No. 682,106. Patented Sept. 3, 1901.

M. M. MOORE.

WATER STAND PIPE.

(Application filed Feb. 4, 1901.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

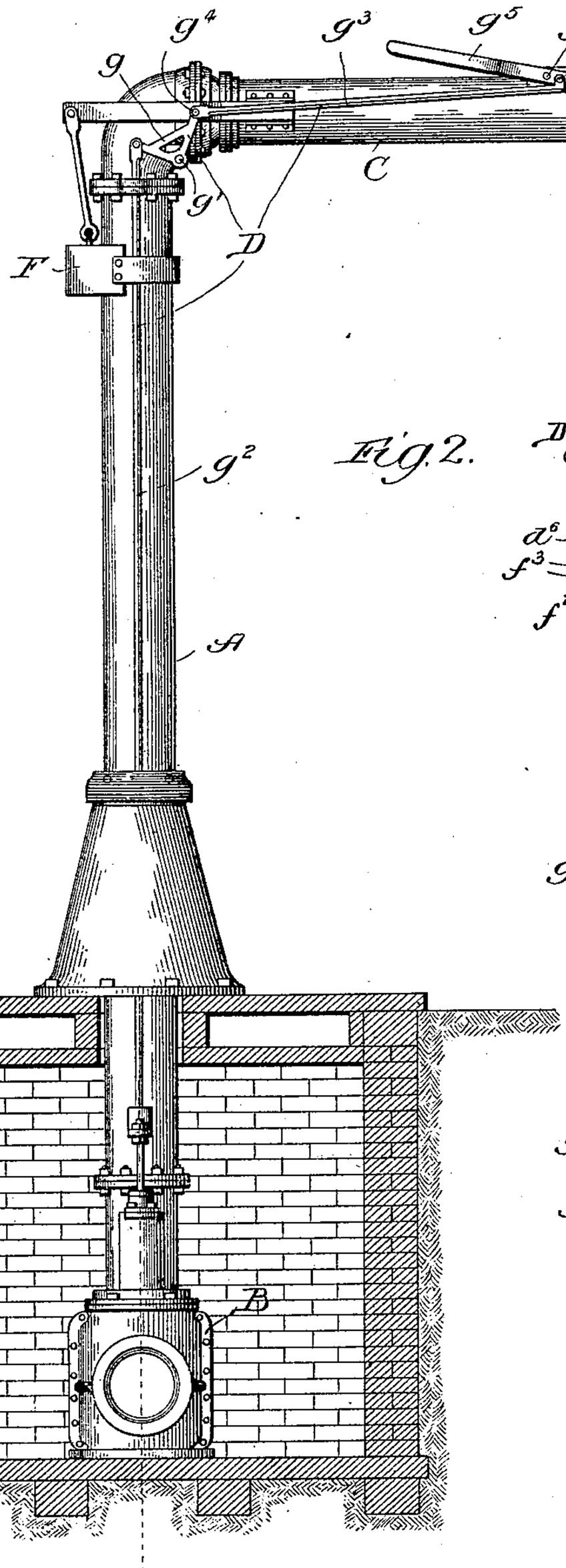
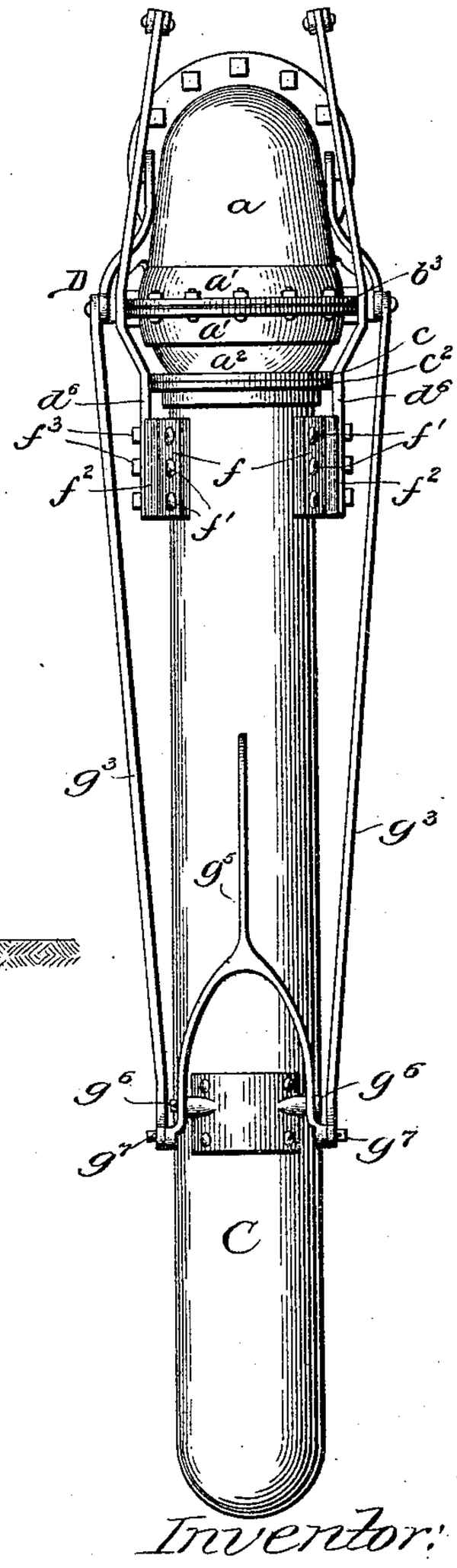


