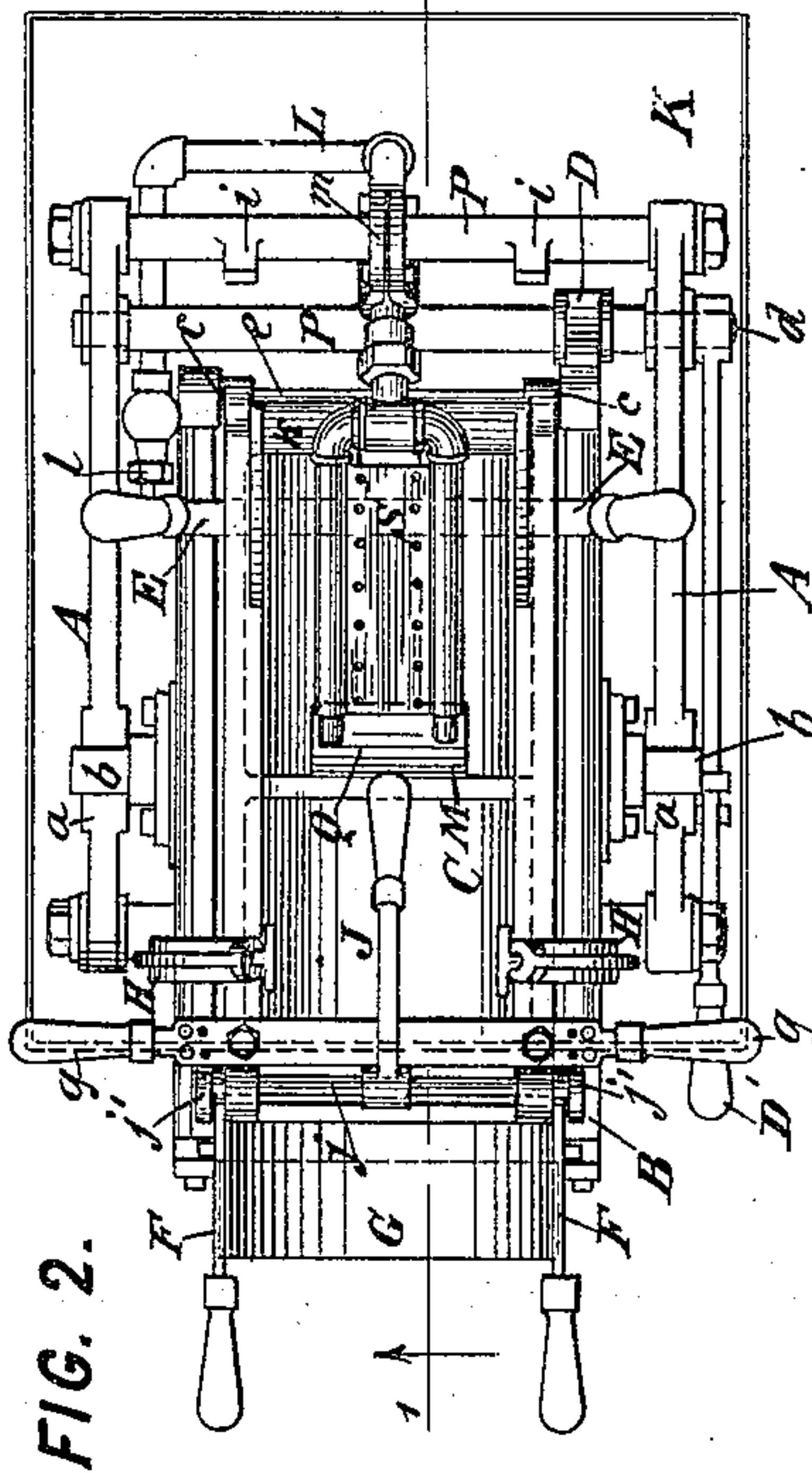
