

No. 702,496.

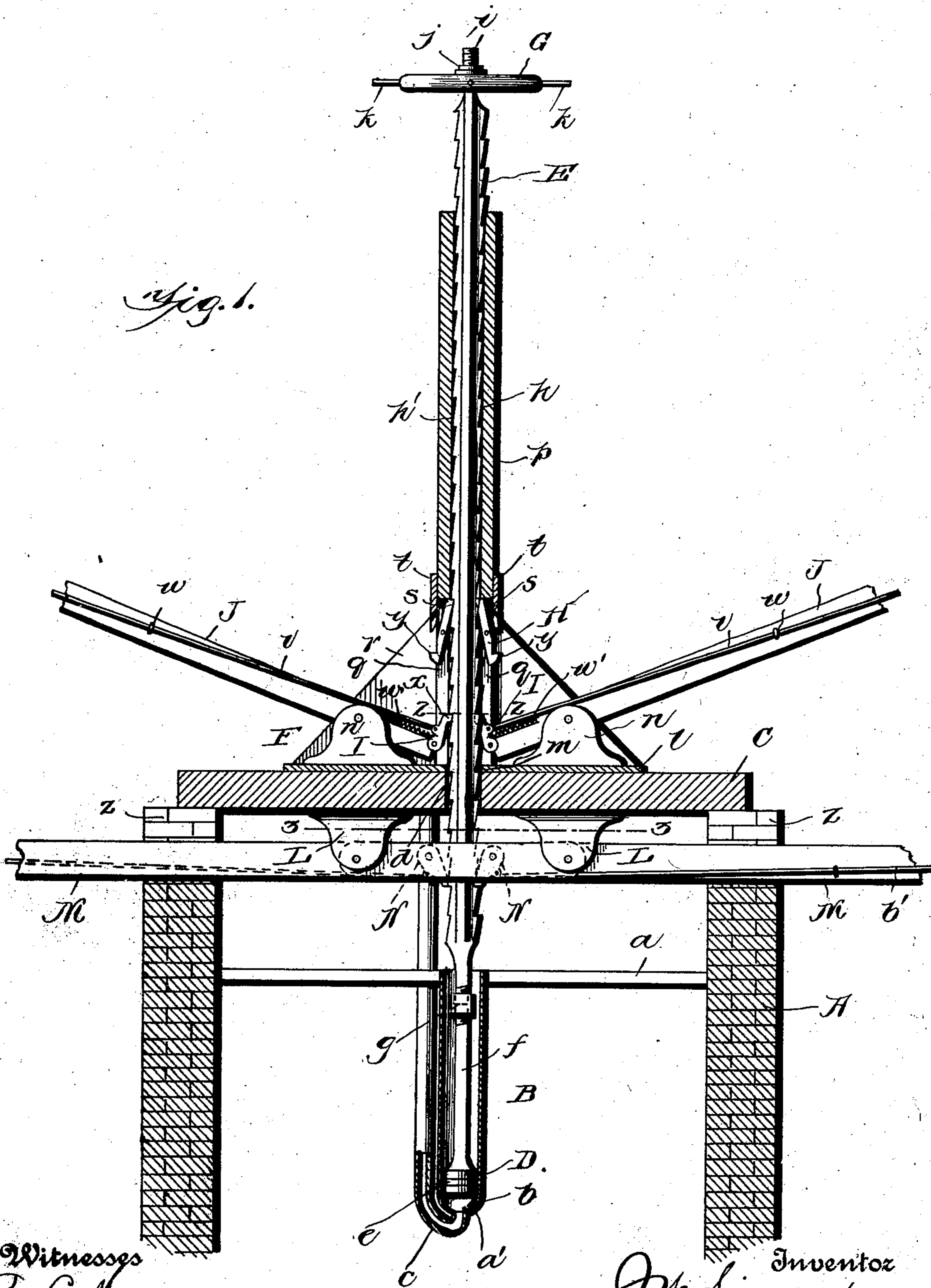
Patented June 17, 1902.

J. W. SIMMONS.
PUMPING APPARATUS.

(Application filed Jan. 25, 1902.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 2.