Fig. 2.



Witnesses:
Chas. E. Gaylord,
John Enders Jr.

Inventor:
Moses M. Moore,
By Dyrenforth Dyrenforth & Lee,
Attys.

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(No Model.) 3 Sheets—Sheet 2.

Fig. 3.

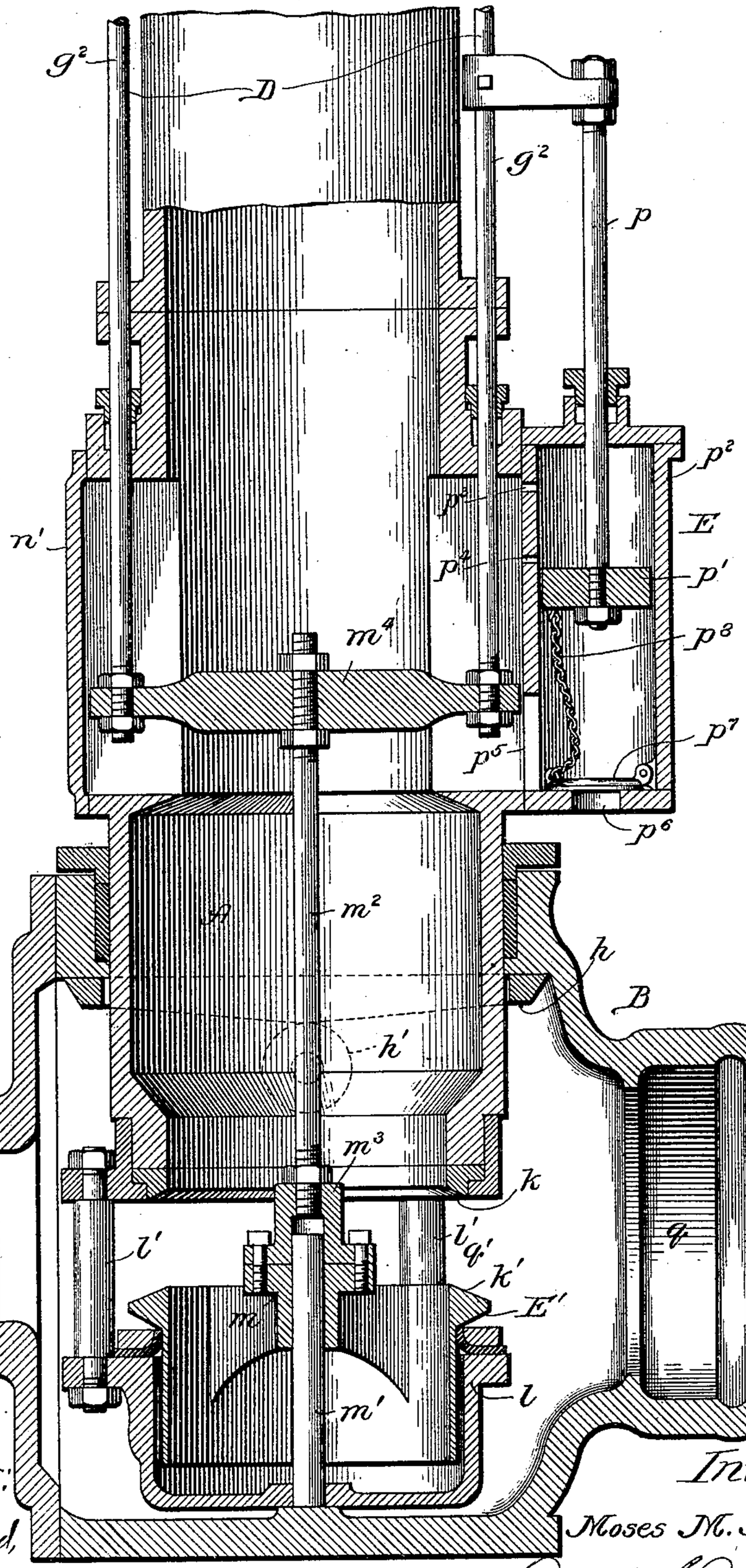

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Fig. 4.