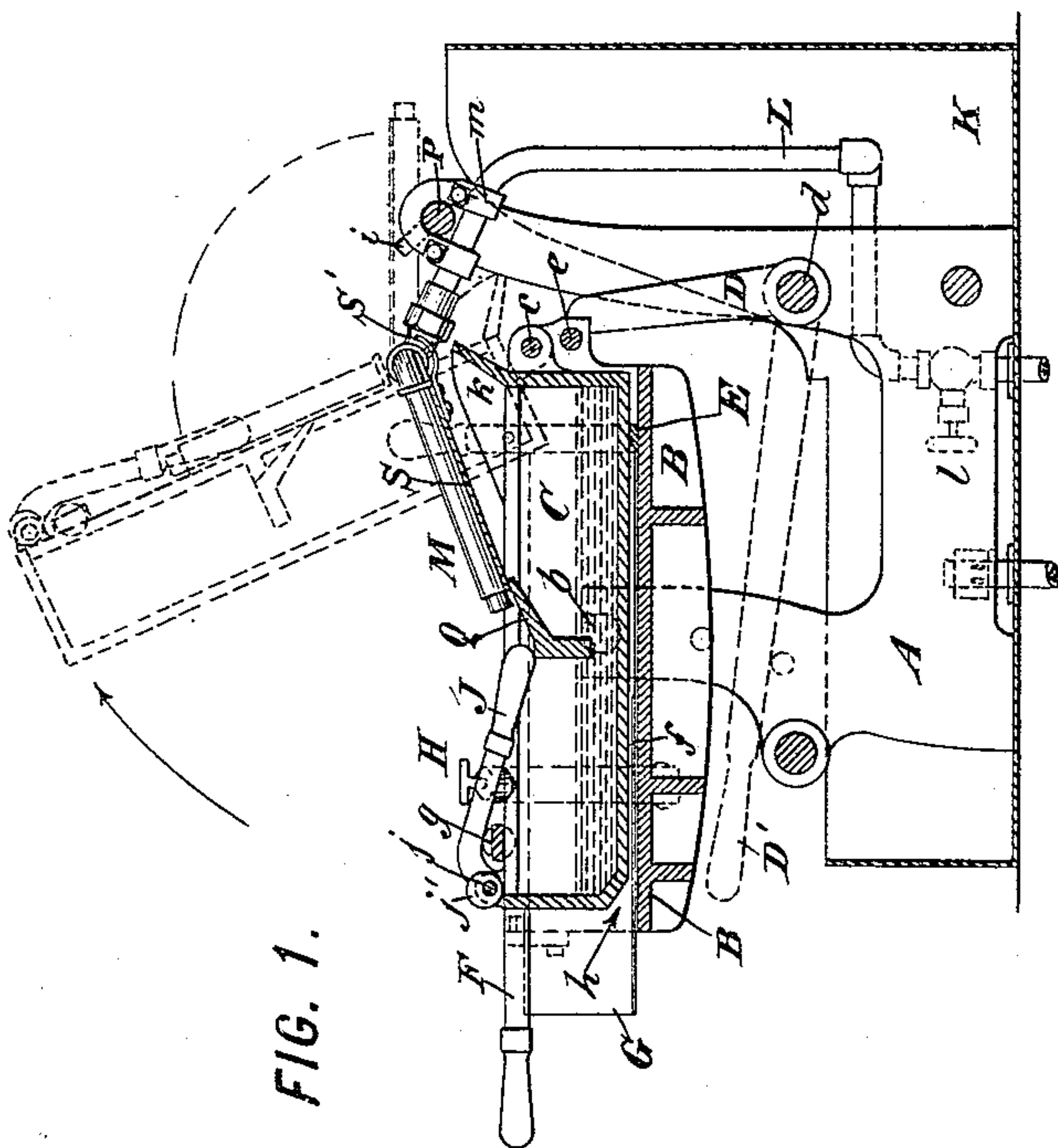
