

(No Model.)

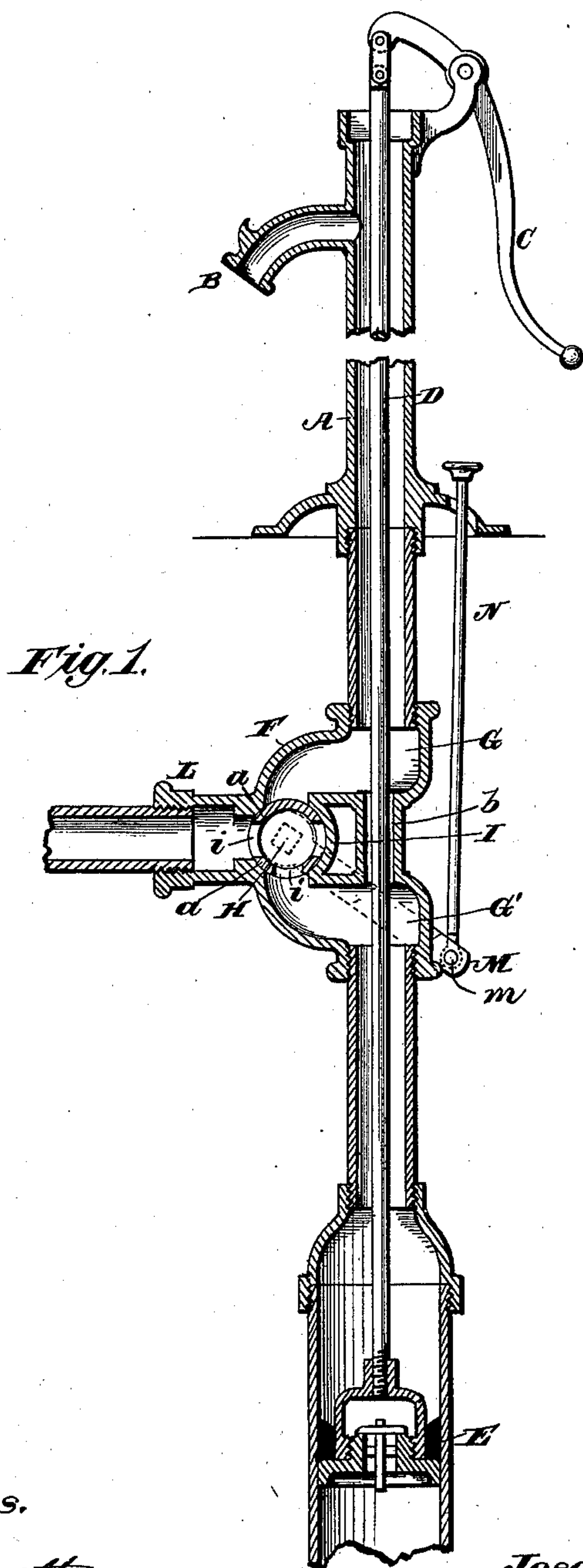
2 Sheets—Sheet 1.

J. W. DOUGLAS.

PUMP.

No. 294,210.

Patented Feb. 26, 1884.



*Witnesses.*

*Robert Everett.*

*J. A. Rutherford.*

*Inventor.*

*Joseph W. Douglas.*

*By James L. Norris.*

*Atty.*

(No Model.)

