

H. F. Read.
Mold for Casting.

N^o 93,003.

Patented Jul. 27, 1869

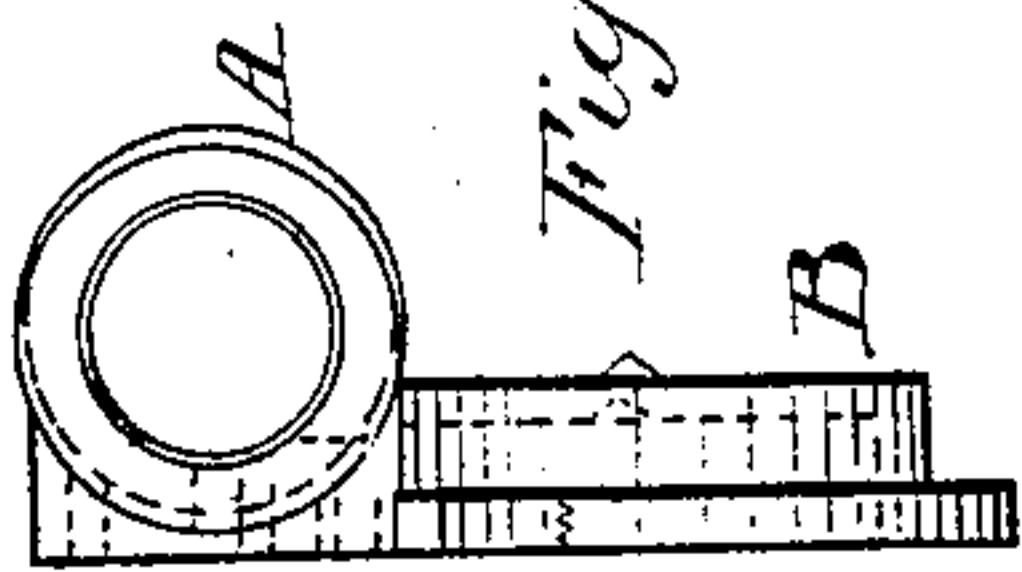


Fig. 6.

