

No. 700,170.

Patented May 20, 1902.

J. CLANCY.  
PUMP.

(Application filed Aug. 17, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

Fig. 2.

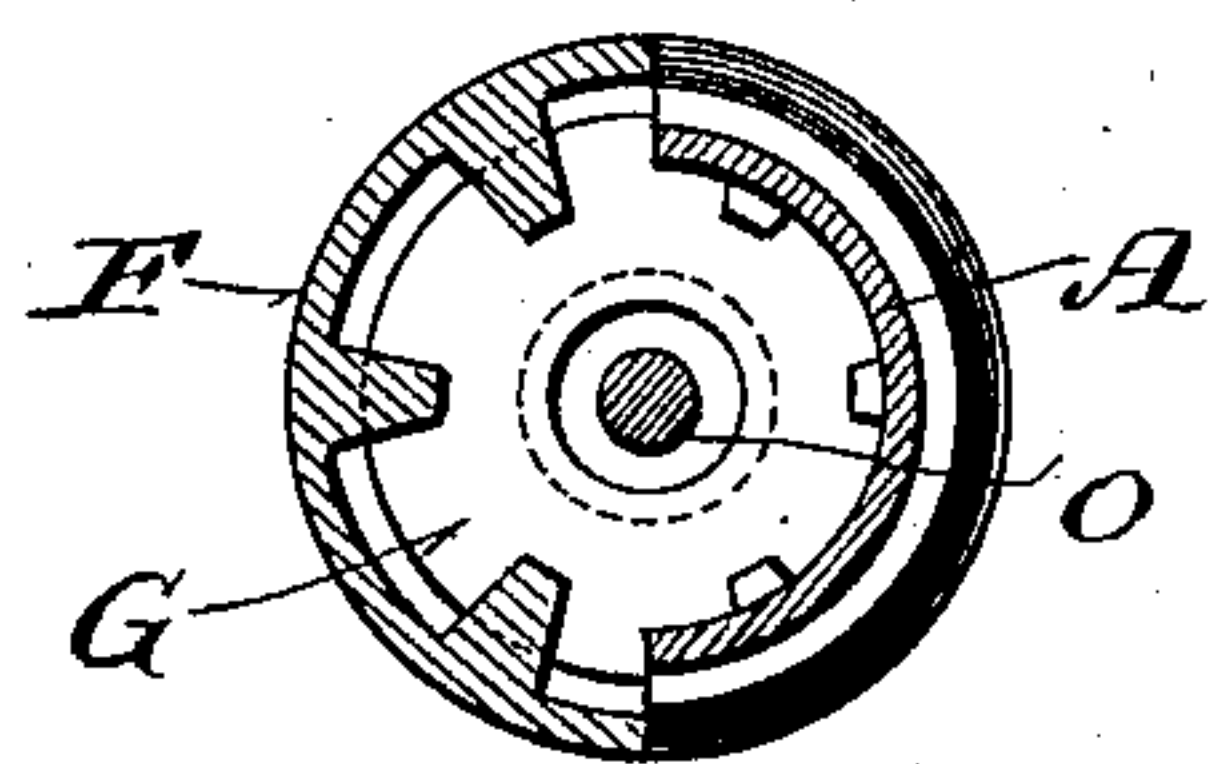


Fig. 3.