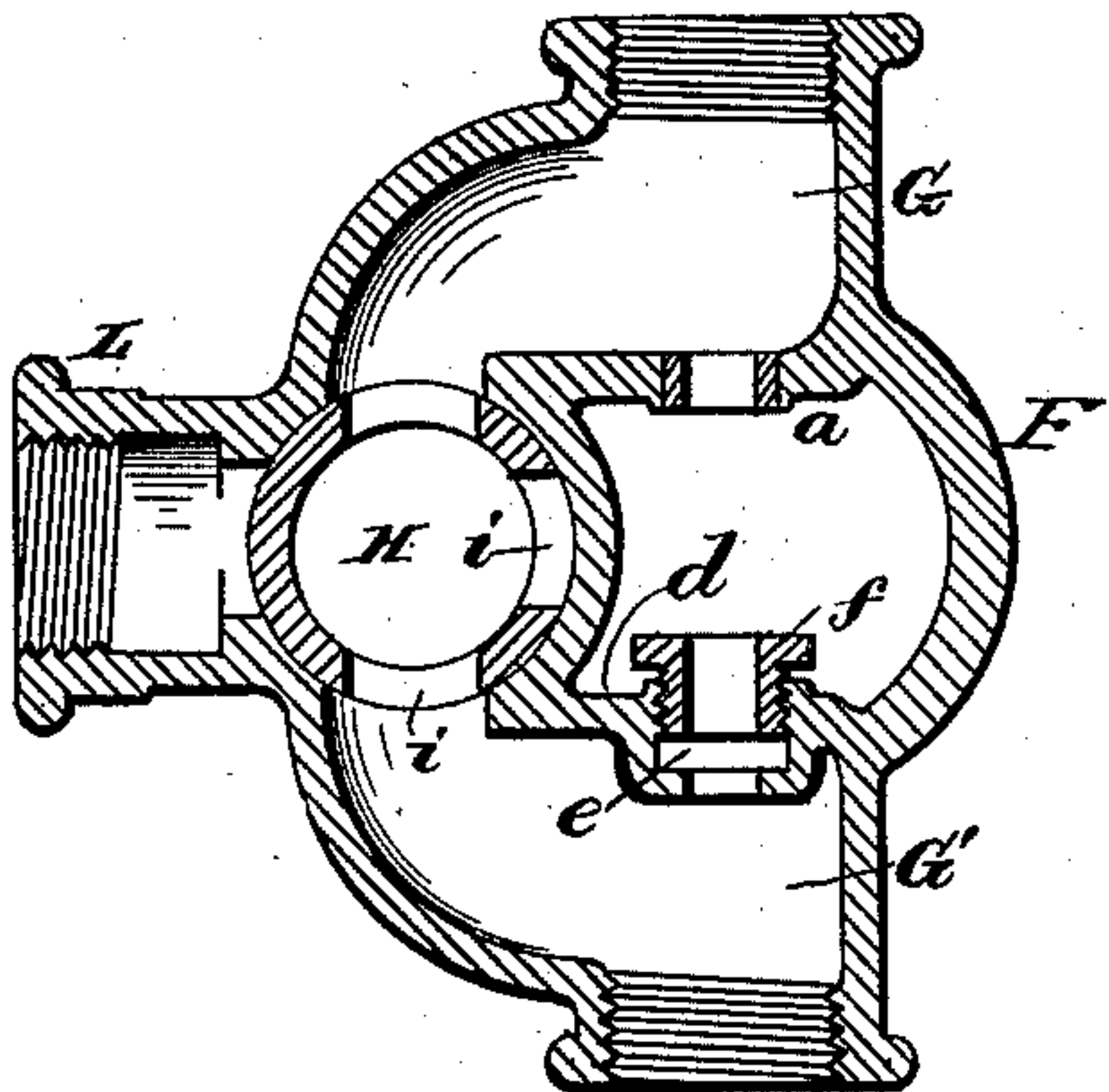
2 Sheets—Sheet 2.