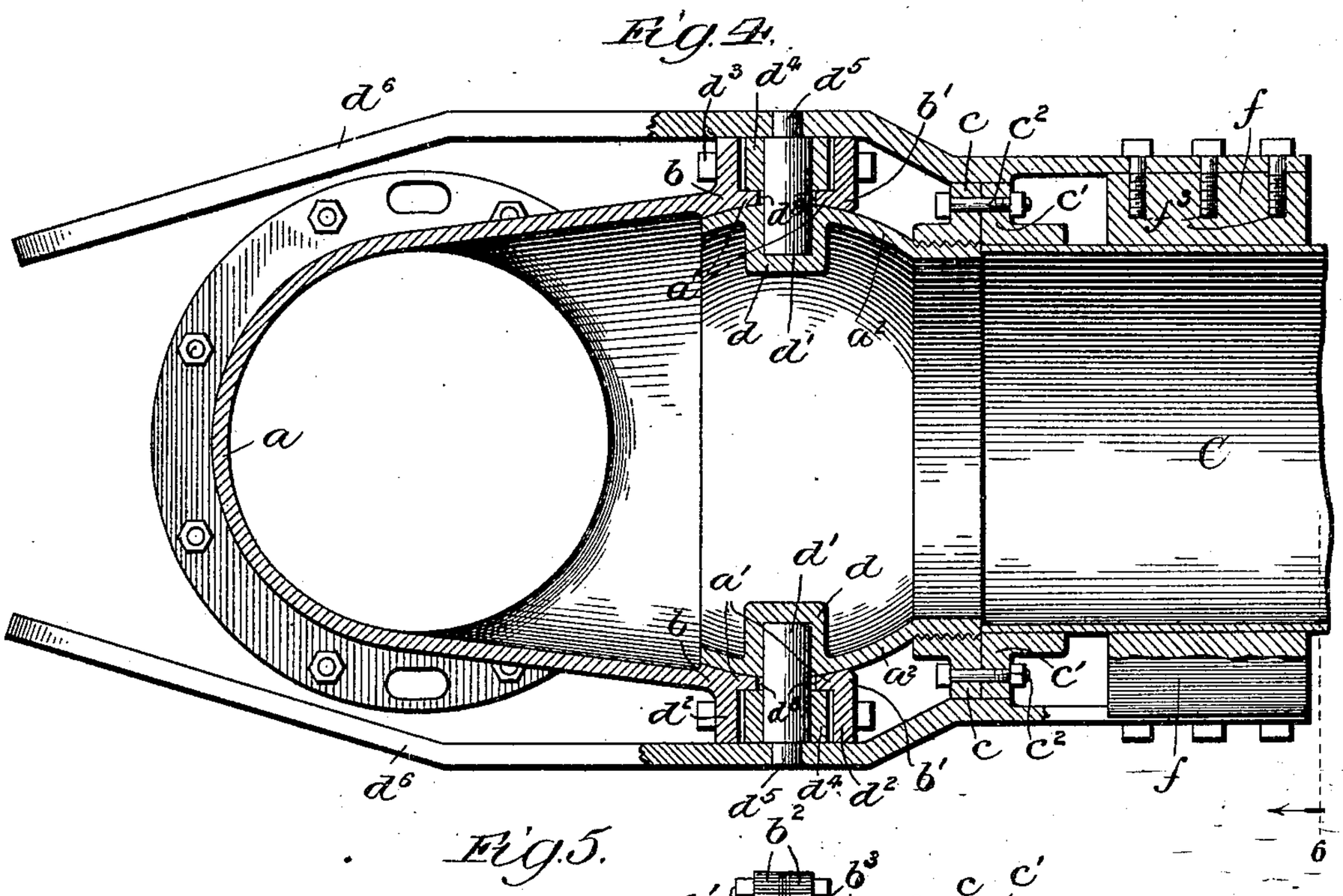

Fig. 5.