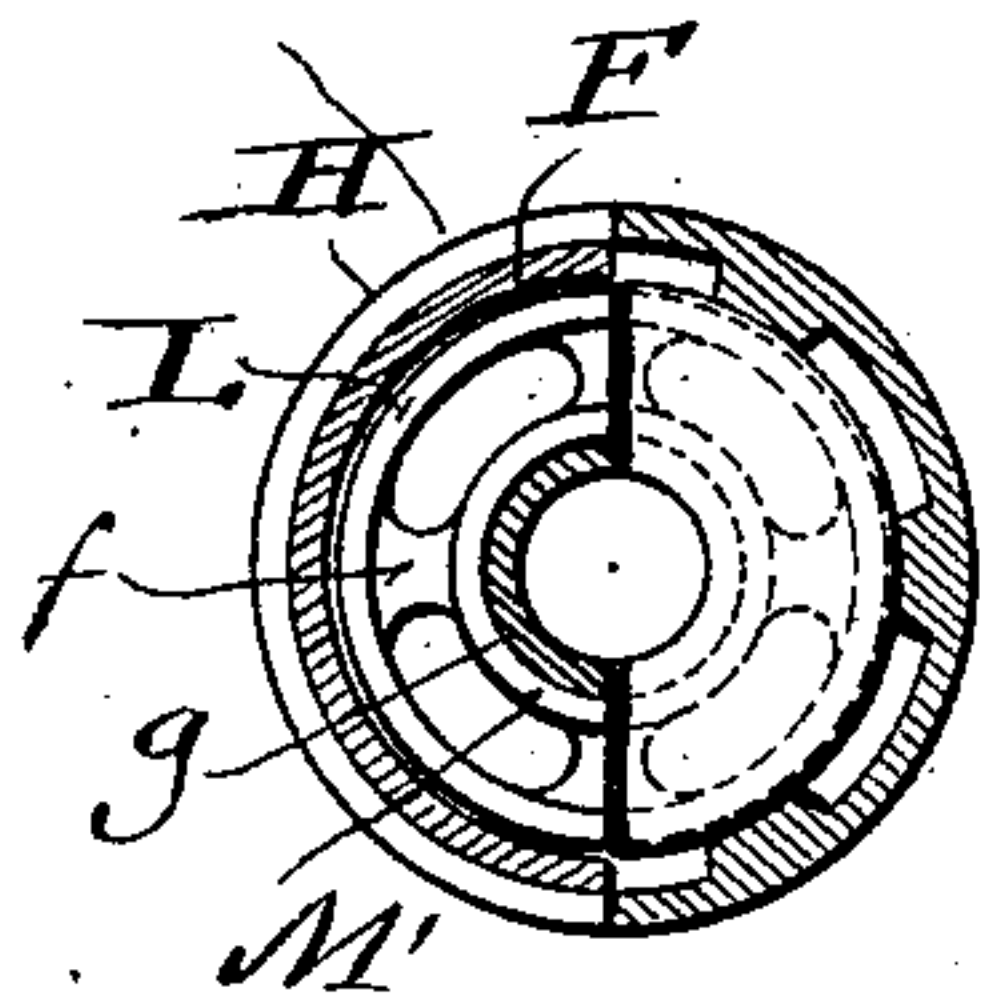


Fig. 4.