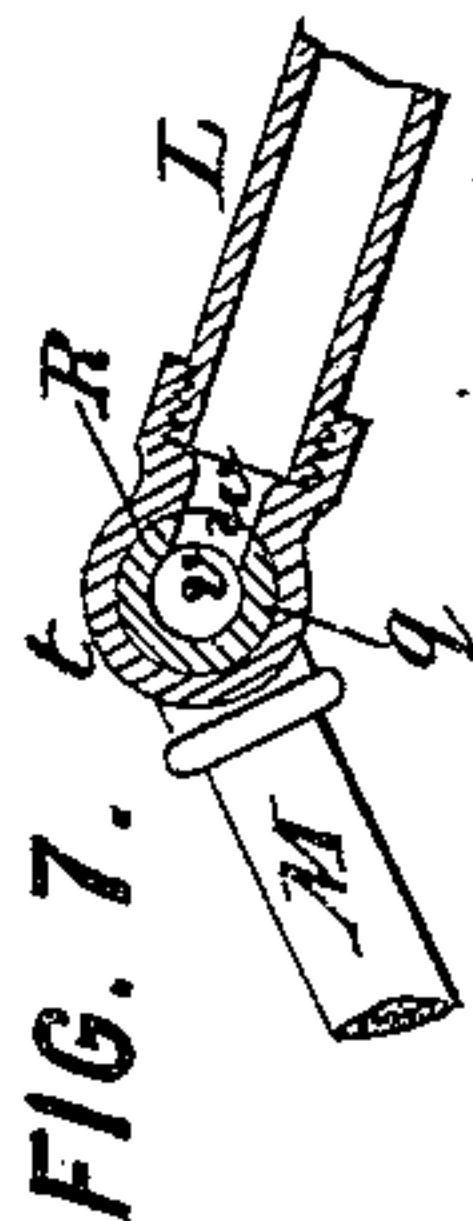
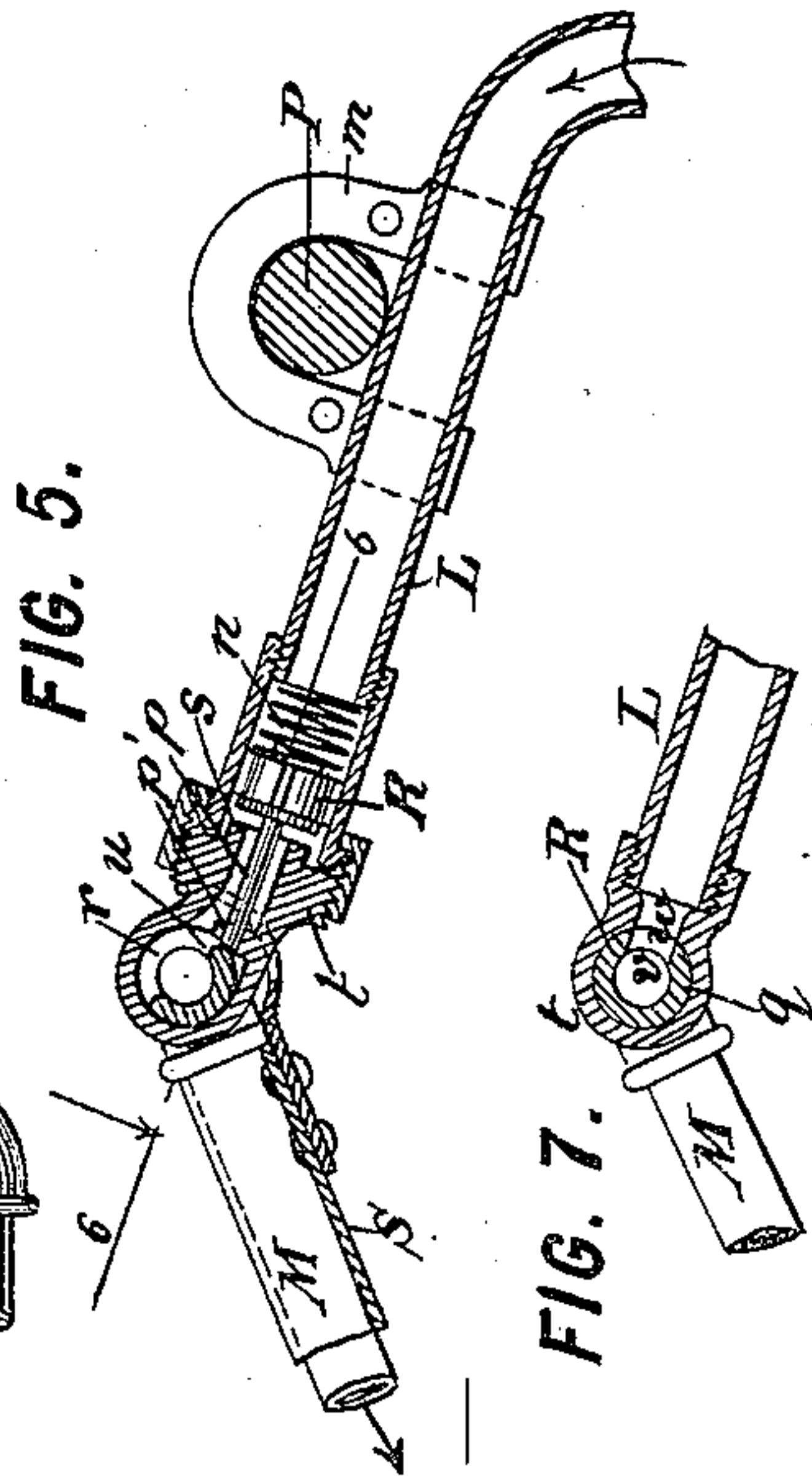