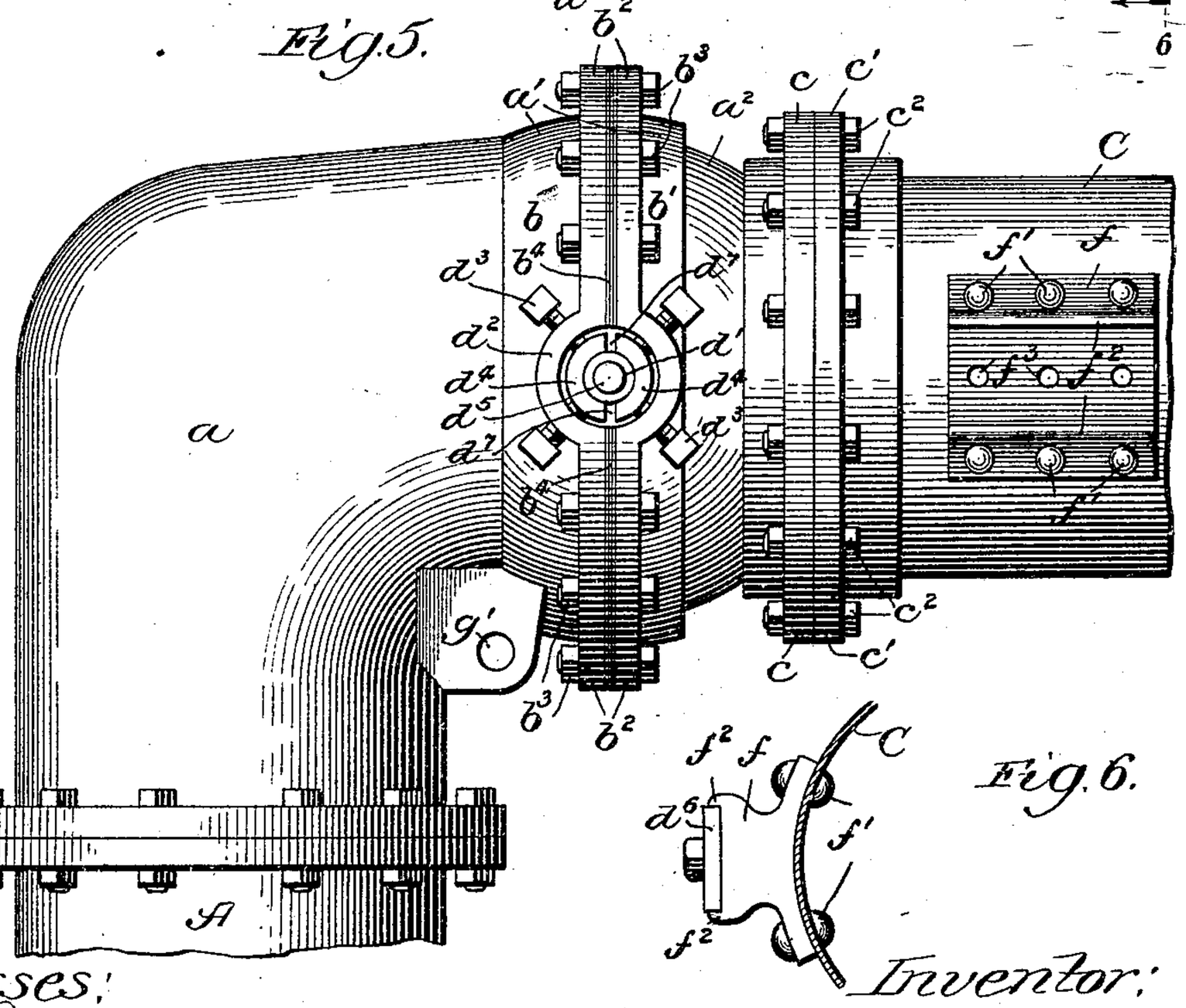

Fig. 6.