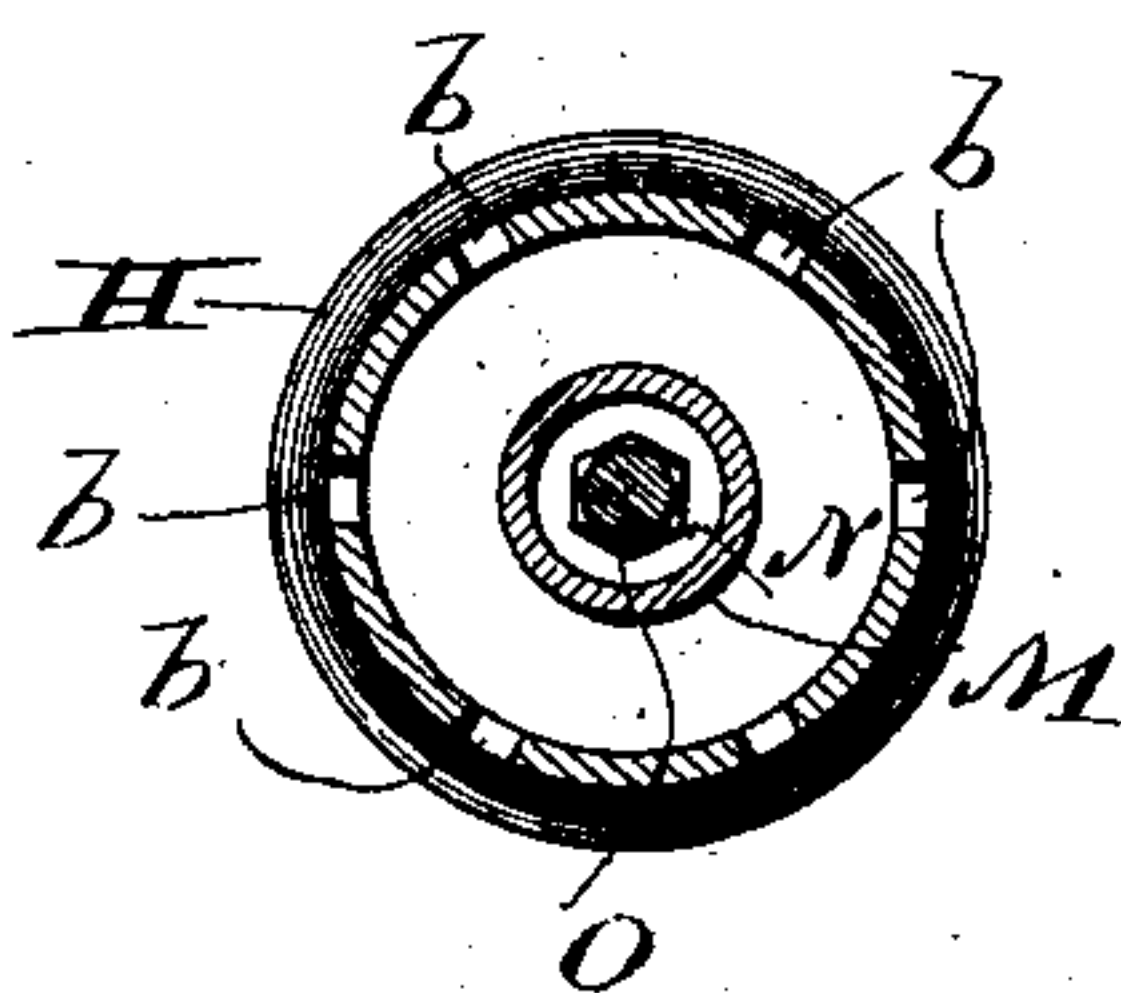
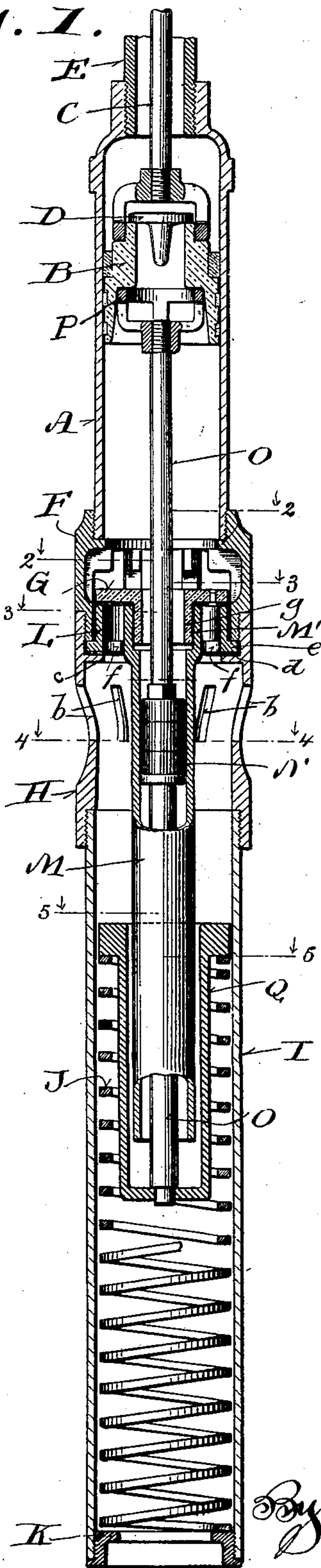