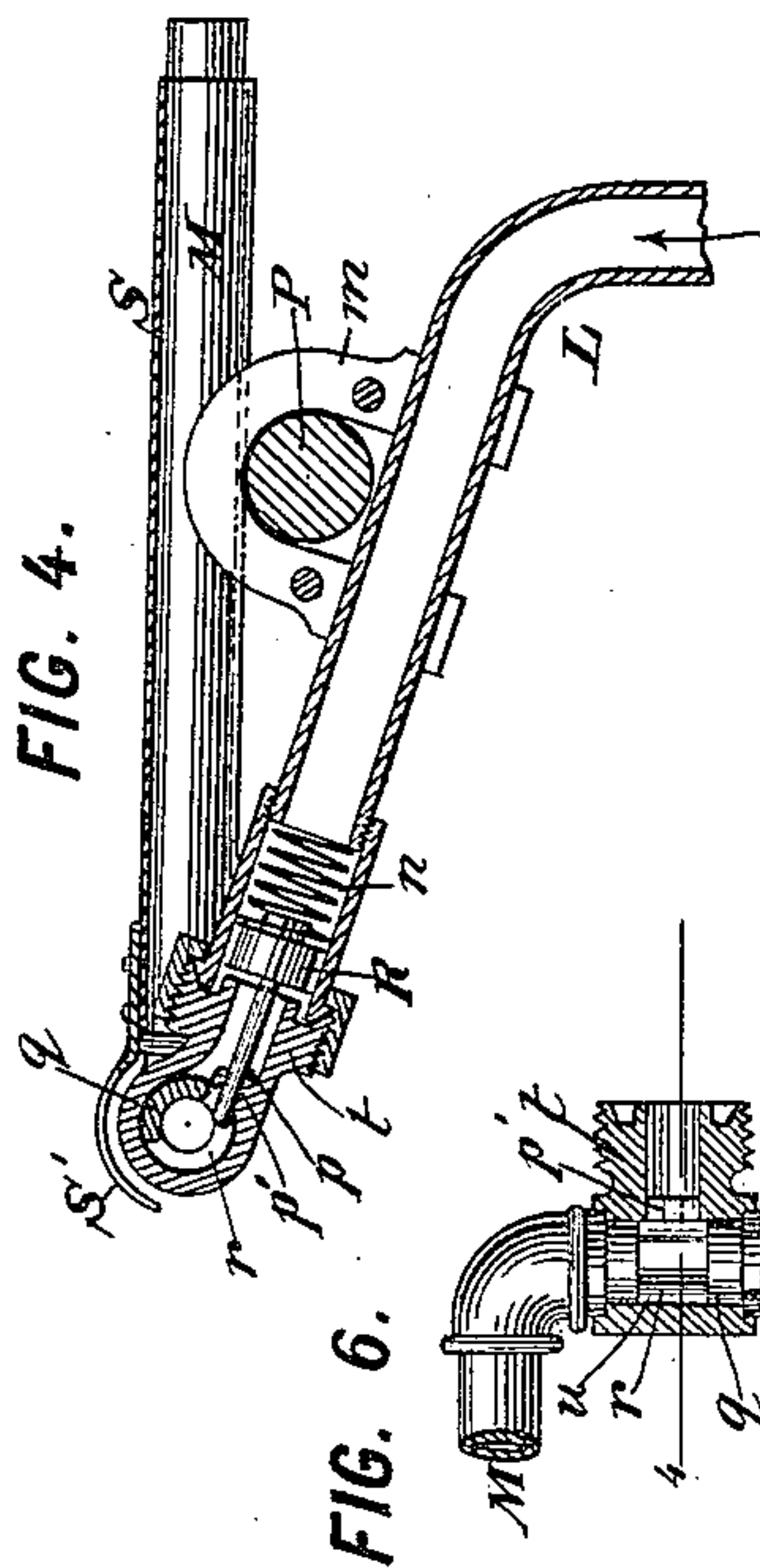