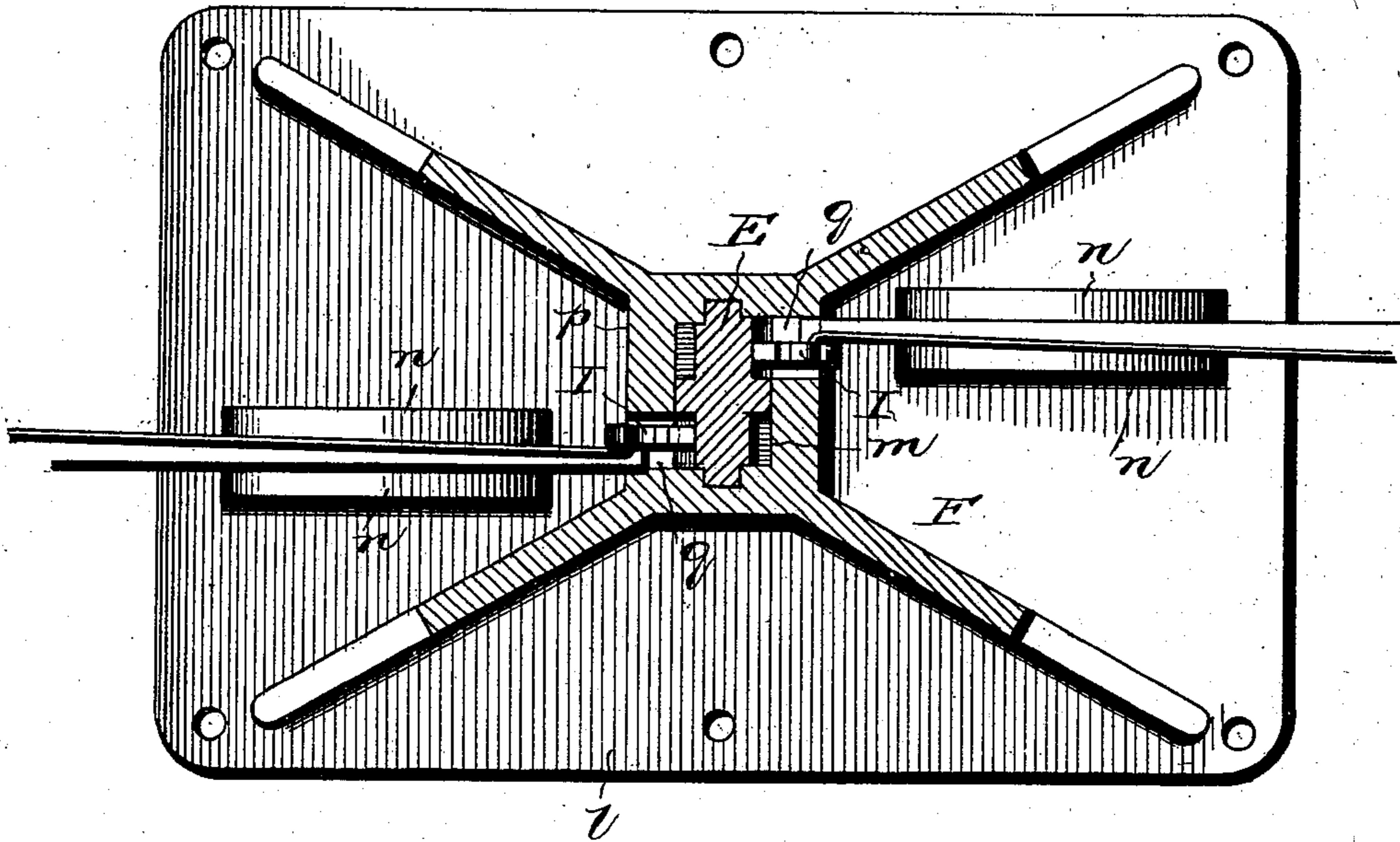
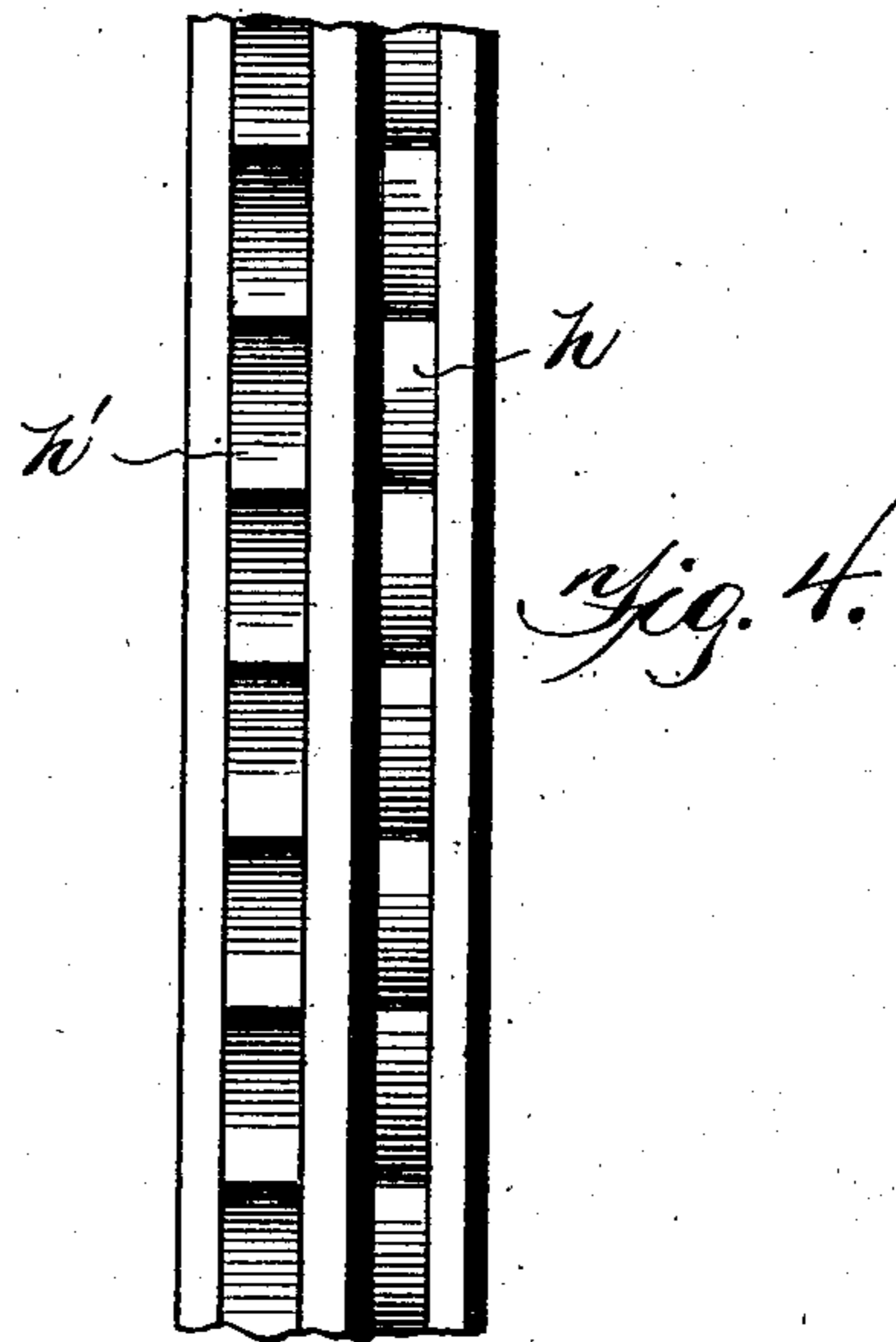