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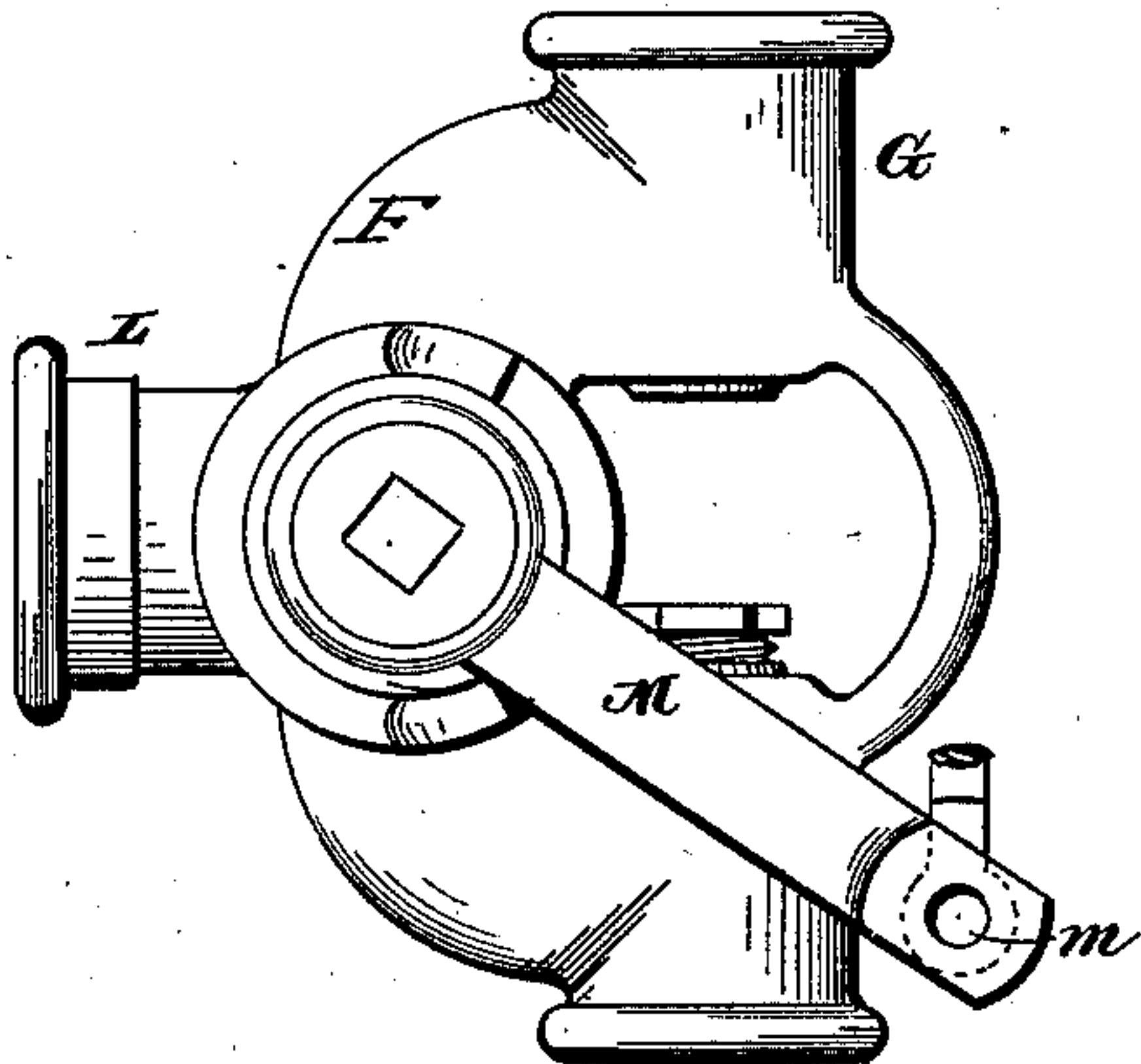
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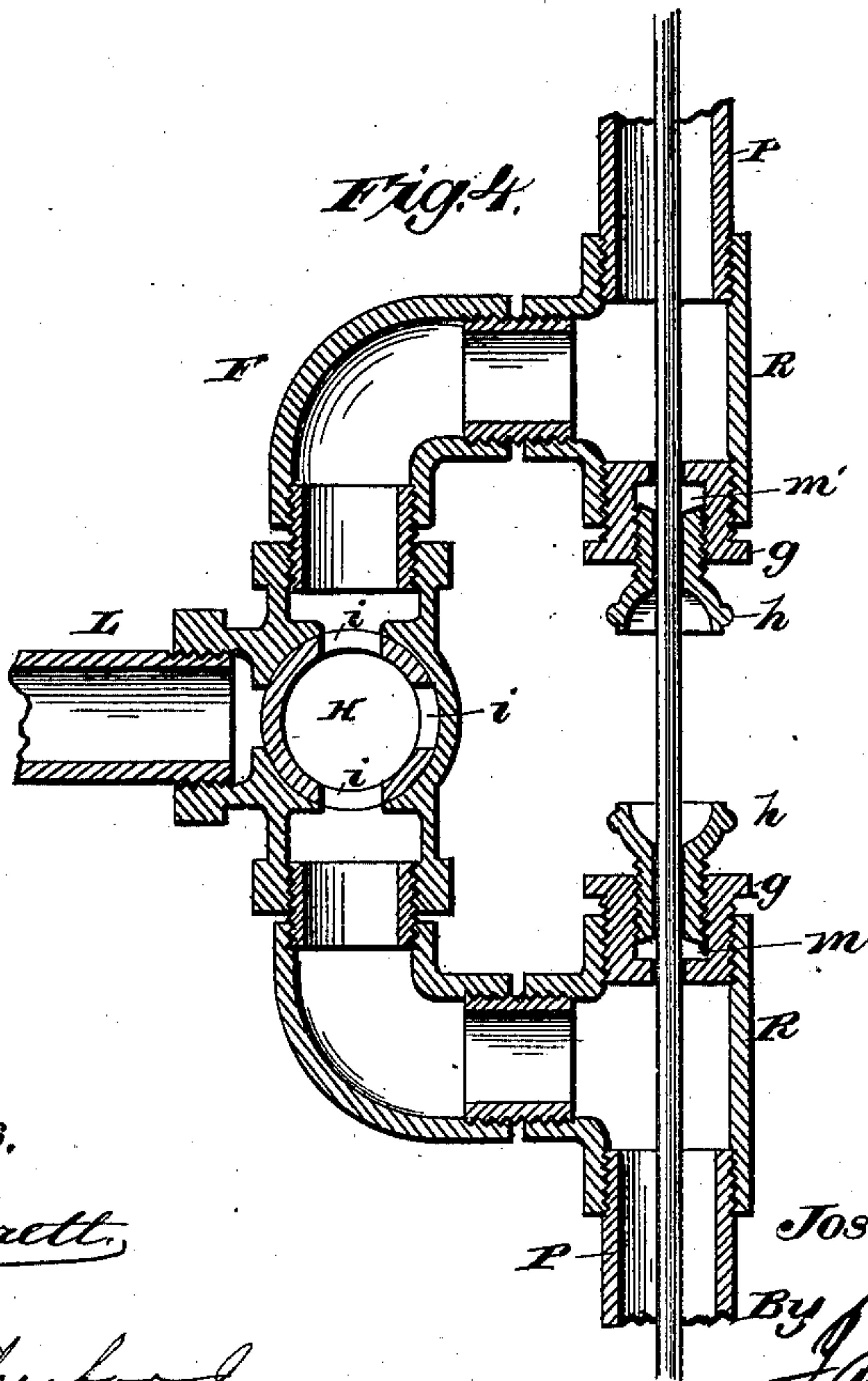
*Fig. 2.*



