

N^o 34,774.

Patented Mar. 25, 1862

Fig. 1.

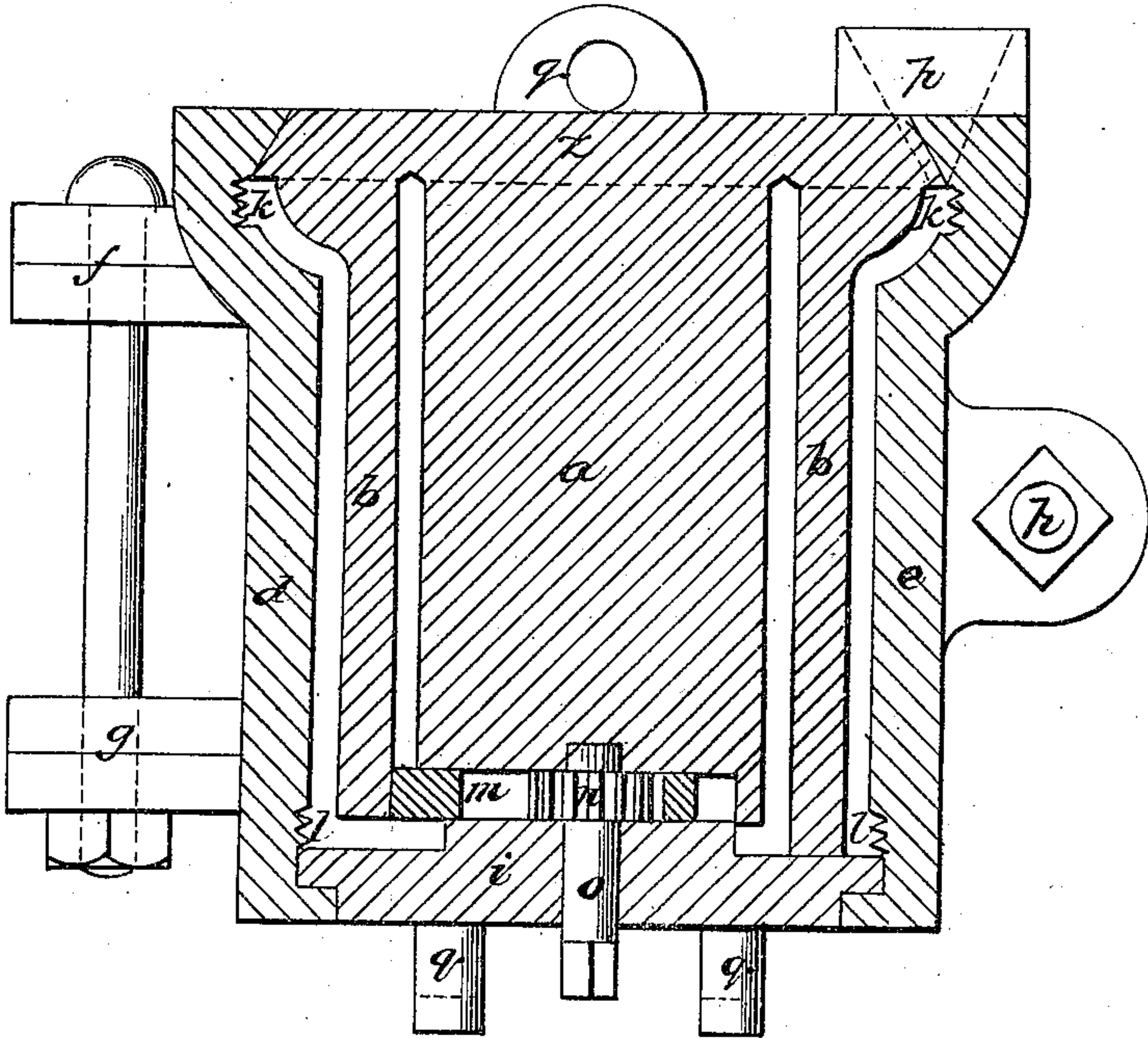