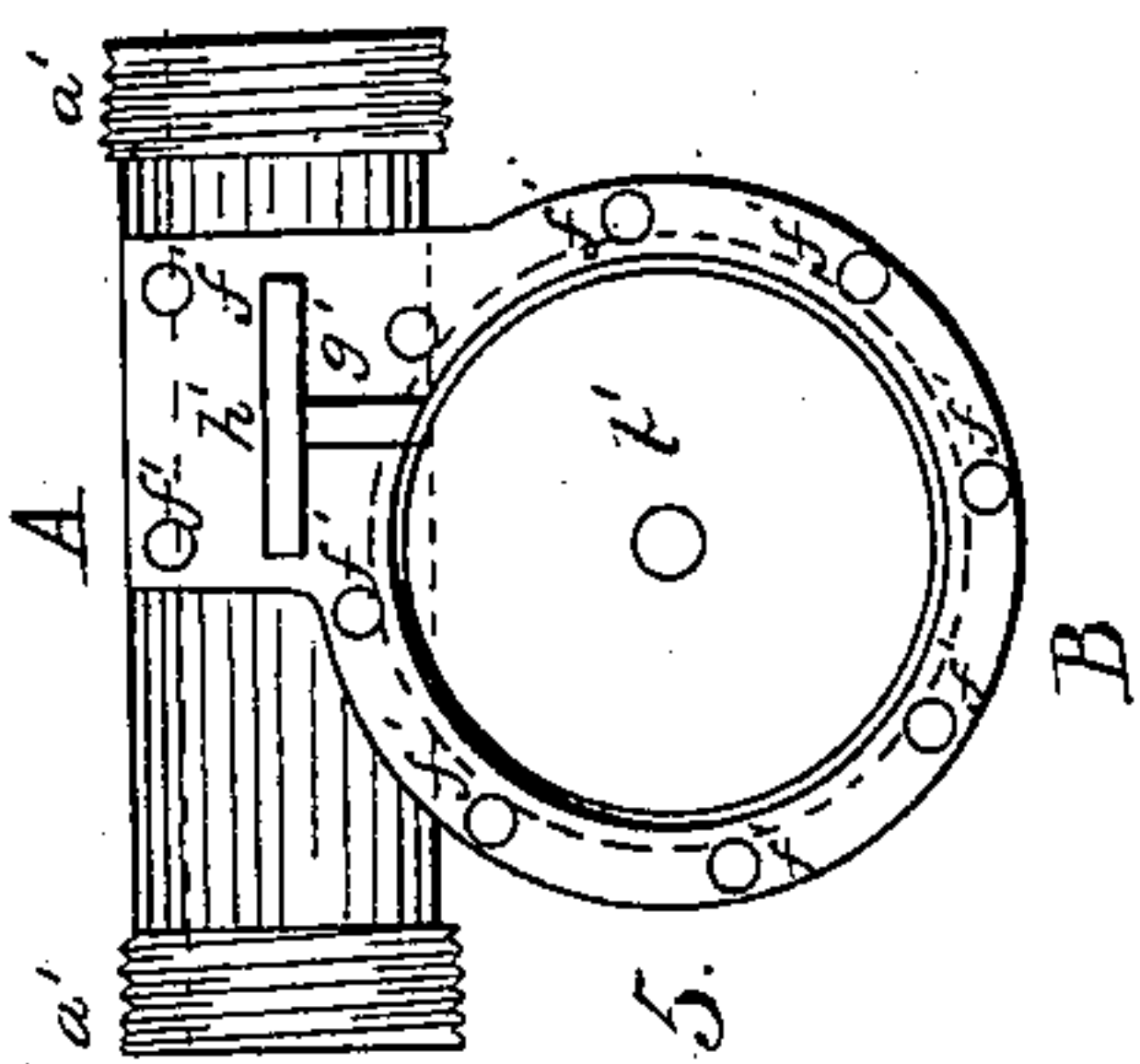


Fig. 5.

