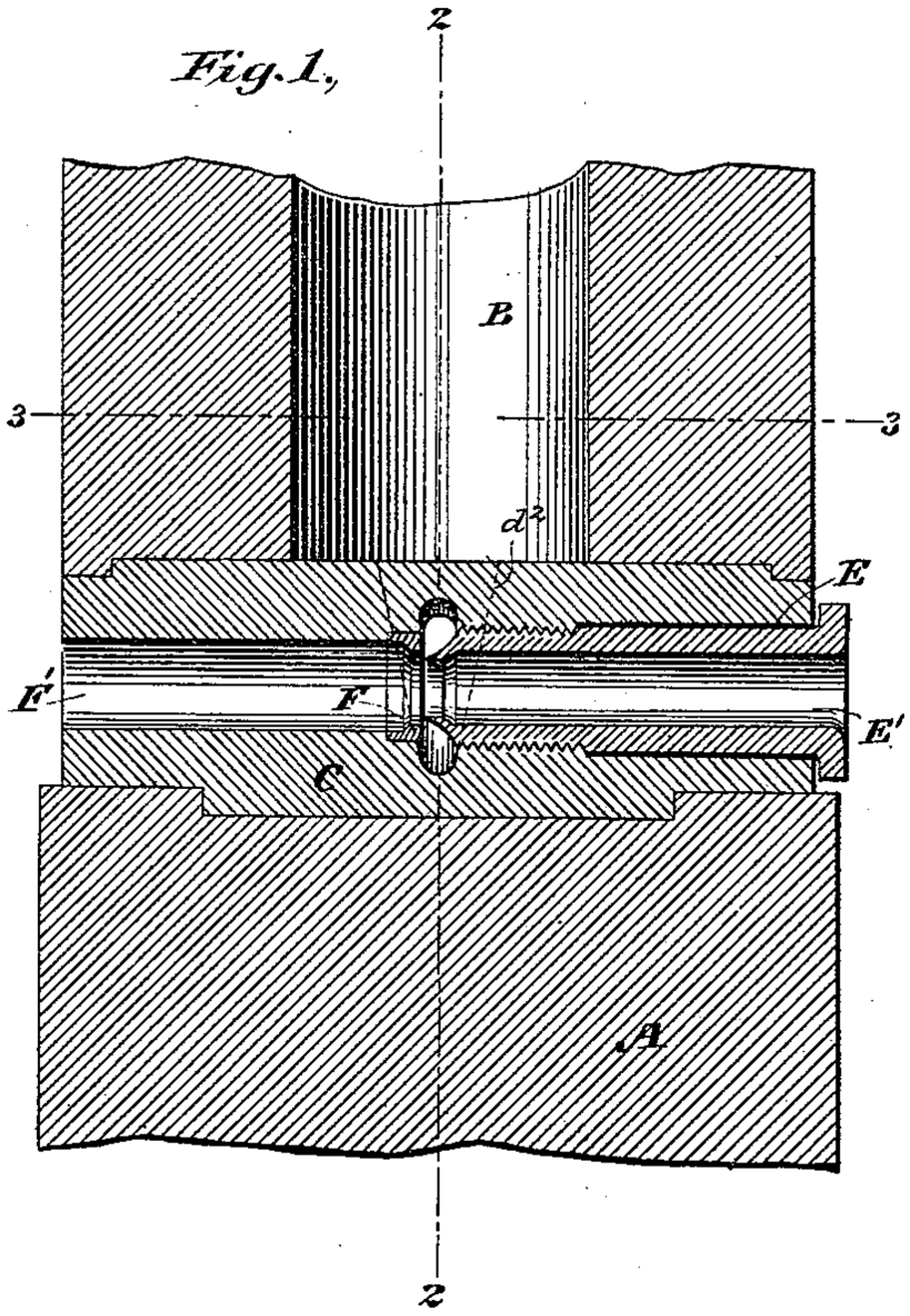


Fig. 2,