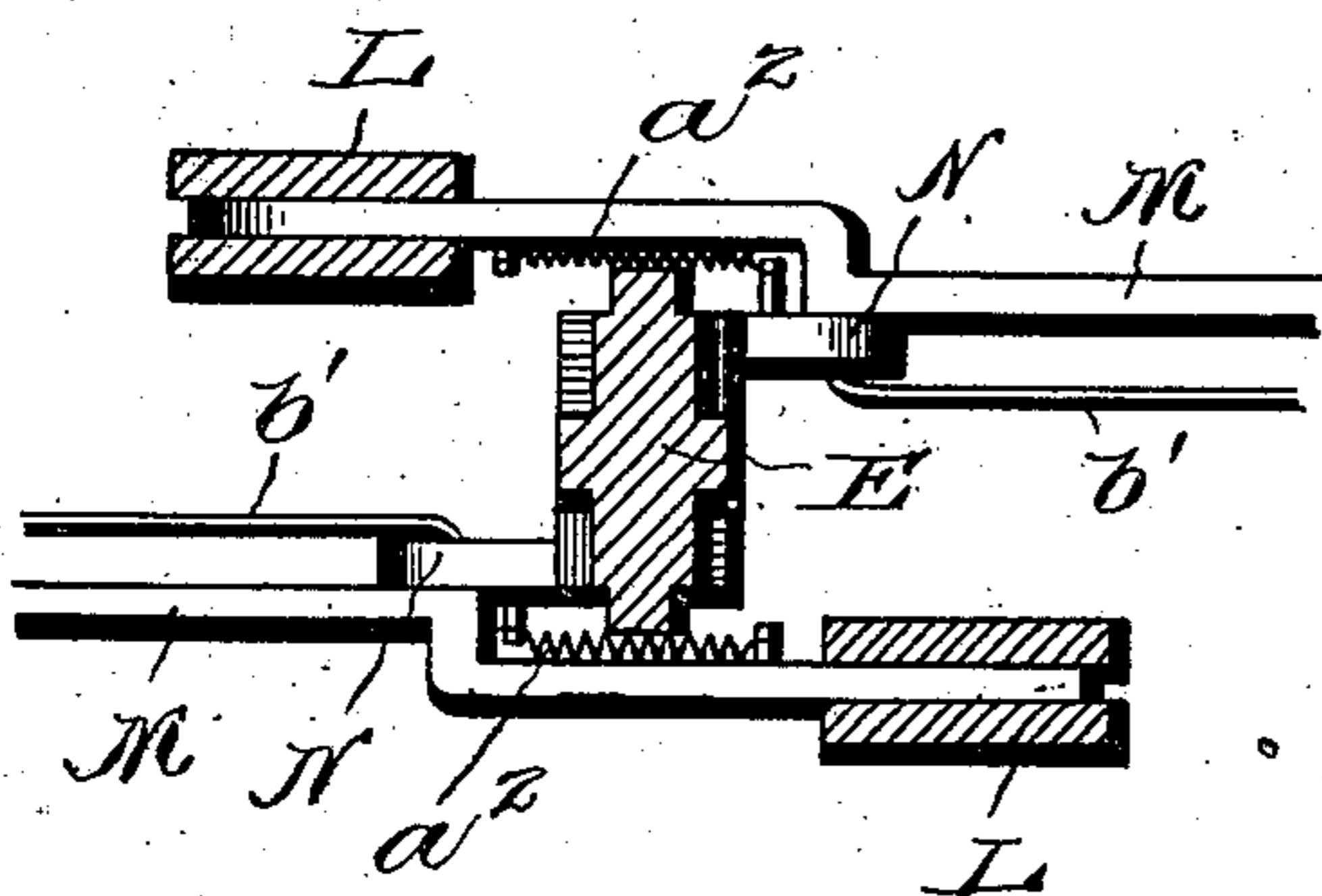