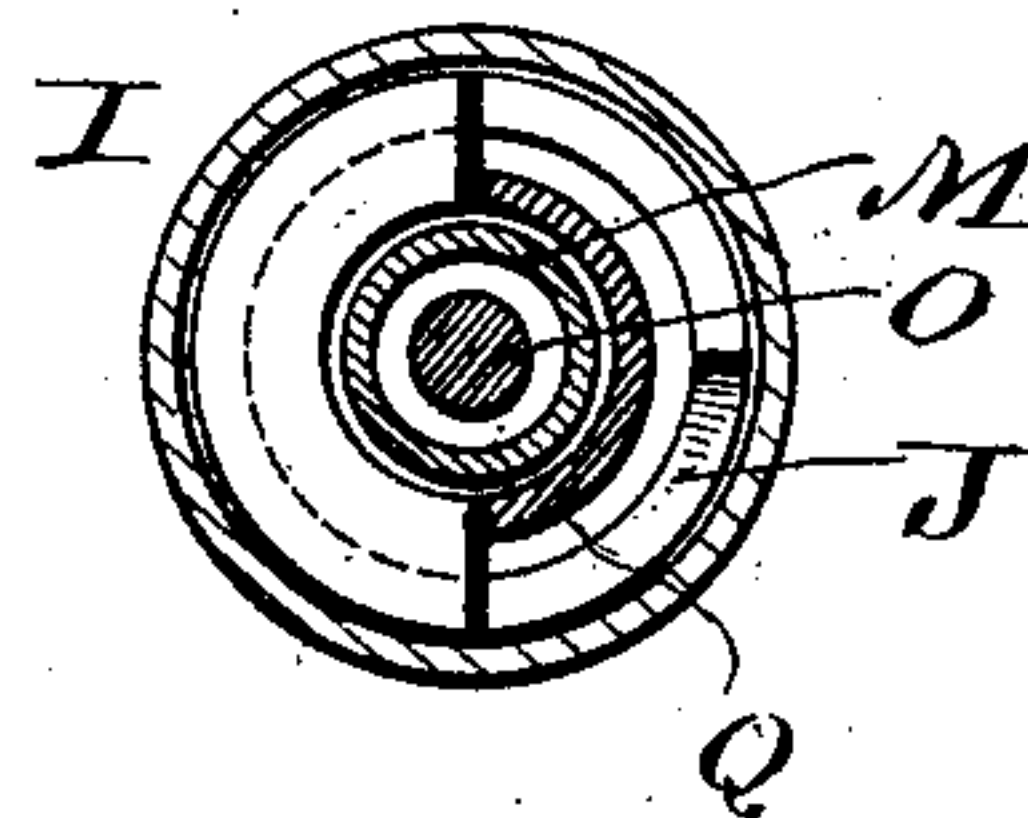