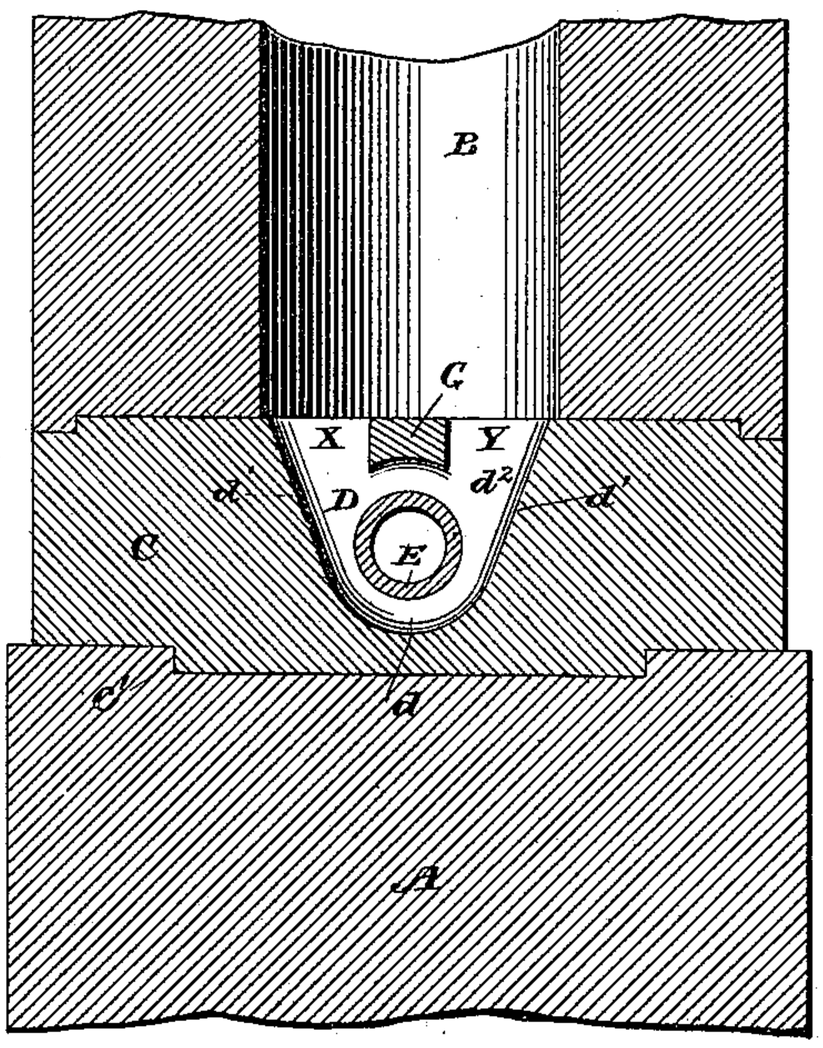
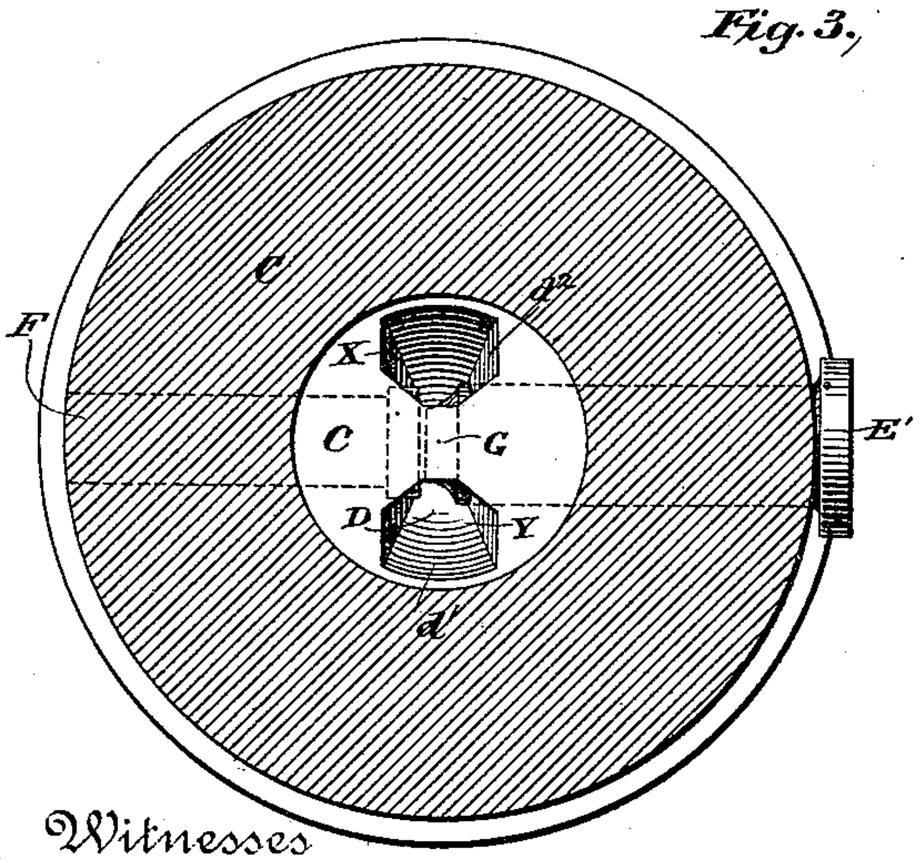