Fig. 3.



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UNITED STATES PATENT OFFICE.

JESSE W. SIMMONS, OF ALVARADO, TEXAS.

PUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 702,496, dated June 17, 1902.

Application filed January 25, 1902. Serial No. 91,251. (No model.)

To all whom it may concern:

Be it known that I, JESSE W. SIMMONS, a citizen of the United States, residing at Alvarado, in the county of Johnson and State of Texas, have invented new and useful Improvements in Pumping Apparatus, of which the following is a specification.

My invention relates to improvements in pumping or water-elevating apparatus, and contemplates the provision of a simple and inexpensive apparatus through the medium of which a solid stream of water under considerable head may be forced from a well, stream, or other source of supply for home consumption or protection against fire, and this with but a minimum amount of effort on the part of the operator or operators.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which—

Figure 1 is a vertical section, with parts in elevation, illustrating my improved apparatus in its proper operative position with reference to a well. Figs. 2 and 3 are horizontal sections taken in the planes indicated by the lines 2 2 and 3 3, respectively, of Fig. 1; and Fig. 4 is an enlarged elevation of a portion of the ratchet-bar of the apparatus.

Similar letters of reference designate corresponding parts in all of the several views of the drawings, referring to which—

A is a well.

B is an upright cylinder supported by arms α or other means in the water in the well and having an induction-opening α' , controlled by a clack or other suitable non-return valve b and also having a discharge-pipe c , designed to lead to a dwelling-house or other point of use.