Fig. 5.



Witnesses  
Geo. W. Young.  
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Inventor:  
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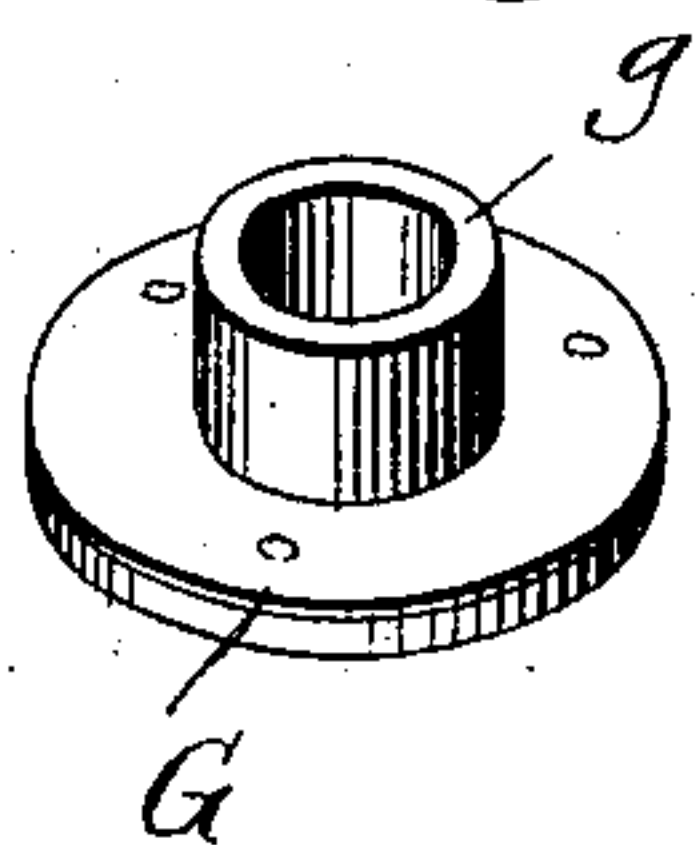
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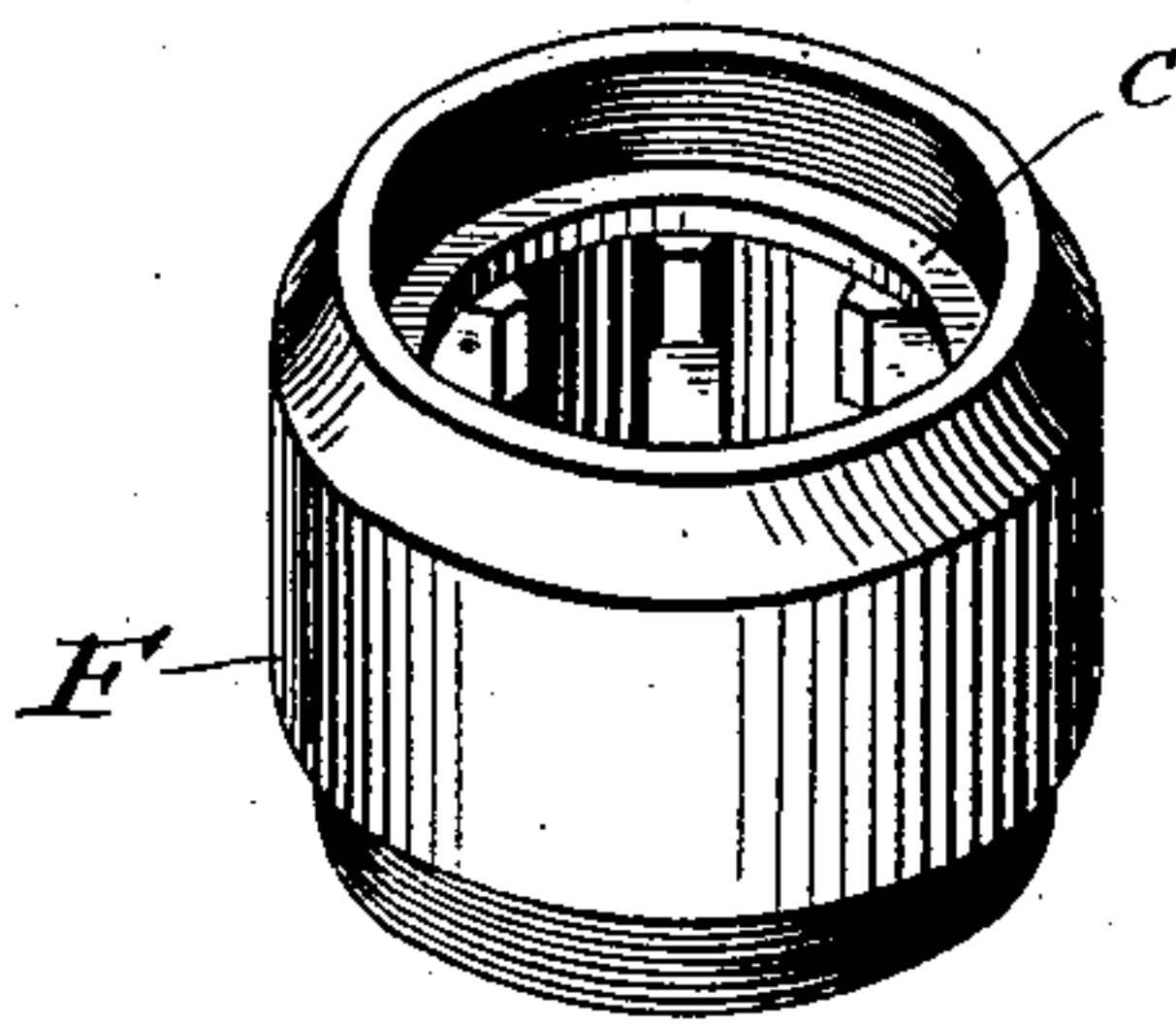
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2 Sheets—Sheet 2.

