

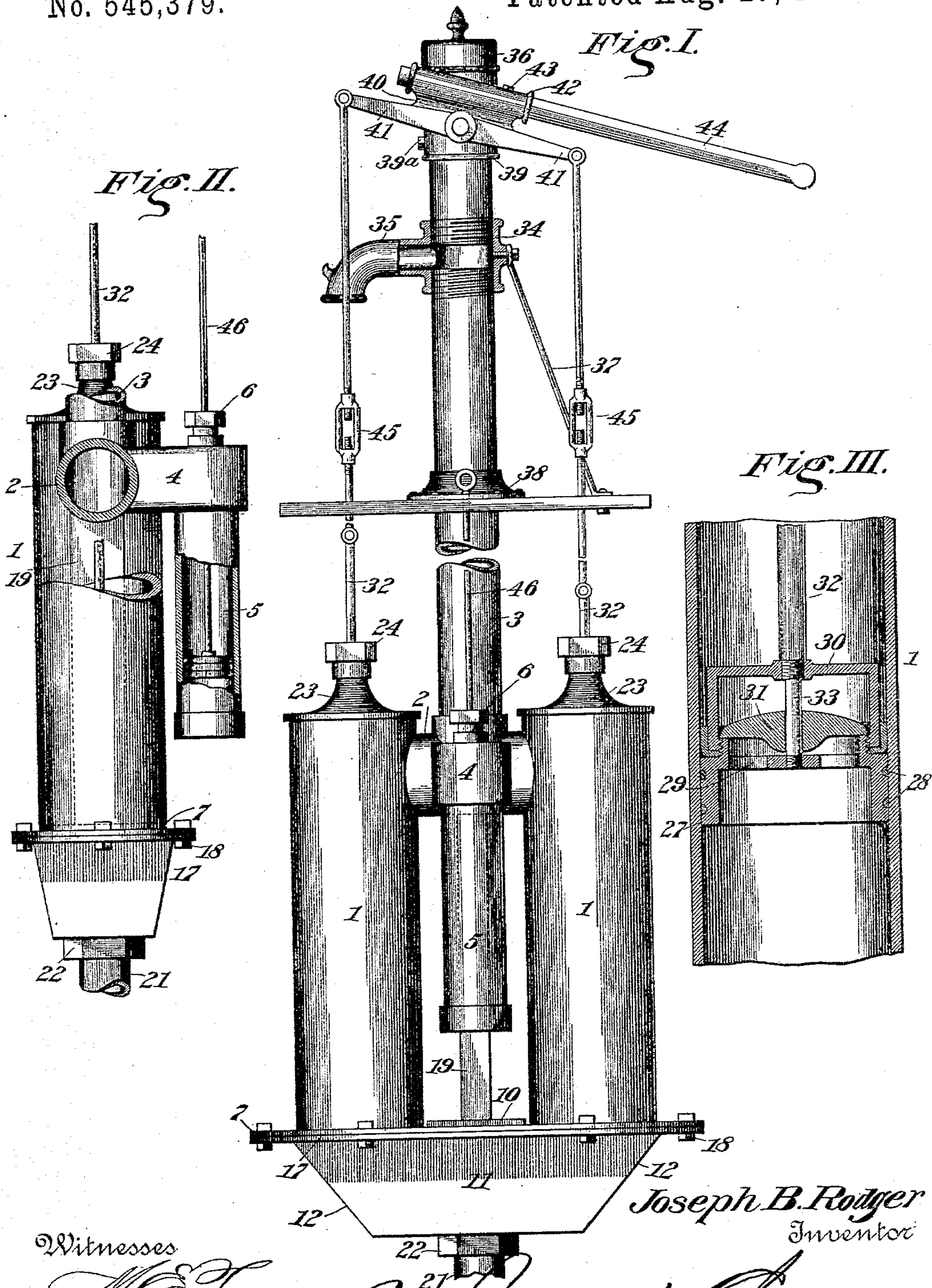
(No Model.)

2 Sheets—Sheet 1.

J. B. RODGER.
PUMP.

No. 545,379.