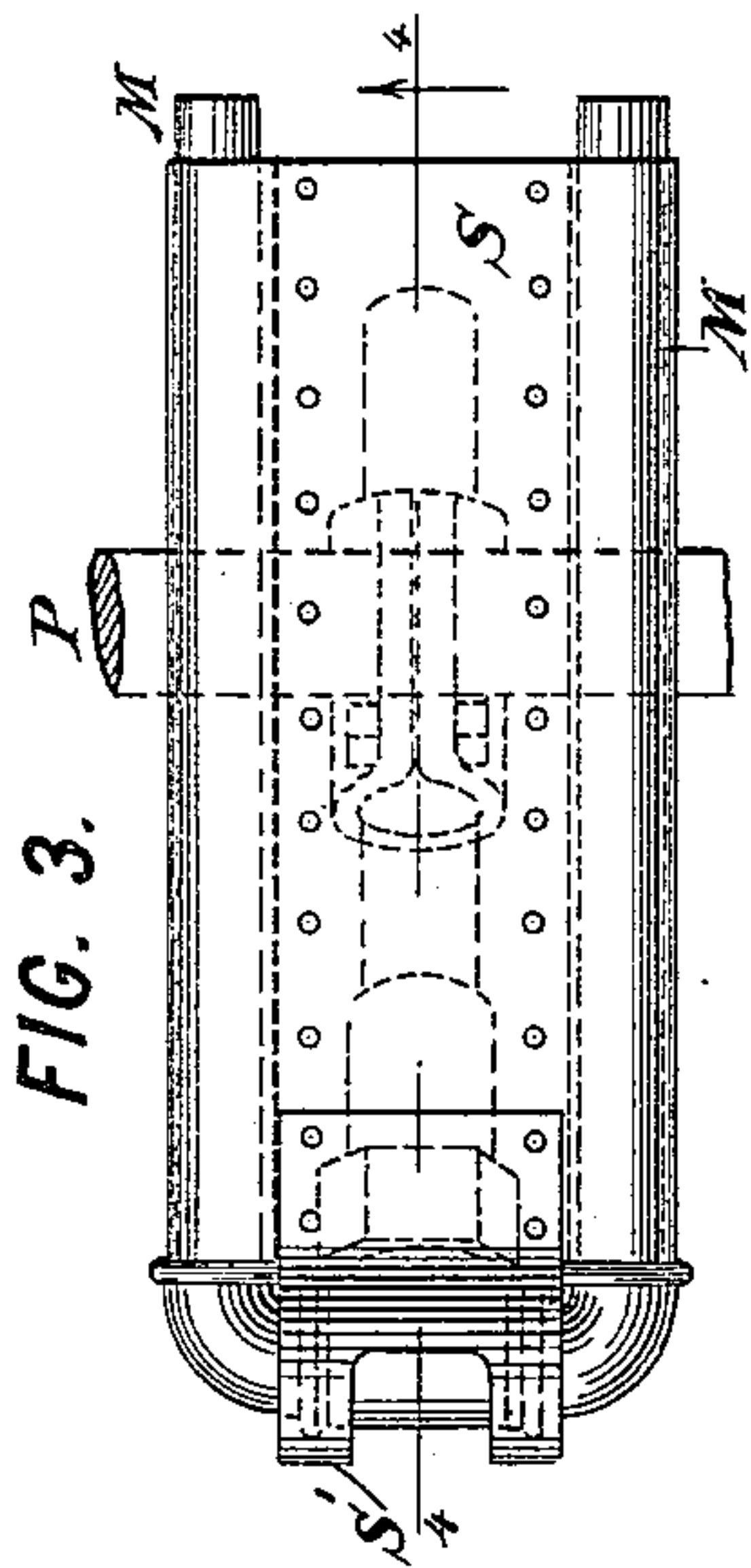