Witnesses:
Chas. E. Gaylord,
John Enders, Jr.

Inventor:
Moses M. Moore,
By Dyrenforth, Dyrenforth & Lee,
Attys.

UNITED STATES PATENT OFFICE.

MOSES M. MOORE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THEODORE W. SNOW, OF SAME PLACE.

WATER STAND-PIPE.

SPECIFICATION forming part of Letters Patent No. 682,106, dated September 3, 1901.

Application filed February 4, 1901. Serial No. 45,909. (No model.)

To all whom it may concern:

Be it known that I, MOSES M. MOORE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Water Stand-Pipes, of which the following is a specification.

My invention relates particularly to water stand-pipes of the class commonly used for railway purposes.

My primary object is to provide an improved joint between the vertical member of the stand-pipe and the normally horizontally-disposed vertically-swinging member thereof.

Other features of my invention relate to the valve employed at the base of the vertical member and the means for operating the valve.

My improvements are shown in their preferred form in the accompanying drawings, in which—

Figure 1 is a view in side elevation of a stand-pipe equipped with my improvements; Fig. 2, a plan view of the same; Fig. 3, an enlarged vertical section at the base of the stand-pipe, taken as indicated at line 3 of Fig. 1; Fig. 4, an enlarged horizontal section showing the manner of constructing the joint between the vertical member of the stand-pipe and the horizontal member; Fig. 5, a broken view, in side elevation, of said joint, certain accessory parts being removed; and Fig. 6, a broken section taken as indicated at line 6 of Fig. 4.

A stand-pipe or water-column of the general construction to which my invention relates is shown in my Patent No. 547,962, granted October 15, 1895.

In the preferred construction, A represents the vertical column or member of the stand-pipe; B, a valve-casing at the base thereof; C, a normally horizontally-disposed vertically-swinging pipe supported by the pipe A; D, valve-actuating mechanism; E, a valve-retarding device for preventing undue shock to the valve in closing, and E′ a valve contained within the casing B.

The connection between the pipes A and C is shown in detail in Figs. 4 and 5. The pipe A is provided at its top with an elbow-joint *a*, having at one end a globe-section a', and the pipe C is provided at the adjacent end with a globe-section a^2, which fits within the globe-section a'. One portion, *b*, of the globe-section a' is formed integral with the elbow *a*, and another portion thereof, b', is separably connected therewith, the parts being provided with flanges b^2, joined by bolts b^3. Thin rings b^4 are interposed between the flanges b^2 and may be taken out according to necessity to adjust for wear between the meeting surfaces of the globe-sections. The globe-section a^2 is preferably formed of brass and has threaded connection with a flange *c*. The pipe C is provided with a flange c', which is connected with the flange *c* by bolts c^2. The globe-section a^2 is provided laterally with sockets or bearings *d*, which are pivoted upon studs d', projecting inwardly from bosses d^2, with which the globe-section a' is provided. The studs d' are adjustably fixed and centered within the hollow bosses d^2 by means of set-screws d^3 and ring-sections or blocks d^4. The studs d' are provided with reduced outer end portions d^5, upon which are pivoted counterweight-arms d^6. The adjacent surfaces of the ring-sections d^4 are separated by spaces d^7. Said ring-sections are of enough smaller diameter than the hollow bosses within which they are contained to permit any required adjustment. The part a' has relatively large perforations d^8 for the trunnions d'. The arms d^6 connect at one end with a counterweight F and at their opposite ends are rigidly joined to blocks *f*, which in turn are rigidly secured by rivets f' to the pipe C. The ends of the arms d^6 fit between flanges f^2, with which said blocks are provided, and are secured to the blocks at points f^3. It will thus be understood that the pipe C is free to swing in a vertical plane about the pivots d' and that the arms d^6 are to all intents and purposes a part of the pipe C and swing therewith, being pivoted upon the outer ends of the pivots d'. Also the meeting globe-surfaces of the globe-sections a' a^2 form an annular water-tight joint which permits the swinging movement of the pipe C mentioned.