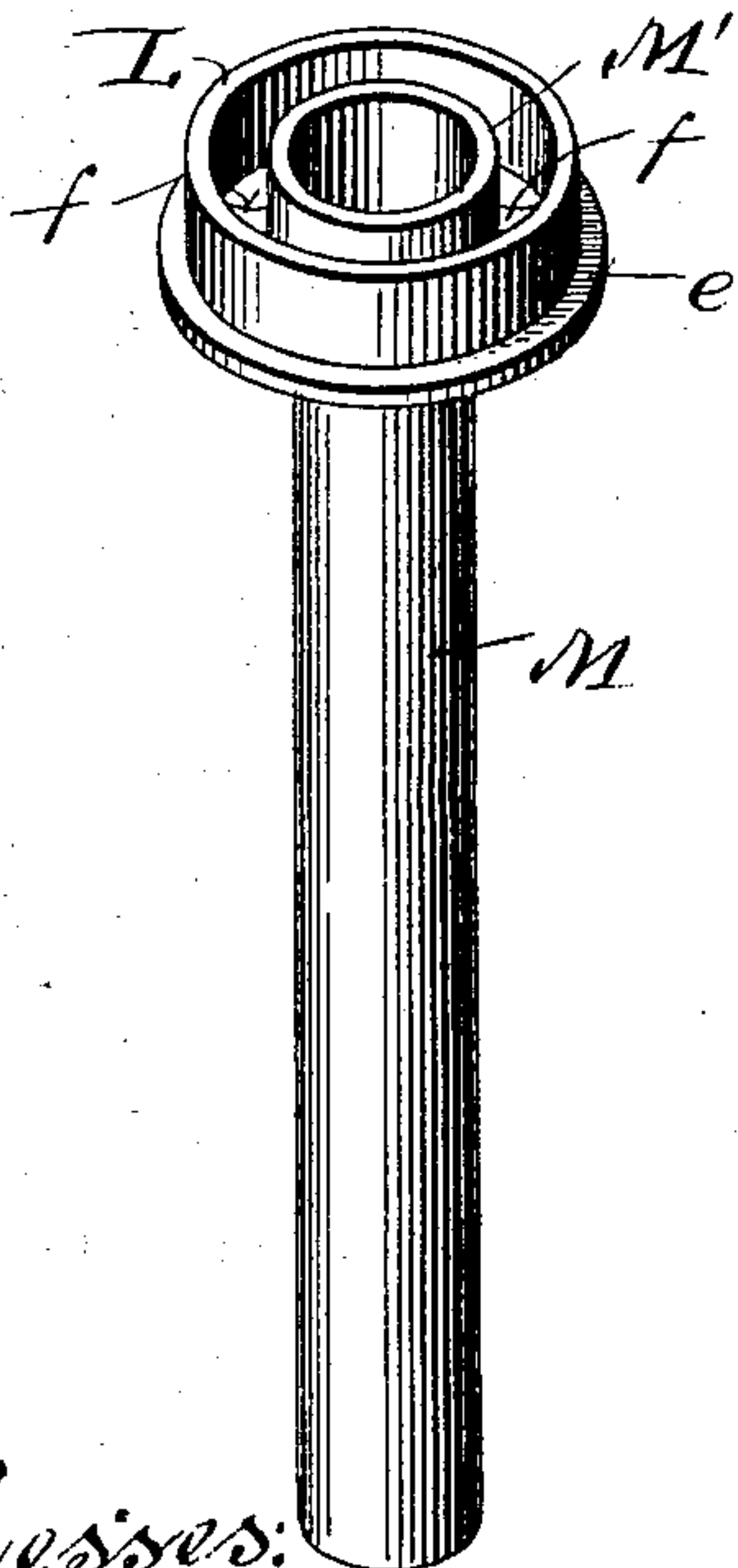
*Fig. 6.*



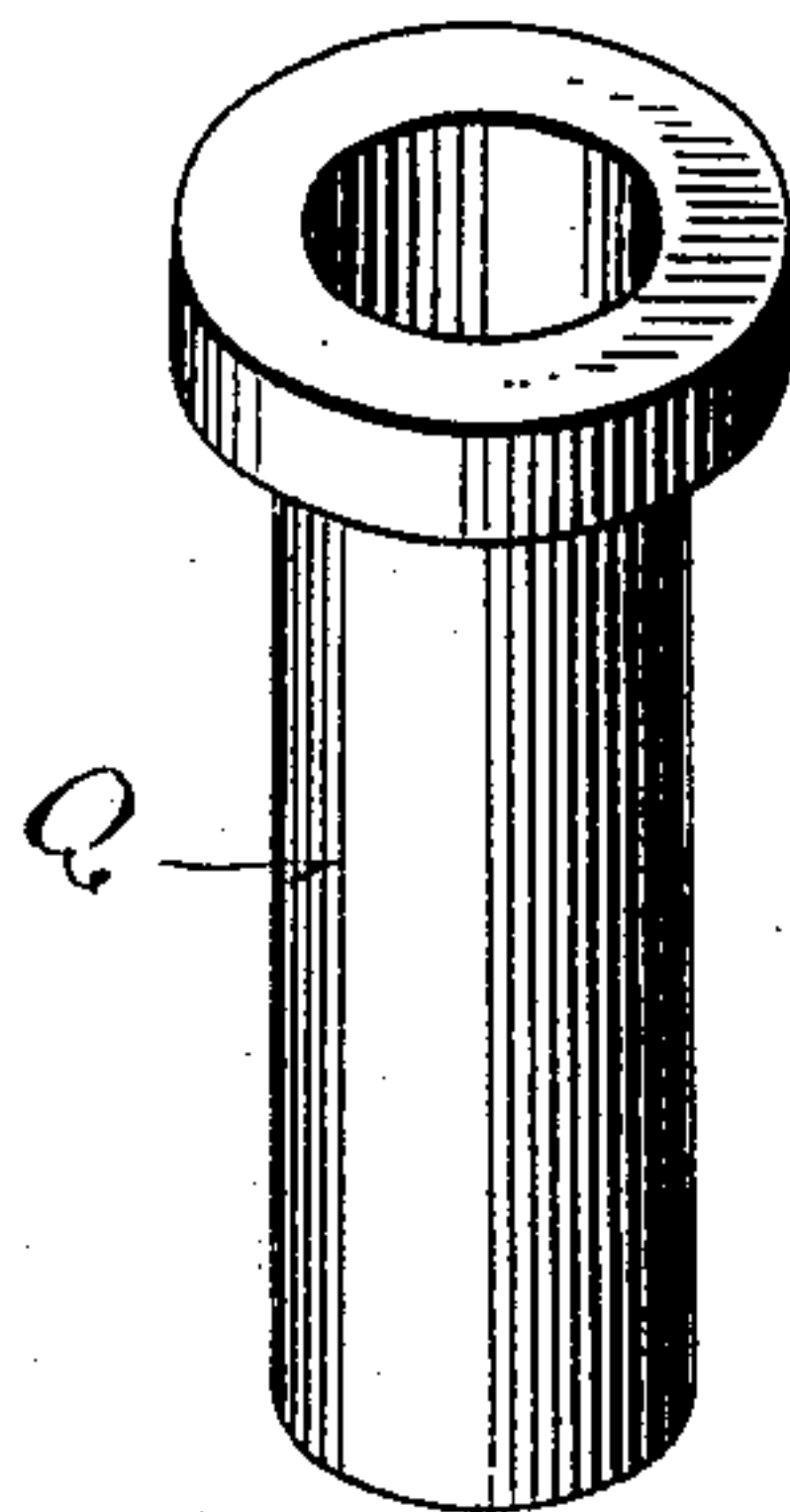
*Fig. 8.*



*Fig. 7.*



*Fig. 9.*



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# UNITED STATES PATENT OFFICE.

JOHN CLANCY, OF SOLDIERS GROVE, WISCONSIN.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 700,170, dated May 20, 1902.

Application filed August 17, 1901. Serial No. 72,359. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN CLANCY, a citizen of the United States, and a resident of Soldiers Grove, in the county of Crawford and State of Wisconsin, have invented certain new and useful Improvements in Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to compensate for dead-weight of the piston-rod and column of water in a deep-well pump, whereby proportionately less power is required for the operation of said pump, said invention consisting in certain peculiarities of construction and combination of parts hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed.

Figure 1 of the drawings represents a vertical section view of the lower portion of a pump made in accordance with my invention for use in a deep well; Figs. 2, 3, 4, and 5, horizontal sections of the same, respectively, indicated by lines 2 2, 3 3, 4 4, and 5 5 in the first figure; Fig. 6, a perspective view of the lower valve of the pump inverted; Fig. 7, a perspective view of a seat for said valve having a depending shank constituting a barrel for a plunger; Fig. 8, a perspective view of the cage for the aforesaid valve, and Fig. 9 a perspective view of a cup in which the lower end of the plunger-rod is stepped.