(No Model.)

T. I. KNIGHT & L. QUANCHI.
MACHINE FOR CASTING STEREOTYPES.

No. 451,276.

Patented Apr. 28, 1891.



WITNESSES:

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NEW YORK.

MACHINE FOR CASTING STEREOTYPES.

SPECIFICATION forming part of Letters Patent No. 451,276, dated April 28, 1891.

Application filed November 24, 1890. Serial No. 372,407. (No model.)

To all whom it may concern:

Be it known that we, THOMAS I. KNIGHT, a citizen of the United States, residing in the city, county, and State of New York, and
5 LOUIS QUANCHI, a citizen of the United States, residing in Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Machines for Casting Stereotypes, of which the
10 following is a specification.

In machines for casting stereotype-plates for newspapers, &c., it is customary to pour the type-metal into a narrow space between a mold or casting-box on one side and a core-
15 box on the other side, and to cool the plate thus cast by introducing water into the core-box, which is turned horizontally for the purpose. The water is thus commonly introduced by means of a hose, the nozzle of which
20 is directed into the core-box by the operator with one hand, while with the other he turns a valve for letting on and turning off the water. When the plate is sufficiently cooled, the mold is opened by turning up the core-
25 box, thus emptying out the water. The hose is found to be liable to injury in the course of the several operations, which are performed always in great haste, and the manipulation of the hose and valve involves a delay, which
30 it is desirable to avoid, since the production of stereotype-plates for newspaper work, especially on daily papers, is an operation in which rapidity is an important desideratum. In practice at the present time the entire series of operations, from the receipt of a form
35 of type in the stereotyping-room until the complete set of stereotype-plates is ready to fasten on the cylinder of the press and sent to the press-room, is commonly performed in
40 about eight minutes. As these operations comprise the preparation of paper matrices for usually four forms, the casting of the stereotype-plates, and the planing and trimming thereof, it is obvious that a saving of every
45 possible second of time is highly desirable.

Our invention aims to provide an improved means for admitting and shutting off the supply of water for cooling the plates in stereotype-casting machines, its object being to
50 avoid the manipulations heretofore necessary in the employment of a hose and its valve,

and to effect a consequent saving of time in the making of the casting.

To this end our invention provides, in connection with a fixed water-supply pipe, a
55 movable nozzle jointed thereto in such position that it may be turned to direct the water issuing therefrom into the core-box and so arranged relatively to the core-box that the act of throwing back the latter will turn
60 back the nozzle out of the way. The flow of water is controlled by an automatic valve operated by the movement of the nozzle in such manner that it is opened by the act of turning
65 the nozzle, so as to direct the water into the core-box, and is closed by the act of turning back the nozzle. By this construction the only manipulation that is necessary in the cooling of the plates is a single movement of
70 the nozzle to turn it down or over the core-box to direct the water thereinto. The water continues to flow into the core-box until the plate is sufficiently cooled, whereupon the
75 workmen throw back the core-box, by which action the water supply is automatically cut off and the nozzle turned back out of the way.

Figure 1 of the accompanying drawings is a vertical section cut generally on the line 1 1
80 in Fig. 2, showing a stereotype-casting machine, to which our invention in its preferred form is applied. Fig. 2 is a plan of the machine with the nozzle turned down in the act of discharging water into the core-box. Fig.
85 3 is a plan of the nozzle turned back, the water being shut off. Fig. 4 is a section thereof on the line 4 4. Fig. 5 is a similar section thereof, showing the nozzle turned down, as in Fig. 1. Fig. 6 is a fragmentary section
90 through the joint between the nozzle and the fixed pipe in the plane of the axis of the latter.