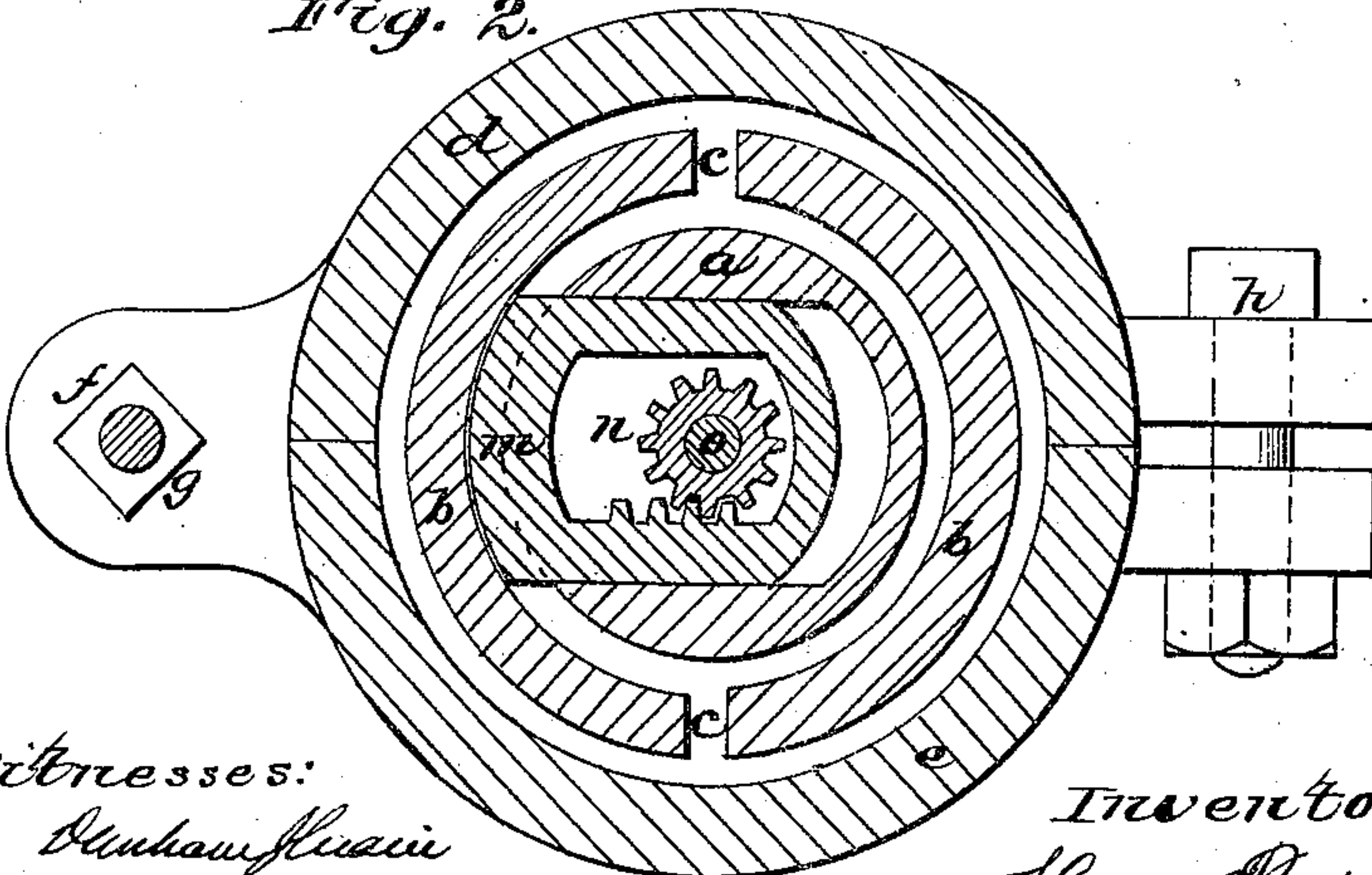


Fig. 2.