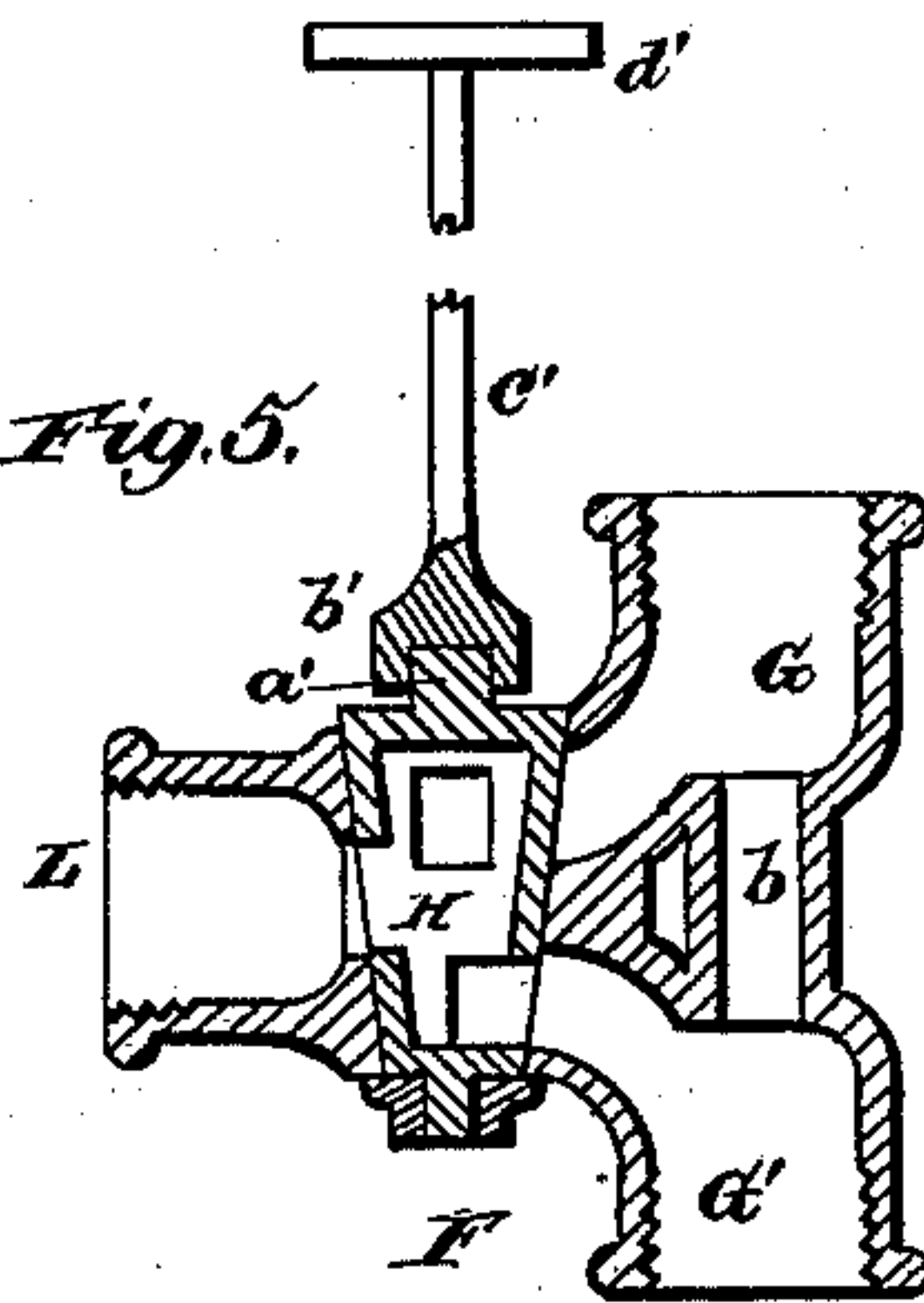
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