Referring by letter to the drawings, A indicates the cylinder of my improved pump; B, the piston in the cylinder; C, the lower section of the piston-rod; D, the upwardly-lifting piston-valve, and E the section of pump-bore pipe fitted to the upper nipple end of said cylinder. In screw-thread union with the open lower end of the cylinder is the cage F for the upwardly-lifting lower valve G of the pump, and a coupling H, provided with a series of apertures *b* circumferentially thereof, connects said valve-cage and a depending housing I for a spiral spring J of suitable power seated on a flanged ring K, having screw-thread engagement with the lower end of said housing. An inner flange *c* of coupling H above apertures *b* supports a packing-gasket *d*, opposing a flange *e* of ring L, this flange being tight against the lower end of valve-cage F aforesaid. Ring L is joined

by spacers *f* with an upper enlargement M' of a central barrel M to therewith constitute a seat for valve G, that has a central opening and a depending tubular shank *g* in loose engagement with said barrel enlargement. The ring, spacers, and barrel aforesaid are preferably in one piece, the major portion of the barrel being a shank depending from the seat for the lower upwardly-lifting pump-valve. A plunger N on a rod O fits the barrel M and a head P in screw-thread connection with the upper end of the rod opposes the pump-piston. The lower end of rod O is stepped in the bottom of cup Q, central of same, and an upper outer flange of this cup rests on spiral J in housing I aforesaid.

In practice the operation of valves D G, due to reciprocation of piston B, is the same as the valves in an ordinary deep-well pump, the inflow of water to the pump-cylinder being through apertures *b* of coupling H and the lower valve-seat. The barrel M is open to the pump-cylinder through tubular center shank *g* of lower valve G, and the plunger N has play in said barrel. Dead-weight of the piston-rod and column of water in the pump above piston B operates to partially contract spring J, plunger-rod O being stepped in flanged cup Q engaging said spring. On downstroke of piston B there is further contraction of spring J, and on upstroke of said piston expansive force of the spring aids in lifting the aforesaid dead-weight that is virtually balanced on said spring. Hence proportionately less power is required for operating the pump, this being a matter of considerable importance when the well is very deep.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A deep-well pump comprising a valved piston and a lower valve, a piston-abutting rod extending through the lower valve and its seat, and a rod-supporting spring partially contractive under dead-weight of the piston-rod and column of water in the pump above the piston.

2. A deep-well pump comprising a valved piston and a centrally-open lower valve the seat for which has a central depending barrel, a piston-abutting rod, a barrel-fitting plun-



ger on the rod, and a rod-supporting spring partially contractive under dead-weight of the piston-rod and column of water in the pump above the piston.

5 3. A deep-well pump comprising a valved piston and a lower valve, a piston-abutting rod extending through the lower valve and its seat, a flanged cup in which the rod is stepped, and a spiral spring having the up-  
10 per end thereof engaged by the cup, this spring being partially contractive under dead-weight of the piston-rod and column of water in the pump above the piston.

4. A deep-well pump comprising a valved  
15 piston and a centrally-open lower valve having a depending tubular shank, a shank-engaging barrel the major portion of which depends from the valve-seat central of same, a plunger in the barrel having a rod provided  
20 with a head opposing the piston, and a rod-supporting spring, this spring being contractive under dead-weight of the piston-rod and

column of water in the pump above said piston.

5. A deep-well pump comprising a valved 25 piston, and a centrally-open lower valve the seat for which has a central depending barrel, a piston-abutting rod, a barrel-fitting plunger on the rod, a lower spiral spring of less resistance than dead-weight of the piston- 30 rod and column of water in the pump above the piston, a spring-engaging flanged cup in which the plunger-rod is stepped, a housing in which the spring is seated and a circumferentially-apertured coupling connecting 35 the housing with the cage for said valve.

In testimony that I claim the foregoing I have hereunto set my hand, at Soldiers Grove, in the county of Crawford and State of Wisconsin, in the presence of two witnesses.

JOHN CLANCY.

Witnesses:

MATT ROWER,  
WM. H. WILLIS.