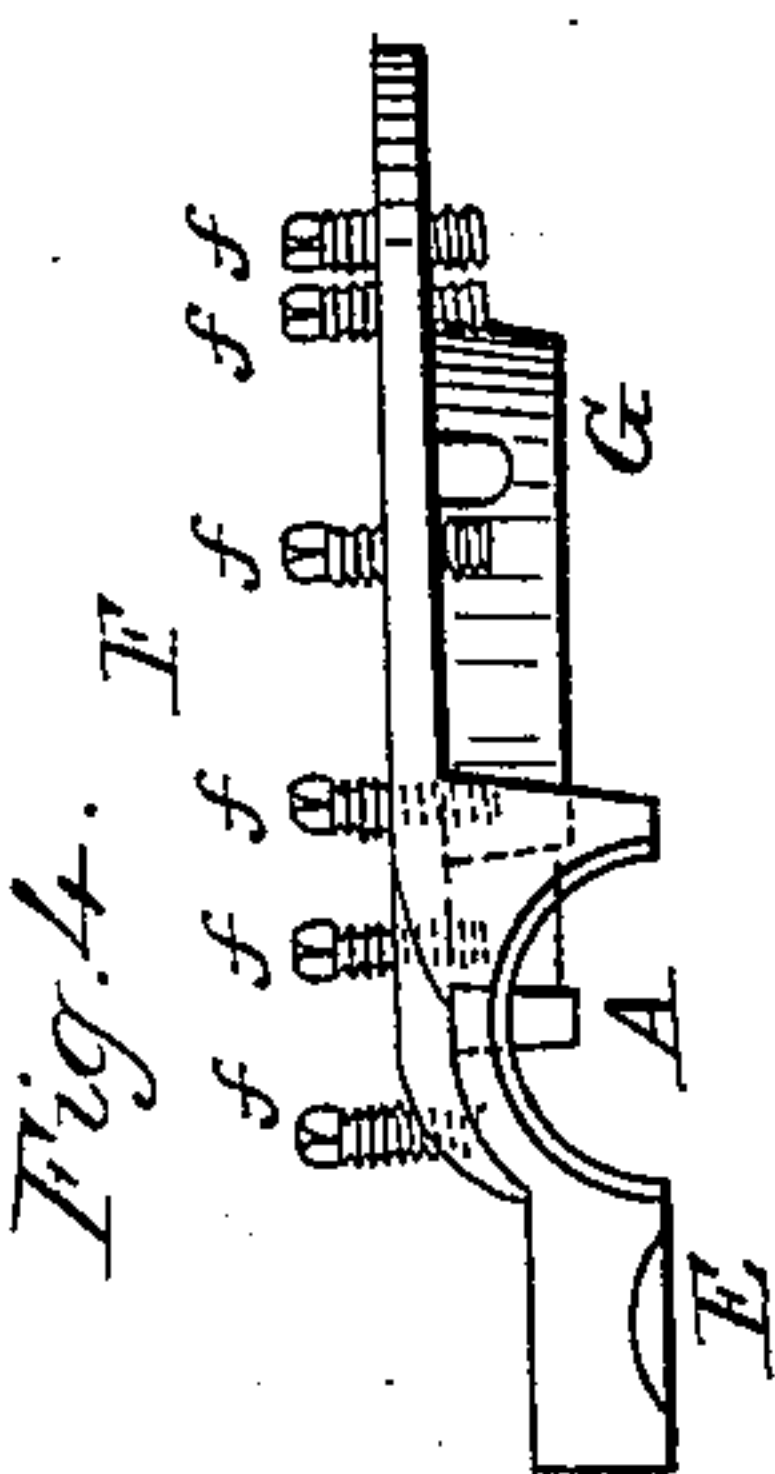


Fig. 4.