*Witnesses.*

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*By*

*James L. Norris.*

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# UNITED STATES PATENT OFFICE.

JOSEPH W. DOUGLAS, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO HIMSELF AND W. & B. DOUGLAS, OF SAME PLACE.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 294,210, dated February 26, 1884.

Application filed April 6, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH W. DOUGLAS, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented new and useful Improvements in Pumps, of which the following is a specification.

My invention relates to that class of attachments for pumps whereby the water raised by the action of the plunger may either be discharged through the nozzle or be diverted through a branch pipe and delivered at any desired point at pleasure.

The object of my invention is to improve such class of pumps by passing the plunger-rod of the pump through both of the water-ways of the three-way cock, said water-ways forming continuations of the water-pipe leading to the water stratum. This I accomplish in the manner and by the means hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a central longitudinal section taken through a pump of ordinary construction, having the tube, together with the cylinder and plunger, attached. Fig. 2 is a central vertical section of Fig. 3. Fig. 3 is a side elevation of the attachment shown in section in Fig. 2. Fig. 4 is a central vertical section, showing a further modification; and Fig. 5 a detached sectional view, showing modified means for operating the three-way valve.

A in said drawings designates the pump, which may be of any ordinary pattern, having a discharge-spout, B, and handle C. The latter is linked directly to the plunger-rod D, which passes down through the open body of the pump to the point where it unites with the plunger E. These parts do not differ in any respect from the well-known constructions in ordinary use.

F indicates a short section, which is interposed in the pump-tube at any suitable point above the plunger E and the chamber or cylinder in which it moves. This part F is provided with suitable fittings, whereby it may be threaded upon the ends of the pump-tube, and it forms the water-ways G G' for a three-way valve, H, having a seat, I, upon which it turns, and provided with openings *i i i*. Op-

posite the valve-seat I a branch, L, enters the part F, having a short seat for the valve at the points *a a* and giving said valve the necessary support. The plunger-rod D passes through an opening, *b*, in the central part of the body of the section F. No stuffing-boxes are used, the water-packing being all that is required. Even should the water escape between the plunger-rod and the sides of the wall through which it passes, it will not affect the operation, since it readily leaks back through the freezing-hole, which is always above the three-way valve. The valve H is operated by an arm, M, which has one end united with the spindle of the valve. By lifting the opposite end the valve may be turned so as to cut off the current of water from the branch pipe L and direct it through the water-ways G G' to the spout of the pump. This arm M may be operated by a rod, N, passing down through the platform or floor, upon which the pump stands, and pivotally connected with said arm, as at *m*.