Patented Aug. 27, 1895.



Witnesses

M. C. Fowler
Snacker

Joseph B. Rodger
Inventor

By Joseph B. Rodger
Attorney

(No Model.)

2 Sheets—Sheet 2.

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Fig. IV.

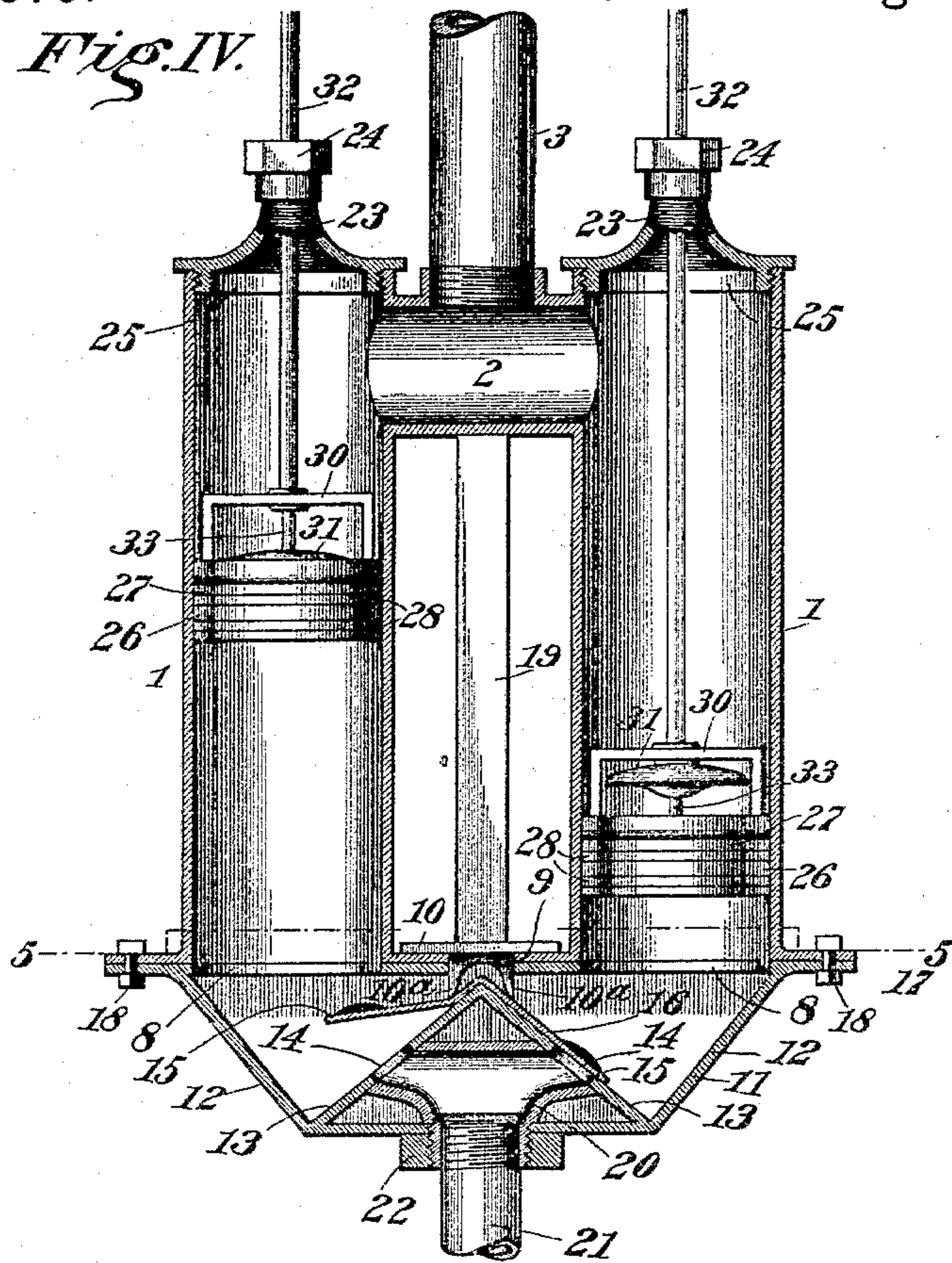


Fig. V.