C is the curbing or top of the well, which may be of wood, stone, or other material suitable to the purpose, and is provided with a central opening d .

D is a piston arranged in cylinder B and having the usual packing e and rod f .

E is a ratchet-bar connected by a union g to the piston-rod f and extending through the opening in the curbing or well-top C, and F is a frame, preferably of metal, which is ar-

ranged on and connected to the top or curbing C.

The ratchet-bar E is provided on each of two opposite sides with two parallel sets of beveled teeth h h' , the bevels of the teeth h being disposed opposite to those of the teeth h' , as best shown in Fig. 4, for a purpose presently described. Said ratchet-bar is also provided at its upper end with a reduced and threaded portion i , on which is secured, by a nut j or other means, a head G. This head is designed to engage the upper end of the frame F, and thereby limit the downward movement of the ratchet-bar E and piston D, and it is also adapted by virtue of the radial projection k with which it is provided to serve for the connection of suitable weights (not shown) when it is necessary to employ the same with a view of accelerating the downward movement of the piston.

As best shown in Figs. 1 and 2 of the drawings, the frame F comprises a base-plate l , having a central aperture m , coincident with the aperture d of the well-top, and also having standards n , disposed at opposite sides of said aperture, a tubular upright p rising from said base-plate and arranged in line with the aperture m and having slots q in two opposite sides and upright webs r interposed between the tubular upright and the base-plate. The tubular upright p receives the ratchet-bar E, and the slots q are provided for the play of latches H and dogs I, arranged to engage the teeth h' at opposite sides of said ratchet-bar. The latches H are fulcrumed at an intermediate point of their length in the upper portions of the slots q and are normally retained in the positions shown by springs s , this to enable them to hold the ratchet-bar against casual downward movement. Said springs s surround studs on the upper arms of the latches and are interposed between said arms and bars t , which bars are connected to opposite sides of the tubular upright and have bifurcations in their lower portions, as shown, to permit play of the latches.

The dogs I are pivotally connected to the inner ends of levers J, fulcrumed on the standards n , and are also connected to rods v , movable in guides w on said levers. They are normally held in engagement with the teeth

h' of the ratchet-bar by coiled springs w' , interposed between their upper portions and abutments on the levers J, and consequently they are adapted when the said levers are
 5 oscillated to raise the ratchet-bar and the piston D step by step. At their upper ends the dogs I are provided with inwardly-directed hooks x , while at their lower ends the latches H have outwardly-directed beveled hooks y .
 10 From this it follows that when the dogs are drawn, through the medium of the rods v , out of engagement with the ratchet-teeth h' and the levers J are oscillated to carry the hook ends of the dogs above the hook ends of the latches and the dogs are then released said
 15 dogs will engage and press and hold the latches out of engagement with the teeth h' of the ratchet-bar and will also be held by the latches out of engagement with the teeth h' , thus leaving said ratchet-bar and the piston D free to
 20 move downwardly.

L L are hangers connected to or formed integral with the well-top C. M M are levers fulcrumed in said hangers and arranged to
 25 work in notches z in the well-wall, and N N are dogs pivotally connected to the levers M and arranged to engage the teeth h at opposite sides of the ratchet-bar. The said dogs are normally held in engagement with the
 30 ratchet-teeth h by coiled springs a^2 ; but when it is desired to disengage them from said teeth the same may be readily accomplished by simply drawing on the rods b' , connected to the dogs and movable through guides on the
 35 levers M.

In the practical operation of my improved apparatus when it is desired to fill the cylinder B with water the dogs N are held out of engagement with the teeth h of the ratchet-
 40 bar, and the levers J are oscillated to raise the ratchet-bar and the piston D until the latter rests at or adjacent to the upper end of the cylinder. When this is done, water will enter the cylinder through the induction-
 45 opening a' and will be trapped therein by the non-return valve b . Then when the dogs I are disengaged from the teeth h' of the ratchet and engaged with the latches H to hold the latter out of engagement with said teeth h'
 50 in the manner before described the ratchet-bar and the piston will be left free, and their weight, as well as any additional weights that may be connected to the head G, will be imposed on the water trapped in the cylinder B.
 55 In consequence of this the water in the cylinder will be placed under a strong head and will when the cocks of the discharge-pipe c or branches thereof are opened flow with great force. When it is desired to accelerate the
 60 descent of the piston, and consequently the discharge of water from the cylinder, as when the water is to be used to extinguish a fire, the same may be accomplished by operators oscillating the levers M.