In Fig. 1 the plunger-rod is shown passing through the water-ways of the interposed section-pipe and without packing-boxes. For all ordinary constructions this answers every purpose, and by operating the pump in the usual manner water may be delivered at the spout B, or by changing the three-way valve H it may be directed through the branch pipe L and carried to any desired point. When it is desired, however, to force the water to a point above the level of the pump, or to obtain a "head" or pressure upon the stream issuing through the branch pipe, it may be necessary to pack the plunger-rod, and this I propose to accomplish by either of the following constructions.

F, Figs. 2 and 3, represents the section-pipe shown in Fig. 1, having the water-ways G G' and the branch pipe L, together with the three-way valve H, having its seats formed in the manner already described. Instead, however, of casting the structure with a solid continuous body of metal between the two water-ways, through which the plunger-rod passes without packing, as in Fig. 1, I propose to pass the rod through the walls *d d*, one or both of which may be provided with a suitable stuffing-box.



In the figures referred to I have shown one gland and box only through which the rod passes placed in the lower wall. A convenient form of construction is to form the lower wall in the manner shown, and cut a female thread in the box *e*, to receive the gland *f*. For all ordinary purposes this construction will amply suffice, since the resistance or pressure will usually be wholly below the three-way valve *H*. When more perfect fittings are required to resist the highest degree of pressure both through the branch pipe *L* and through the pump-spout, the construction shown in Fig. 4 may be adopted. In this case the section-pipe *F* is C-shaped, the three-way valve *H* being seated in the center of the long upright arm. *L* represents the branch pipe, and *P* *P* the ends of the pump-tube, between which the section *F* is interposed, each extremity of the latter having a short vertically-arranged head, *R*, one end of which receives the end of the pump-tube *P*, while into the other end is screwed a stuffing-box, *g*. This box is cup-shaped, and has a female thread cut within to receive a gland, *h*, which closely surrounds the piston-rod *D*. The end of said gland entering the box is concaved, as shown at *m'*, whereby the packing in the box will, as the gland is screwed down, be wedged or driven closely against the rod, thereby making a perfectly-tight joint, and the outer ends of the glands are cupped, as shown in said figure.

It will readily be seen that by this construction the pump may be used as a force-pump at either the branch pipe or the spout *B*.

The value and importance of this invention are evident. It is often necessary to carry water to different points, in manufacturing operations, in farming and stock-raising, as well as in other callings. By my invention this may be accomplished without the expense of a complete special apparatus, since the attachment may be applied to any ordinary pump at very small expense.

In Fig. 5 I have illustrated modified means for operating the three-way valve. In this example the cock *H* stands vertically in the section *F*, and has an annular head, *a'*, for receiving the socketed end *b'* of the rod *c'*, the latter having a suitable handle, *d'*, at its upper end, located within convenient reach, which arrangement is simple and efficient.

In most yard-pumps now manufactured the pump tube or barrel is made continuous and straight from end to end, and the plunger-rod passes directly through the same. By my invention I am enabled to apply the three-way valve or cock to this style of pump without material reconstruction of the tube or barrel or other parts, since the water-ways of the three-way valve are in alignment and can be introduced into the tube or barrel as a section thereof, thereby maintaining the continuous straight line of the tube or barrel and having the plunger-rod pass directly through the latter from its top portion, and through both water-ways of the three-way valve, thereby bringing the parts into a compact and accurately-working structure, reducing the cost of manufacture, and avoiding the employment of a separate discharge-pipe leading from the pump tube or barrel to the three-way valve, as usual. Further, the valve can be applied to any of the usual constructions of pumps, and if attached to one style of pump-standard it can be changed to another style without extra fittings, and as the plunger-rod is inclosed within the pump-tube and the water-ways of the valve, the rod is not liable to become bent or injured, but is at all times retained in alignment with the tube and water-ways.

Having thus described my invention, what I claim is—

The combination, with a pump-tube, of a three-way valve or cock having a lateral branch pipe, and provided with two water-ways arranged in alignment and introduced into the pump-tube to form straight continuations thereof, and a plunger-rod passing directly through the pump-tube from its top portion, and also through both the aligned water-ways of the three-way valve or cock, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOSEPH W. DOUGLAS.

Witnesses:

E. G. CAMP,  
G. A. CRAIG.