The stereotype-casting machine shown consists of a frame A, formed with trunnion-bearings *a* for the trunnions *b* of the casting
95 box or mold B, which is in the form of a segment of a cylinder. To one end of the mold B is pivoted at *c* the core-box C, the exterior of which is also the segment of a cylinder concentric with the inner surface of the mold
100 B, but somewhat smaller, so as to leave an intervening space of the requisite thickness for the casting of the stereotype-plate. This

core-box may be turned up to the position shown in dotted lines in Fig. 1. The mold B is locked in its horizontal position by a locking-arm D, fixed on a shaft *d* and operated by a lever D'. The upper end of the locking-arm D engages a rod or other suitable projection *e* at the rear end of the mold. By releasing the locking-lever the mold, with the core-box C, may be turned vertically, in order to pour in the molten type-metal. The papier-maché matrix is placed in the mold B, while the core-box C is turned back, its edge at the rear of the mold being confined under an arc-shaped bar E, called a "head-gate," and two straight bars F F at the sides, called "side-gates." A tail-piece or sheet G is placed over the front edge of the matrix, which extends to the point marked *f* in Fig. 1, this tail-piece projecting outside the mold at the front, as shown. The matrix being thus properly fastened in place, the core-box C is turned down and fastened by screw-clamps H H, applied to its opposite sides. The core-box has handles *g g* projecting from its opposite sides by which to swing it up or down. The mold B being thus made ready, the locking-lever D is withdrawn and the mold turned on the trunnions *b* until it stands vertically with its front side uppermost, in which position the metal is poured in, as shown by the arrow *h* in Fig. 1, filling the space between the matrix and the core-box C. The head-gate E forms the bottom of this space and the side gates F F close the opposite sides thereof. The mold having been filled, it is turned back to the horizontal position and again locked by the lever D. Water is then poured into the core-box C to cool the plate. Immediately thereafter, the plate being sufficiently cooled, a lifting-lever J is turned up, on the shaft *j* of which are two eccentrics *j'*, which bear against the top of the mold B and serve to forcibly lift the core-box to separate it from the cast-plate, whereupon the operators, by grasping the handles *g*, throw the core-box C upwardly, as shown in dotted lines in Fig. 1, swinging it back until it is stopped by stops *i i*. By this operation the water in the core-box is poured out over the lip *k* at the rear thereof into the tank K, which incloses the rear portion of the machine. The side gates F F are then taken out, which releases the cast plate, and the latter is thereupon removed from the machine.

The construction of stereotype casting machine as thus far described is well known and forms no novel part of our invention.

According to our invention we extend the water-supply pipe L, which is preferably provided, as usual, with a service-valve or stop-cock *l*, up behind the mold, and carry it forward to a point preferably just above the rear end of the mold. At this point it has pivoted to it on a horizontal axis a discharge nozzle or pipe M of suitable length. Preferably the nozzle M is made of two pipes extended parallel in the form of a U, the por-

tion between them constituting the joint or pivotal connection with the end of the supply-pipe L. The nozzle M when not in use projects backwardly in approximately horizontal direction, resting on a cross-bar P, which is or may be the same cross-bar on which the stops *i i* are formed. The pipe L is preferably supported by a clamp or eye *m*, connected to the same bar. The nozzle M when turned forward rests upon a bar or plate Q, fixed in the core-box C, and is directed downwardly at such an inclination as to discharge the issuing water into the core-box, as shown in full lines in Fig. 1. The bar Q is preferably made in the form of an inclined plate arranged to receive the two streams of water from the two opposite pipes of the nozzle and direct them into the box without spattering.

The flow of water from the nozzle M is controlled automatically by a valve R. This valve may be variously constructed, it being only essential that it shall be opened by the act of turning the nozzle M forward and down to the position shown in full lines in Fig. 1, and closed by the act of turning the nozzle up and back, so that the water shall be shut off in all positions of the nozzle except when it is turned down to discharge the water into the core-box.

The particular construction of the valve is immaterial to our invention in its broader scope, any one of several constructions of valve known to the hydraulic arts being admissible for this purpose.

The operation is as follows: After the plate has been cast and the mold turned horizontally again the operator grasps the nozzle M, which normally is turned back, and swings it forward and downward to the position shown in full lines in Fig. 1, thereby turning on the water, which continues to flow into the core-box during the time that the men are unscrewing the clamps H H and operating the lever J. By this time the plate is sufficiently cooled and the men thereupon throw up the core-box as already described. In so doing, the nozzle M is lifted and pushed back by contact with the bar or stop Q. As the core-box is turned back beyond the vertical, the nozzle M falls by its own weight into the horizontal position shown in full lines in Fig. 4, and in dotted lines in Fig. 1. The one act of turning back the core-box thus effects the automatic shutting off of the water and moves the nozzle M back to a position where it is entirely out of the way. The time heretofore consumed in handling a hose and turning the valve thereof is thus saved by our invention, which performs all the operations connected with the supply and discharge of water automatically, with the sole exception of the instantaneous act of turning down the nozzle M.