Witnesses:

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IMPROVEMENT IN METALLIC MOLDS FOR CASTING PUMPS.

Specification forming part of Letters Patent No. 34,774, dated March 25, 1862.

To all whom it may concern:

Be it known that I, HENRY PORT, of the city, county, and State of New York, have invented a new and useful Improvement in Molds for Double-Acting Pumps; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon.

In a single-acting pump there need be no special provision made for water-passages in connection with the barrel of the pump, for the reason that in a lift-pump the water enters through the valve in the bottom, passes the valve in the open piston or bucket, and makes its exit at the top or open end of the barrel, and in a force-pump there are induction and eduction valves on the sides of the barrel and connecting with the bottom; but in double-acting pumps there must be two sets of valves at each end of the barrel, and to draw and deliver at both ends from and to the same pipes there must be at least two water-passages. It has hitherto been necessary to make these passages separate from the barrel, and to fit and make the joints at their points of connection at a greatly enhanced cost for labor and workmanship. It is owing to this complexity and expense of construction that the use of double-acting force-pumps has been exceedingly limited, and in many cases where it has been desirable to deliver a constant and uniform stream it has been preferable to employ two single-acting pumps delivering together from the same air-vessel.

The object of my invention is to make the barrels and passages of double-acting pumps together in a single piece; and to effect that object it consists in constructing the mold, and in combining the core for the barrel and those for the passages in such a way that they will all draw together.

The character of pump which I prefer to make consists of a cylindrical barrel with passages between its exterior and the interior of an outer cylinder that are divided by appropriate partitions, and I have adopted this system of construction because nearly the entire work of making metal chills for molds may be performed in the lathe. I also prefer to make the pumps of type-metal or of some

other hard and fusible metal or compound with similar characteristics, and I secure the parts with screw-joints, the threads of which are formed in the molds. I also cast the nozzle or opening from the closed end of one of the passages to the barrel by means of a slide that may be projected to extend across the space left for the thickness of the barrel, and that may be withdrawn into the central core before removing the core from the pump which may have been cast.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation with reference to the drawings.

Figure 1 is a vertical section of a metal mold for casting the barrel and passages of a double-acting pump in a single piece according to my invention, and Fig. 2 is a cross-section of the same.

The core *a* forms the interior of the barrel. The cores *b b* form the passages, and are separated by the space *c* left for the partitions. *d* and *e* are the two halves of the outer mold, turning on the hinges *f* and *g*, and secured by the screw-bolt *h*. The end piece, *i*, and the other parts of the mold are so mitered together that the bolt *h* holds them all securely. The screw-threads by which the bottom and top of the pump are secured are formed at *k* and *l*. The slide *m* is worked by the pinion *n* on the shaft *o*, that projects through the end of the mold.

In the drawings the slide is placed in position for casting, and after casting, and previous to separating the mold, the shaft *o* is turned by placing a wrench on its outer end, and, through the intervention of the pinion and a rack on the slide, the latter is withdrawn into the central core. The metal is poured through the gate *p*, and the parts of the mold are handled and separated by means of the lugs *q*.

The mold I have described, formed almost entirely of cylindrical surfaces, is preferable on account of its comparative cheapness of construction; but the same character of molds may be applied to the formation of other double-acting pumps, whatever may be the shape of their section or that of the passages, without departing from the principle of my invention.

I claim—

1. In the manufacture of double-acting pumps, the employment of a metallic mold composed of the plates or sections *z* and *i*, cores *a* and *b*, and the core or outer shell of the mold *d*, constructed and arranged substantially as described.

2. The slide *m*, for the purpose set forth, when used in combination with a metallic mold for casting pumps.

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Witnesses:

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