Fig. 3,



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(No Model.) 2 Sheets—Sheet 2.

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MACHINE FOR COVERING ELECTRICAL CONDUCTORS WITH LEAD.

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Fig. 4.

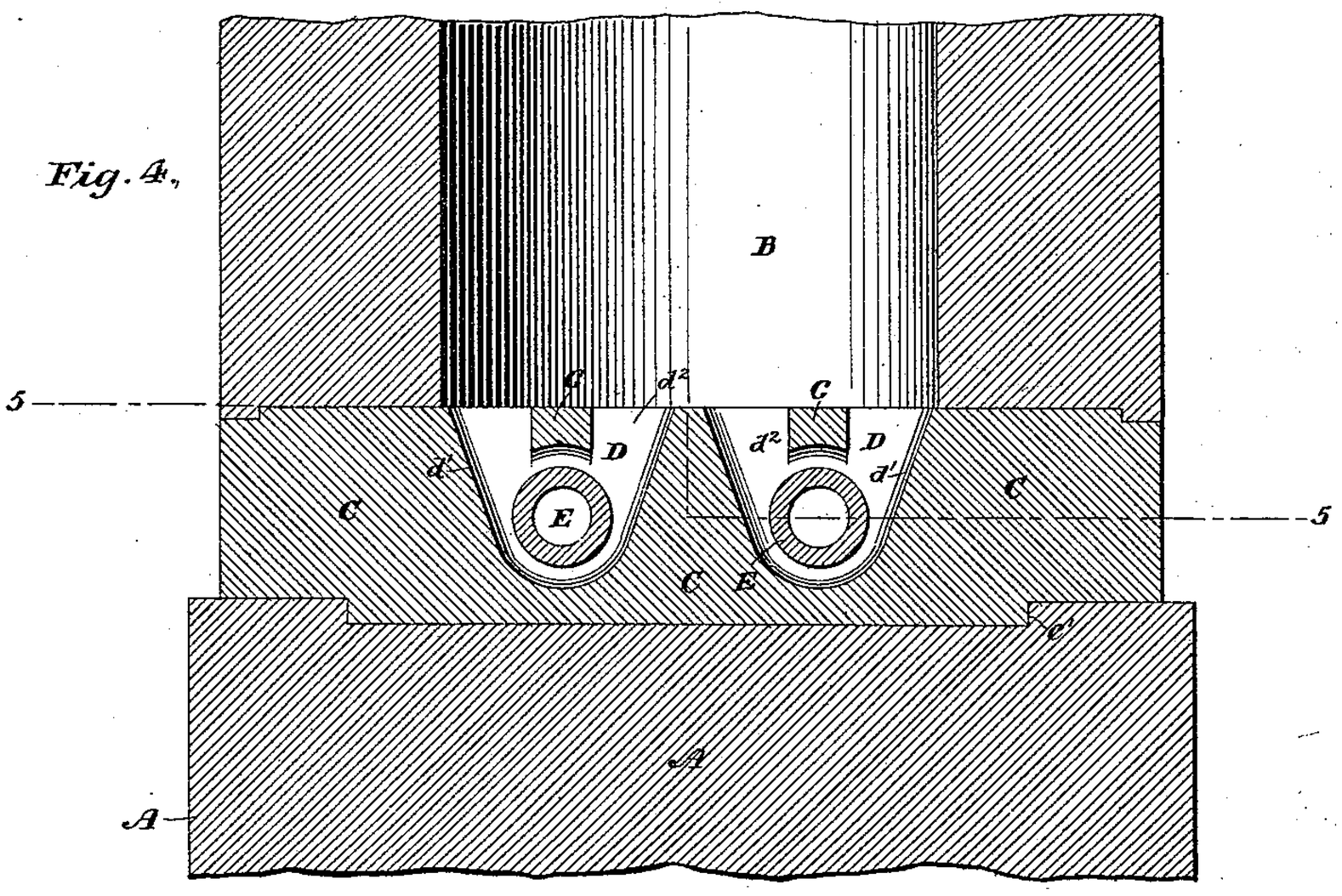
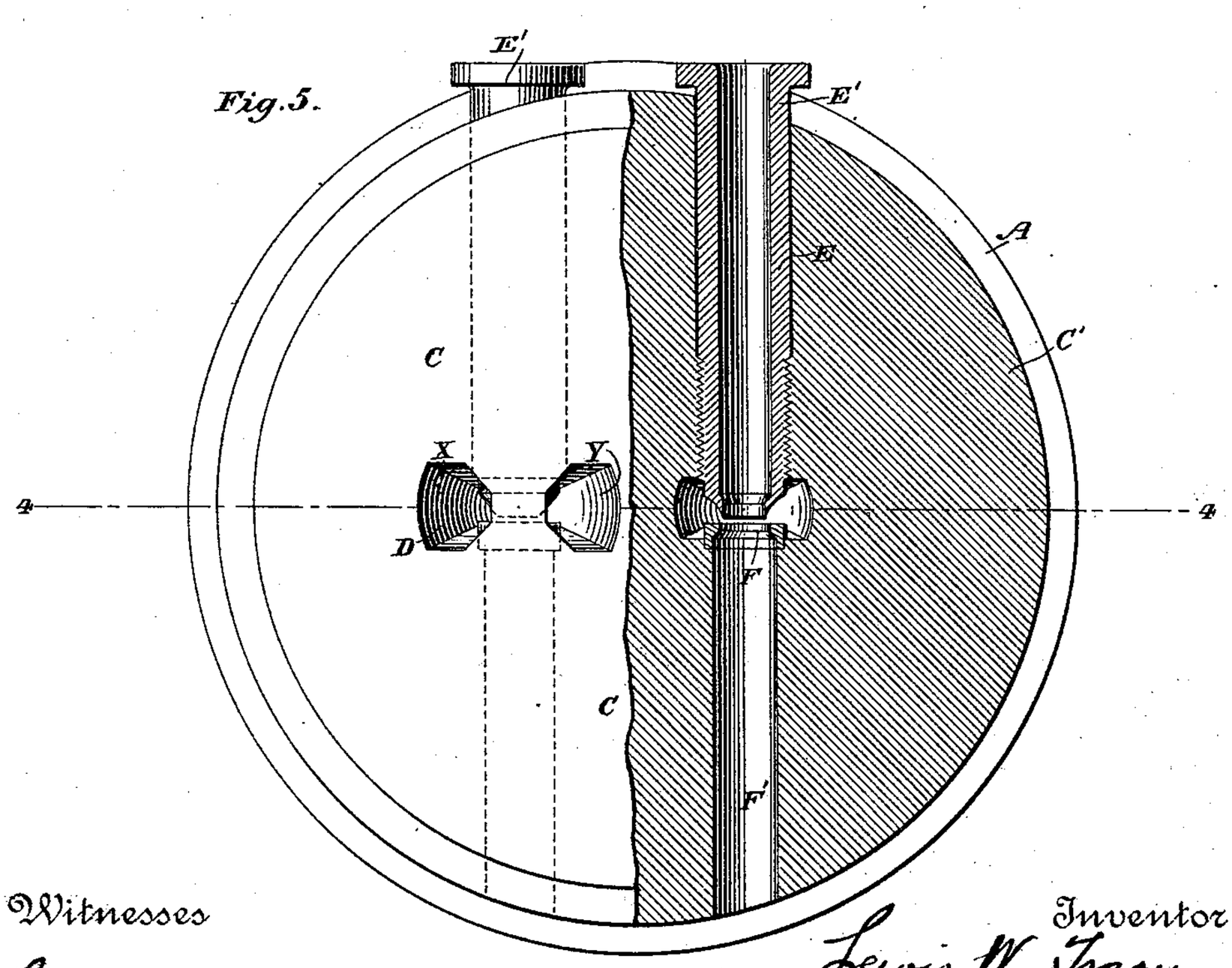