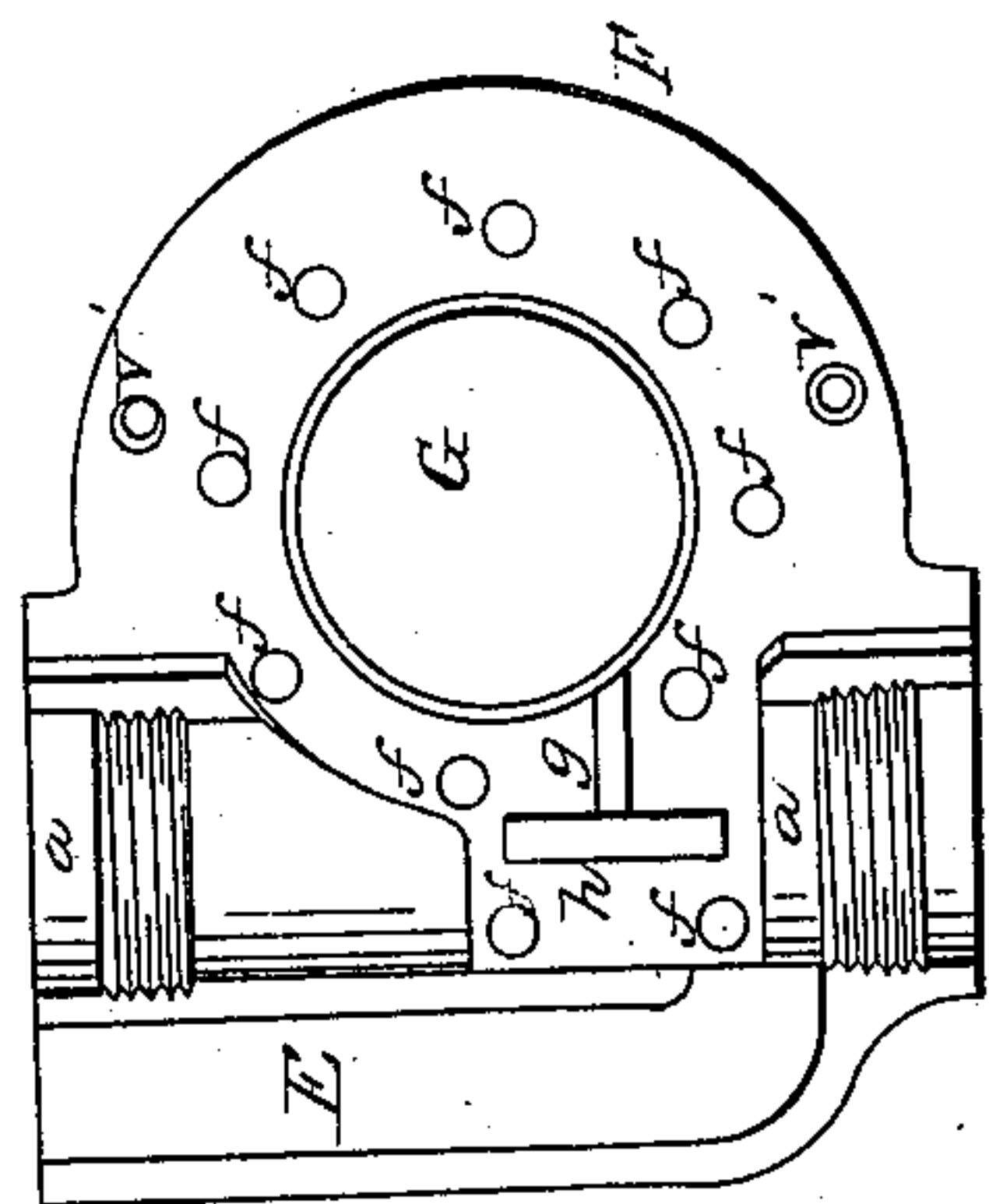


Fig. 3.