65 It will be readily appreciated from the foregoing that it is only necessary to operate my improved apparatus to fill the cylinder B at

intervals and that because of the leverage afforded such operation is attended by but a minimum amount of effort, also that with the
 70 dogs N held out of engagement with the ratchet-teeth h by any suitable means the apparatus operates automatically to discharge the cylinder B of its contents. It will further be observed that but a minimum amount
 75 of effort is required to actuate the levers M when the same are employed to accelerate the descent of the piston and the discharge of water from cylinder B, as before described.

I have entered into a detailed description
 80 of the construction and relative arrangement of the parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to
 85 be understood as confining myself to such specific construction and arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my claims.

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

1. In a pumping or water-elevating apparatus, the combination of a main frame, a cyl-
 95 inder arranged to receive from a source of supply and having a valve-controlled inlet, and a discharge, a vertically-movable piston arranged in the cylinder, a ratchet-bar connected to the piston and guided in the frame and
 100 having beveled teeth h' , a latch fulcrumed in the frame in a position to engage the teeth h' of the ratchet-bar and having a beveled hook at its lower end, a lever fulcrumed on the frame, a dog carried by said lever in a posi-
 105 tion to engage the ratchet-teeth h' , and having a hook at its upper end adapted to engage the beveled hook of the latch, and means on the lever for drawing the dog out of engagement with the teeth of the ratchet-bar
 110 and into a position to enable its hook end to engage the hook end of the latch.

2. In a pumping or water-elevating apparatus, the combination of a main frame, a cyl-
 115 inder arranged to receive from a source of supply and having a valve-controlled inlet, and a discharge, a vertically-movable piston arranged in the cylinder, a ratchet-bar connected to the piston and guided in the frame and having the oppositely-beveled teeth $h h'$,
 120 a latch fulcrumed in the frame in a position to engage the teeth h' of the ratchet-bar and having a beveled hook at its lower end, a lever fulcrumed on the frame, a dog carried by said lever in a position to engage the ratchet-
 125 teeth h' , and having a hook at its upper end adapted to engage the beveled hook of the latch, means on the lever for drawing the dog out of engagement with the teeth h' of the ratchet-bar and into a position to enable its
 130 hook end to engage the hook end of the latch, a second lever, a dog carried thereby and arranged to engage the teeth h of the ratchet-bar, and means on the second lever for draw-

ing the dog thereof out of engagement with the ratchet-teeth *h*.

3. In a pumping or water-elevating apparatus, the combination of a main frame, a cylinder arranged to receive from a source of supply and having a valve-controlled inlet, and a discharge, a vertically-movable piston arranged in the cylinder, a ratchet-bar connected to the piston and guided in the frame, and having beveled teeth *h'*, a head arranged on said ratchet-bar, and having projections adapted to receive weights, a latch fulcrumed in the frame in a position to engage the teeth *h'* of the ratchet-bar, a lever fulcrumed on the frame, and a dog carried by said lever in a position to engage the teeth *h'*; said dog and the latch being provided with coacting means whereby when engaged they are held out of engagement with the ratchet-bar.

4. The pumping or water-elevating apparatus described comprising the main frame having the tubular upright provided in two opposite walls with slots, a cylinder arranged to receive from a source of supply and having a valve-controlled inlet and a discharge, a vertically-movable piston arranged in the

cylinder, a bar connected to the piston and having sets of two oppositely-disposed ratchet-teeth *h h'*, at two opposite sides, the latches fulcrumed in the slots of the upright in positions to engage the teeth *h'* of the ratchet-bar and having beveled hooks at their lower ends, levers fulcrumed on the frame at opposite sides of the tubular upright, dogs carried by said levers in positions to engage the ratchet-teeth *h'*, and having hooks at their upper ends, rods connected to the dogs and movable in guides on the levers, a head on the ratchet-bar having projections for the connection of weights, levers fulcrumed in suitable supports below the main frame, dogs carried by said levers and arranged to engage the teeth *h* of the ratchet-bar, and rods movable in guides on the last-named levers and connected to the dogs thereof.

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

JESSE W. SIMMONS.

Witnesses:

W. T. FARLEY,
J. A. PATTON.