Fig. 5.



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UNITED STATES PATENT OFFICE.

LEWIS W. TRACY, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO JAMES E. GRANNISS, OF SAME PLACE.

MACHINE FOR COVERING ELECTRICAL CONDUCTORS WITH LEAD.

SPECIFICATION forming part of Letters Patent No. 451,960, dated May 12, 1891.

Application filed August 4, 1890. Serial No. 360,881. (No model.)

To all whom it may concern:

Be it known that I, LEWIS W. TRACY, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Machines for Covering Insulated Electrical Conductors with Lead, of which the following is a specification.

My invention relates to machines of that class in which a wire drawn through a tubular core-bar and die arranged transversely to the axis of a lead-cylinder is covered or inclosed by a tube of lead formed during its passage.

The object of my invention is to obviate the present necessity of employing skilled laborers of great experience in this class of work by increasing the efficiency and certainty of operation of the machine, which end I attain by certain novel constructions and organizations of instrumentalities hereinafter specified.

The accompanying drawings show so much only of a machine embodying my improvements as is necessary to illustrate the subject-matter. Unless otherwise specified the parts are of usual well-known construction.

Figure 1 is a vertical central longitudinal section in the axis of the core-bar and die; Fig. 2, a vertical central transverse section on the line 2 2 of Fig. 1; Fig. 3, a longitudinal section through the bottom of the lead-cylinder on the line 3 3 of Fig. 1; Fig. 4, a vertical transverse section on the line 4 4 of Fig. 5, showing two sets of parallel core-bars, dies, &c.; and Fig. 5, a horizontal section through the base of the lead-cylinder on the line 5 5 of Fig. 4.

A pipe-forming chamber D lies intermediate of the head A and lead-cylinder B, being formed in a block C, which may lie within the lower end of the lead-cylinder, as shown in Letters Patent Nos. 434,007 and 434,008, respectively, granted to me August 12, 1890, or it may form part of the press-head A, or, as shown in the drawings, it may be a separate block having on its upper side a ring C′, provided with pins entering sockets in the lead-cylinder to hold it in place, while an annular shoulder on its lower face is seated in a corresponding depression in the press-head and provided with a lug *c* entering a corresponding socket. This secures the accurate and proper relation of these parts. The ring and block may fit so closely as in effect to constitute a single piece and might be so made, but are made separate for convenience of construction. A longitudinal perforation E through the block C intersects the pipe-forming chamber D at its center. A tubular core-bar E′, screwing into one end of this opening, is provided with a tapering nose or nozzle projecting into the pipe-forming chamber in proximity to the mouth of the die F in the opposite portion F′ of the perforation E. The core-bar and die thus lie in the same axial plane transverse to the axis of the lead-cylinder, and the die may be inserted or removed through the core-bar perforation or socket E, which is of larger bore than the exterior of the die, different sizes of which may thus be used. The screw on the core-bar regulates the distance between its mouth and that of the die. The nose of the core-bar alone projects into the pipe-forming chamber, which is just wide enough to admit it. The mouth of the die is flush with one side of the pipe-forming chamber, while the nose of the core-bar projects across the chamber into close contact with the die, thus avoiding the formation of a square shoulder, which would tend to bank the lead in the chamber. The pipe-forming chamber is of a narrow trough shape—that is, it is relatively flat or narrow-sided in the direction of the length of the core-bar and die, while transversely it is wider and somewhat V-shaped, except that it is rounded at its bottom *d*, which is curved concentrically with the core-bar and die, from a point slightly below the horizontal central plane of which its side walls diverge or flare upwardly and outwardly on each side from the horizontal axis of the core-bar and die parallel with it, Fig. 3, while its end walls d^2 correspondingly diverge upward on each side of the axis of the lead-cylinder. (See dotted lines in Figs. 1 and 3.) The longer or transverse axis of the pipe-forming chamber is shown as of the width of the diameter of the lead-cylinder, with which it directly communicates. Its other axis is much shorter and is crossed by a central bridge G, of about the