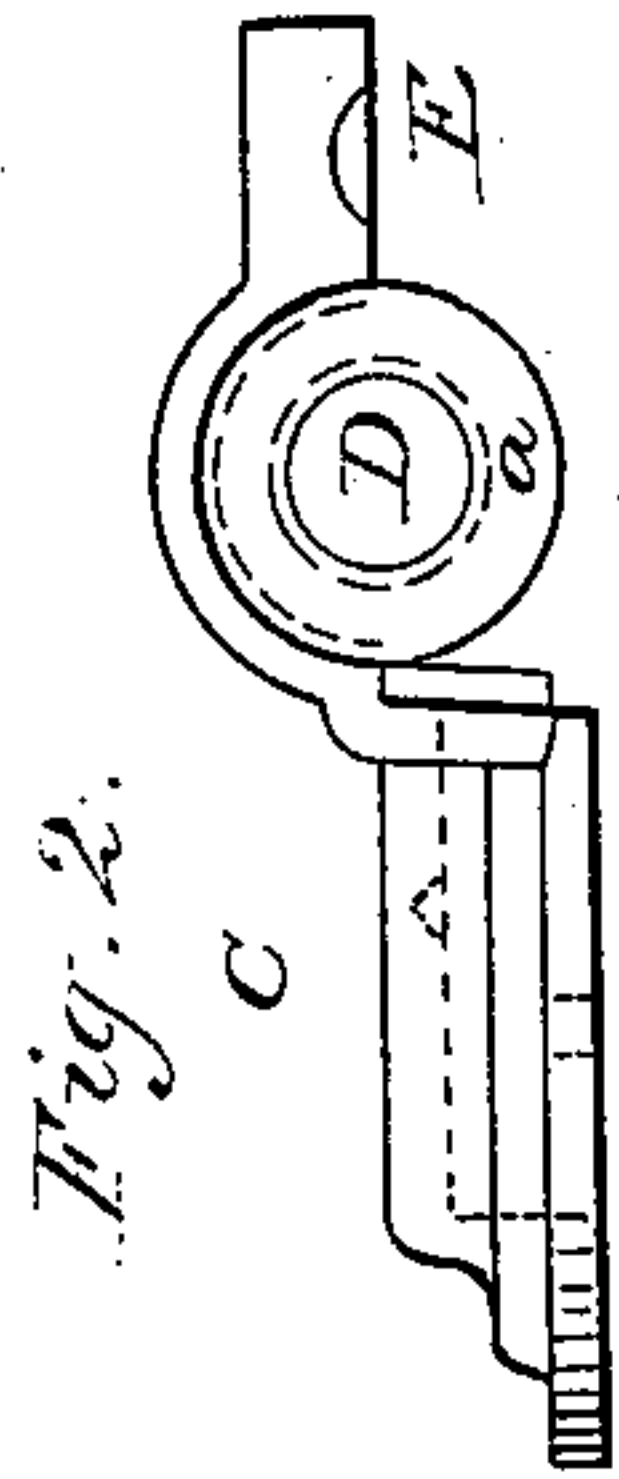


Fig. 2.