The preferred construction of automatic valve R is that shown best in Figs. 4 and 5. The valve consists of a disk seating against a seat *s* in a T-fitting *t*, screwed to the end of the

pipe L. The valve R is pressed against this seat by a spring *n*, and seats with the flow of water like an ordinary check-valve. It is provided with a stem *p*, which projects into the fitting *t*, being guided by passing through an eye *p'* therein, and the end of the stem projects into the transverse passage or head of the T-fitting, in which the middle portion of the U-shaped nozzle-pipe turns. This middle portion is formed as a thimble *q*, Fig. 6, and is cut out at one side to form an opening *r* for admitting water from the pipe L into the nozzle M. The end of the stem *p* projects into this opening *r*, as shown in Fig. 4, while the nozzle is turned back; but in the act of turning the nozzle forward and down the margin *u* of the opening *r* strikes the end of the stem and presses it back to the position shown in Fig. 5, thereby opening the valve and admitting water into the nozzle, so that it flows through both pipes thereof and enters the core-box. In turning up the nozzle its first upward movement causes the margin or shoulder *u* to move out of the way of the stem *p*, so that the valve is immediately closed by the tension of the spring *n*, aided by the water-pressure. The spring *n* might be omitted, relying upon the water-pressure alone to close the valve.

The nozzle M is covered by a shield S of sheet metal, which is also extended in the form of a hood S' around the pivotal joint of the nozzle. The purpose of this shield is to receive any drippings of type-metal that may fall from the ladle as it is being carried over the machine or during the act of casting. The shield thus prevents these drippings from falling on the nozzle and on the water-pipe L and the pivotal connection between them.

As an example of one of many modifications of the automatic valve R that may be adapted, the form shown in Fig. 7 is illustrated. The valve here shown is made on the principle of an ordinary stop-cock or key. The pipe L terminates in a T-fitting *t*, formed with a port *w*, and the valve R is formed as a key or plug turning therein and having a port *v*, which registers with the port *w* when the nozzle is turned down to the same position, as shown in Fig. 5.

We claim as our invention the following-defined novel features or combinations substantially as hereinbefore set forth, namely:

1. A stereotype-casting machine comprising a tilting mold and core-box, combined with a water-supply pipe, a jointed nozzle therefor adapted to be turned to direct the water into the core-box and to be moved out of the way of the tilting mold, and a valve controlling the flow of water from said nozzle, constructed to be opened by the act of turning the nozzle into the box.

2. A stereotype-casting machine comprising a tilting mold and core-box, combined with a water-supply pipe, a jointed nozzle therefor adapted to be turned to direct the water into the core-box and arranged relatively thereto to be turned back by the act of throwing back the core-box, and a valve controlling the flow of water from said nozzle, constructed to be opened by the act of turning the nozzle into the box and to close automatically by the turning back of the nozzle.

3. A stereotype-casting machine comprising a tilting mold and core-box, combined with a water-supply pipe, a jointed nozzle therefor pivoted on a horizontal axis back of the core-box, so as to be turned down thereupon to discharge water thereinto and to be turned up by the core-box in the act of throwing it back, a bar fixed in the core-box to form a stop for the nozzle when turned down and to act against the nozzle in throwing back the core-box, and a valve controlling the flow of water from said nozzle, constructed to be open when the nozzle is turned down and closed when the nozzle is turned up.

4. A stereotype-casting machine comprising a tilting mold and core-box, combined with a water-supply pipe, a jointed nozzle therefor adapted to be turned down to direct the water into the core-box and to be turned back out of the way of the tilting mold, and a shield attached to the nozzle, adapted when the nozzle is turned back to protect the nozzle, water-pipe, and pivotal connection from drippings of type-metal.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

THOMAS I. KNIGHT.
LOUIS QUANCHI.

Witnesses:

GEORGE H. FRASER,
CHARLES C. STRANG.