same width as the core-bar and die which it overlies, thus dividing the opening between the lead-cylinder and pipe-forming chamber into two passages X Y, Fig. 3, of gradually-diminishing area downward. The bridge lies a short distance above the core-bar and die, its under side being curved concentrically therewith at a distance about equal to that between the core-bar and die and the bottom of the pipe-forming chamber. In other words, a circle described from the core-bar center would conform to the under face of the bridge and the bottom of the chamber. The lead thus passes downward through passages of gradually-decreasing area to about the central horizontal plane of the core-bar and die and then flows around them through passages of equal area, thus insuring an equal uniform flow of the lead and sufficient pressure on all sides.

To further facilitate the operation, both the bottom of the pipe-forming chamber and the under side of the bridge are correspondingly curved in opposite directions in semicircular form above and below the nose of the core-bar. (See Fig. 1.) Core-bars and dies of different sizes may be substituted as occasion requires.

Figs. 4 and 5 show a duplex arrangement of pipe-forming chambers, bridges, core-bars, and dies, similar to those above described, in connection with a large lead-cylinder, so as to cover two conductors at the same time, thus saving expense, labor, power, and time.

The operation will be apparent from the foregoing description.

Having thus fully described my improved machine, what I claim therein as new and as of my own invention is—

1. The pipe-forming chamber constructed, substantially as hereinbefore set forth, of a narrow trough shape, with upwardly-flaring sides and ends and a bottom curved concentrically with the die and core-bar projecting across its shorter axis, for the purposes specified.

2. The pipe-forming chamber constructed, substantially as hereinbefore set forth, of a narrow trough shape, with upwardly-flaring sides and ends and a bottom curved concentrically with the die and core-bar projecting across its shorter axis, and with a correspondingly-curved bridge between the core-bar and die and the lead-chamber, for the purposes specified.

3. The pipe-forming chamber constructed, substantially as hereinbefore set forth, of a narrow trough shape, with upwardly-flaring sides and ends, a bottom curved concentrically with the core-bar and die projecting therein, a bridge between the lead-chamber and pipe-forming chamber, and an annular curved portion around the nose of the core-bar and die, for the purposes specified.

4. The pipe-forming chamber constructed, substantially as hereinbefore set forth, of a narrow trough shape, with upwardly-flaring sides and ends abutting against the bottom of the lead-cylinder, a bottom curved concentrically with a core-bar and die projecting therein, a bridge crossing the trough parallel with the core-bar, partially closing the communication with the lead-cylinder, and having on each side thereof passages of an area gradually decreasing to the horizontal plane of the axis of the core-bar and die, for the purposes specified.

5. The pipe-forming chamber constructed, substantially as hereinbefore set forth, of a narrow trough shape, with upwardly-flaring sides and ends, a bridge, and an annular-curved passage in the bridge and the bottom of the chamber, into which passage the nose of the core-bar projects close to the mouth of the die, for the purposes specified.

6. The duplex lead-press hereinbefore described, consisting of two parallel adjacent pipe-forming chambers communicating with the same lead-cylinder and each made of a narrow trough shape, with upwardly-flaring sides and ends, rounded bottoms concentric with tubular core-bars and dies projecting therein, bridges over the core-bars and dies, and annular curved passages around their noses, for the purposes specified.

In testimony whereof I have hereunto subscribed my name.

LEWIS W. TRACY.

Witnesses:
EDWARD C. DAVIDSON,
MAMIE J. KELLEY.