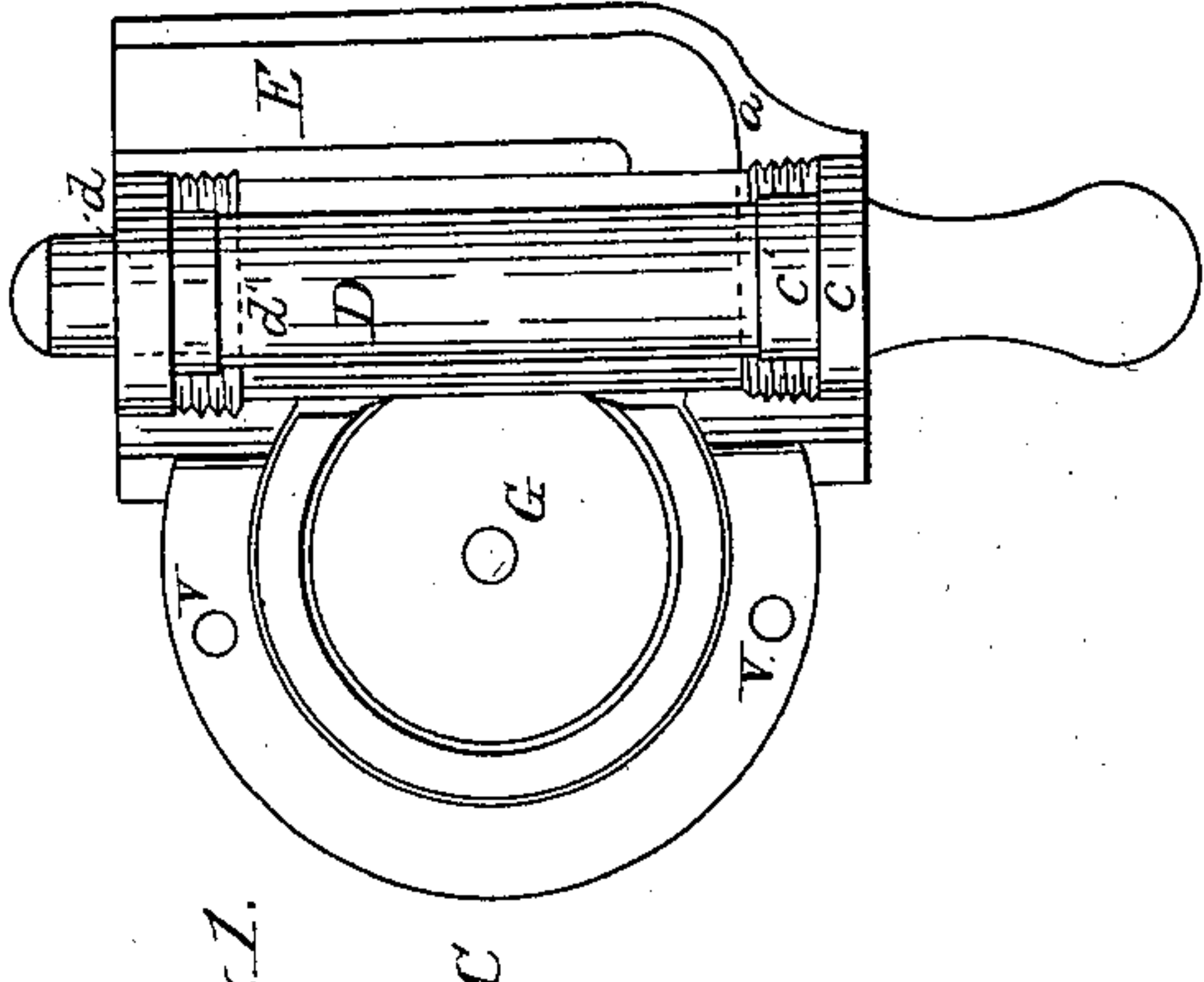


Fig. 1.

Witnesses.

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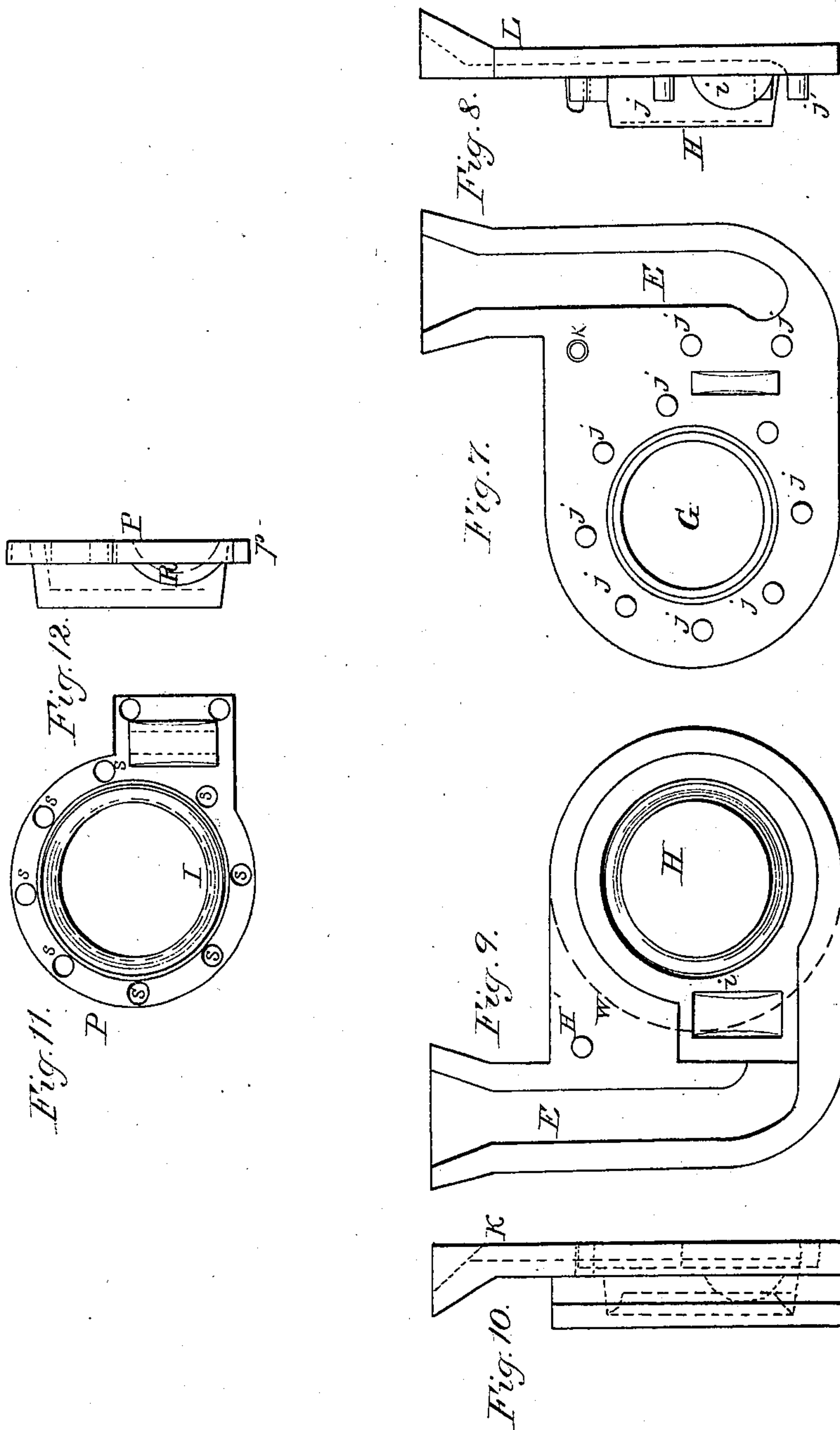
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Witnesses:

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HENRY F. READ, OF BROOKLYN, NEW YORK.

Letters Patent No. 93,003, dated July 27, 1869.

IMPROVEMENT IN MOULDS FOR CASTING THE CYLINDERS AND DIAL-BOXES OF WATER-METERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HENRY F. READ, of the city of Brooklyn, in the county of Kings, and State of New York, have invented Improved Moulds for Casting the Cylinders and Dial-Boxes of Water-Meters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in so constructing the moulds that the cylinder and the body of a dial-box may be cast in them in one piece, with all the necessary parts, such as slots, screw-threads, internal as well as external, except the cap, which, with all its parts, is also cast in another single piece, so that when the casting is done, the work is done, with the exception of the making of the screw-bolts by which the cap is fastened upon the dial-box.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same.

In the drawings—

Figure 1 represents an inner-side view of one-half the mould, with the core, or mandrel lying in position, and

Figure 2, an upper-end view of the same.

Figure 3 represents an inner view of the other half of the mould, and

Figure 4, an upper-end view thereof.

Figure 5 represents a side view of the cylinder and dial-box, after being cast, and

Figure 6, an end view thereof.

Figure 7 represents an inside view of one-half the mould for the cap, and

Figure 8, an edge or end view of the same.

Figure 9 represents an inside view of the other half, and

Figure 10, an edge view of the same, with the cap-piece Q in position.

Figure 11 represents a top view of the cap P (when cast) of the dial-box, and

Figure 12, an edge view of the same.

I will first give a general description of the parts to be cast, and their uses, before describing the moulds into which they are to be cast.

In fig. 5, A is the cylinder through which the water to be measured passes from the supply-pipe, and $a' a'$ are the convex screw-threads formed on the ends thereof, by which the ends are connected with the supply-pipe.

p is a longitudinal slot through the neck of the dial-box into the cylinder; and in this slot the driving-wheel revolves, and communicates the motion which it receives from the water-wheel to the indicating-apparatus, to be contained in the interior b' of the dial-box B.

g' is another slot, running at right angles to the slot k' in the neck of the dial-box; and through it a shaft is to pass from the driving-wheel, to communicate motion therefrom to the apparatus in the interior.

The dial-box B is formed with a wide, strong flange, b'' , in fig. 6, and this flange, as well as the neck of the box, is perforated with a series of holes, $f' f' f'$, and these holes are provided with female-screw threads. All this is cast in one piece.

The other part to be cast is the cap P. It completes the box to contain the indicating-apparatus, and affords space for the thick plate of glass which is to be placed over such apparatus. It is formed with a strong, wide flange, p , perforated with holes for screw-bolts, corresponding in number, size, and position with those marked f , in fig. 5, and with a neck corresponding with the neck of the box, and with a wheel-house, R, which, when the cap is in position, furnishes the necessary additional space for the driving-wheel before mentioned.

These flanges on the dial-box and in the cap, and the holes through both, and the threads in the holes in the flange of the dial-box, are simply for the purpose of securely fastening the two parts together, by means of screw-bolts.

As shown in fig. 11, the cap has a large circular opening in its top, which is flared, to admit the rays of light upon the dial-plate, and this opening is intended to receive a glass through which the indicators may be seen.