The valve-actuating mechanism comprises bell-crank levers *g*, fulcrumed at points g' upon the pipe-section *a*, vertical valve-actuating rods g^2, connected with one set of arms

of the bell-crank g, bell-crank-actuating rods g^3, pivotally joined at points g^4 to the free end of the bell-crank lever g, and an actuating-lever g^5, pivotally connected with the pipe C at a point g^6 and having connection at points g^7 with the free ends of the rods g^3. In Fig. 1 the parts of the valve-actuating mechanism are shown in the position which they occupy when the valve at the base of the pipe A is closed. In this position the points g^4 lie in extensions of the axis, about which the pipe C swings. It will be understood, therefore, that the pipe C may be moved to bring its free end to any desired height while the valve is closed.

The details of the valve E′ are shown in Fig. 3. The base of the pipe A has connection with the upper portion of the casing B in the manner described in my aforesaid patent. A cam or track h is provided within the upper portion of the casing, and the lower portion of the pipe A is provided with rollers h', as described in said patent. At the base of the pipe A is provided a valve-seat k. The valve E′ comprises a short open-ended cylinder having at its top a conical surface k', which seats against the surface k. The lower portion of the cylinder fits within a guide l, having a closed lower end, and which is rigidly connected by studs l' with the lower end of the pipe A. The upper end of the cylindrical valve E′ is provided with a cross-piece m, rigidly secured to the valve and moving on a guide m', projecting upwardly from the center of the bottom of the guide l. A valve-stem m^2 is connected with the cross-piece m through the medium of a piece m^3. The upper end of the stem m^2 connects with a bar m^4, the ends of which are connected with the lower portions of the rods g^2. A hand-hole cover n is provided for access to the valve, and a similar cover n' is provided for access to the head m^4. The connections between the head m^4 and the rods g^2 are adjustable, as shown. One of the rods g^2 carries a stem p, the lower end of which is connected with a piston p', moving in a cylinder p^2 of the valve-retarding device E. The cylinder p^2 has ports p^3 p^4, opening into the interior of the pipe A, a port p^5, connecting with the pipe A, and an external discharge-port p^6, guarded by a valve p^7, joined by a flexible connection p^8 to the piston p'. In Fig. 3 the valve E′ is shown in its open position. At such time water can enter through the admission-port q of the valve-casing and an annular channel q' between the valve-surfaces k k'. When the valve E′ is closed, pressure of the water upon the bottom of the guide l is transmitted through the posts l' to the pipe A, and the stand-pipe is then supported by hydraulic pressure, as in the construction shown in my aforesaid patent.

The manner of operation will be readily understood from the foregoing description. To open the valve E′, the lever g^5 is turned from the position shown in Fig. 1, thereby thrusting the rods g^3 to the left and through the medium of the bell-crank levers depressing the rods g^2. When the valve is closed, as is well understood, the pipe A may be freely rotated about its vertical axis to bring the pipe C perpendicular to the railroad-track. While the valve is closed the pipe C may be freely swung in a vertical plane to bring its free end to a proper position to supply water to a locomotive-tender. The valve may then be opened and after a supply of water is taken on may be again closed, after which the pipe C may be elevated and the whole stand-pipe rotated to a position with the member C parallel to the track. The piston p' of the valve-retarding mechanism E acts in a readily-understood manner to resist sudden upward movement or closure of the valve, thereby preventing injurious shock. It will be understood that before the main valve is completely closed the valve p^7 is lifted by the piston p', thereby permitting the water to escape from the stand-pipe. Some such provision as this is necessary in cold climates to prevent water from remaining in the stand-pipe and being frozen therein. When the meeting surfaces of the globe-sections forming the joint between the pipes C and A become worn, the rings or ring-section b^4 may be taken from between the flanges b^2, and the set-screw d^3 being first loosened the two parts b and b' of the globe-section a' drawn together by means of the bolt and flange connection between them. The studs or trunnions d' being during this adjustment in their bearings d are properly centered. It is only necessary, therefore, to tighten the set-screws d^3 to rigidly clamp the trunnions between the blocks d^4, thereby fixing the trunnions in their new position.