The inside of the top of the cap is furnished with a bead, or projecting rim, against which the glass from the interior may abut.

These two parts—the dial-box and cap—may be cast of white metal, or any other suitable metal, as I claim no novelty in the material to be used.

I will now describe the moulds for casting the parts above described.

The moulds for the cylinder and dial-box are composed of the two parts, C and F, in figs. 1 and 3, and the mandrel D. The part C gives form to the exterior of the dial-box, and, with the aid of the mandrel, to one-half of the cylinder, while the part F gives form to the interior of the dial-box, and, with the aid of the mandrel, to the other half of the cylinder, the cores h and g forming the slots k' and g' in the dial-box and cylinder.

$v v$, fig. 1, are pin-holes through the flange, and v' are pins on the flange of part F, to fit into these holes, and act as guides, and hold the two parts in their true position when casts are made. In each part is one-half of the gate E, by which the molten metal is conducted into the mould.

The mandrel, at the lower end, is provided with a

circular collar, *c*, which fills that end of the mould, and stops the flow of the metal, and thus forms the lower end of the cylinder; and just above this collar is a slight elevation, *c'*, running round the core of the mandrel, which serves to form a recess in the interior of the end of the cylinder. The collar *c*, as well as the movable collar *d*, serves to hold the mandrel in its proper central position, so that the metal will flow around it, and form the cylinder.

The elevation *d'* performs a similar office to that performed by *c'*.

The female-screw threads *a a* cut in the mould form the male threads *a' a'* upon the cylinder, as shown in fig. 5.

The collar *d* is made to slip over the end of the mandrel, and is removable, so that the mandrel may be withdrawn from the cylinder A after the cast is made.

The letters *f* indicate the ends of the set-screws, which, when a cast is made, extend through the holes, which are provided with female-screw threads in the flange of the part F, as shown in fig. 4, to impinge upon the other half of the mould O, and the molten metal flows around their male threads, and forms the female threads in the holes marked *f'* in the dial-box, as shown in fig. 5. When the cast is made, the set-screws *f* are merely turned backward, and thus withdrawn, leaving the female-screw threads completely formed.

I will next describe the mould for the cap P, shown in figs. 11 and 12.

The form of the part L is shown in figs. 7 and 8. E indicates one-half of the gate by which the melted metal is admitted; *i*, the core upon which is formed the interior of the wheel-house R, in the cap P, figs. 11 and 12; and the letter *j* indicates the core-pins upon which are formed the plain holes marked *s*, in fig. 11, in the cap; and G is the core upon which is formed the opening in the cap, to afford space for the glass

before mentioned; and *x* is a guide-pin, and fits into hole *x'* when the parts are together.

The other and counterpart K, in figs. 9 and 10, has a corresponding form. A disk, the outline of which is indicated in part by the dotted line *w*, is detachable, and co-operates in giving the desired flare and bead in the interior upper part of the cap before described.

The core *i'* forms the outline of the wheel-house R, shown in figs. 11 and 12.

It will appear from the foregoing description, that dial-boxes and cylinders will come from moulds constructed according to my invention perfect and ready for immediate use, with the single exception of the screw-bolts.

As the whole is cast, there must be perfect uniformity in the size and proportion of parts, so that little time or labor need be expended in fitting the interior works into them.

It is obvious, too, that the use of my invention will greatly conduce to the cheap and rapid manufacture of water-meters.

What I claim as new, and desire to secure by Letters Patent, is—

1. The mould for the cylinder and dial-box, composed of parts C and F, and the mandrel D, with its removable collar *d*, when constructed substantially as and for the purpose described.
2. The mould for the cap of the dial-box, composed of the parts L, Q, and K, constructed substantially as and for the purpose described.
3. The cylinder A and dial-box B and cap P, when cast in metallic moulds, constructed substantially as described and substantially in the manner described, as a new article of manufacture.

H. F. READ.

Witnesses:

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