No novelty is claimed, broadly, for the feature of having the connections g^4 lie in extensions of the axis upon which the pipe C swings, this being described and claimed in the application of Theodore W. Snow, Serial No. 45,915, filed on even date herewith.

Changes in details of construction within the spirit of my invention may be made. Hence no limitation is to be understood from the foregoing detailed description except as shall appear in the appended claims.

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

1. In a stand-pipe having a vertical column and a swinging column supported thereon, a joint between said columns comprising spherical sections fitted together, adjustably-fixed trunnions carried by said vertical column, and bearings for said trunnions connected with said swinging column, substantially as described.

2. In a stand-pipe having a vertical column and a swinging column supported thereon, a joint between said columns comprising curved surfaces permitting vertical movement of the swinging column, studs adjustably carried by the vertical column, and bear-

ings for said studs connected with the swinging column, substantially as described.

3. In a stand-pipe having a vertical column and a swinging column, globe-sections connected with the meeting ends of said columns, and lateral trunnions pivotally connected with the globe-section of said swinging column and rigidly and adjustably secured to the globe-section of said vertical column, substantially as described.

4. In a stand-pipe having a vertical column and a swinging column, globe-sections connected with adjacent ends of said columns and forming a joint between the same, lateral trunnions on which said swinging column is pivoted, and means for adjustably connecting said trunnions rigidly with the globe-section of said vertical column, substantially as described.

5. In a stand-pipe having a vertical column and a swinging column supported thereby, globe-sections connected with the meeting ends of said columns, the globe-section of one of said columns being divided and the parts thereof adjustably connected together, removable washers being interposed between said parts, substantially as and for the purpose set forth.

6. In a stand-pipe having a vertical column and a swinging column supported thereon, globe-sections connected with the meeting ends of said columns, trunnions having pivotal connections with one of said globe-sections, the other globe-section being divided and having its parts adjustably connected together, and means for adjustably securing said trunnions to the divided globe-section, substantially as and for the purpose set forth.

7. In a stand-pipe having a vertical column and a swinging column supported thereon, a globe-section connected with said swinging column, a globe-section connected with said vertical column and receiving within it said first-named globe-section, trunnions pivotally connected with the inner globe-section, said outer globe-section being divided and having its parts adjustably connected, and means for adjustably fixing said trunnions to said outer globe-section, substantially as described.

8. In a stand-pipe having a vertical column and a swinging column supported thereon, curved surfaces forming a joint between said columns, lateral trunnions pivotally connected with the swinging column and adjustably connected with the vertical column, and counterweight-arms rigidly secured at one end to the swinging column and pivoted on the outer ends of said trunnions, substantially as and for the purpose set forth.

9. In a stand-pipe having a vertical column and a swinging column supported thereon, globe-sections connected with the meeting ends of said columns, the outer globe-section having two adjustably-connected parts, lateral trunnions pivotally connected with the inner globe-section, and means for adjustably connecting said trunnions to the two portions of the outer globe-section, substantially as described.

10. In a stand-pipe, a vertical column provided with a guide located beneath and rigidly connected with its base, a cylindrical valve fitting in said guide and seating against the base of the pipe, and operating means connected with said valve, substantially as described.

11. In a stand-pipe having a vertical column provided at its base with a valve-seat, downwardly-projecting studs connected with the base of said vertical column, a guide rigidly connected with said column through the medium of said studs and having a closed lower end, a cylindrical valve connected with said guide and seating upwardly, and actuating means for said valve, substantially as described.

12. In a stand-pipe having a vertical column and a valve at the base thereof, actuating means for said valve and retarding means for said valve connected with said actuating means and comprising a cylinder communicating with said column above said valve, and a plunger within said cylinder and connected with the valve-actuating means, substantially as described.

13. In a stand-pipe having a vertical column and a valve at the base thereof, actuating means for said valve and retarding means for said valve connected with said actuating means and comprising a cylinder communicating with said vertical column above said valve and having an external discharge-orifice, a valve at said discharge-orifice, a piston in said cylinder having lost-motion connection with said piston, and a stem connected with said piston and with the valve-actuating means, substantially as described.

MOSES M. MOORE.

In presence of—
D. W. LEE,
ALBERT D. BACCI.