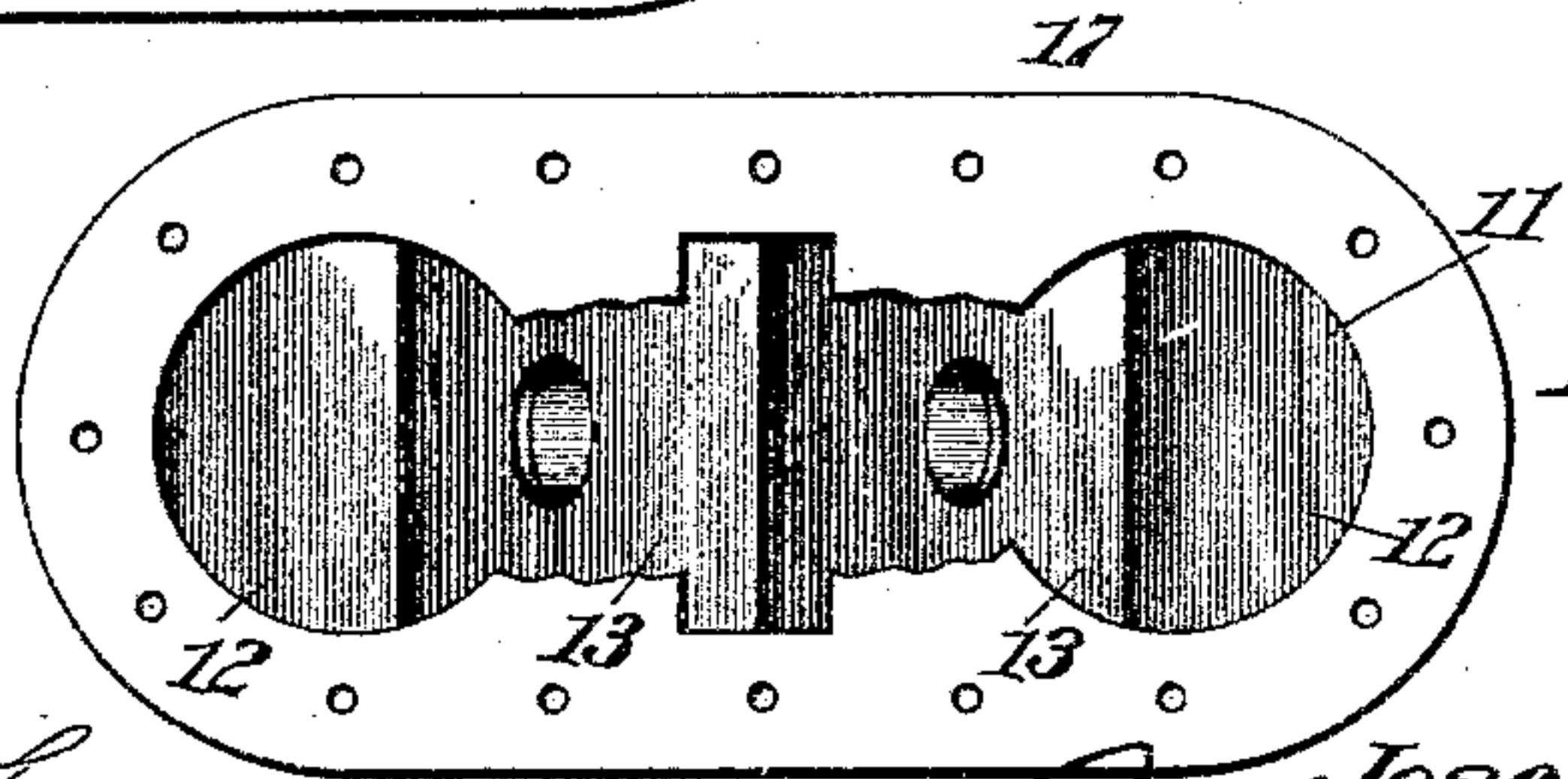
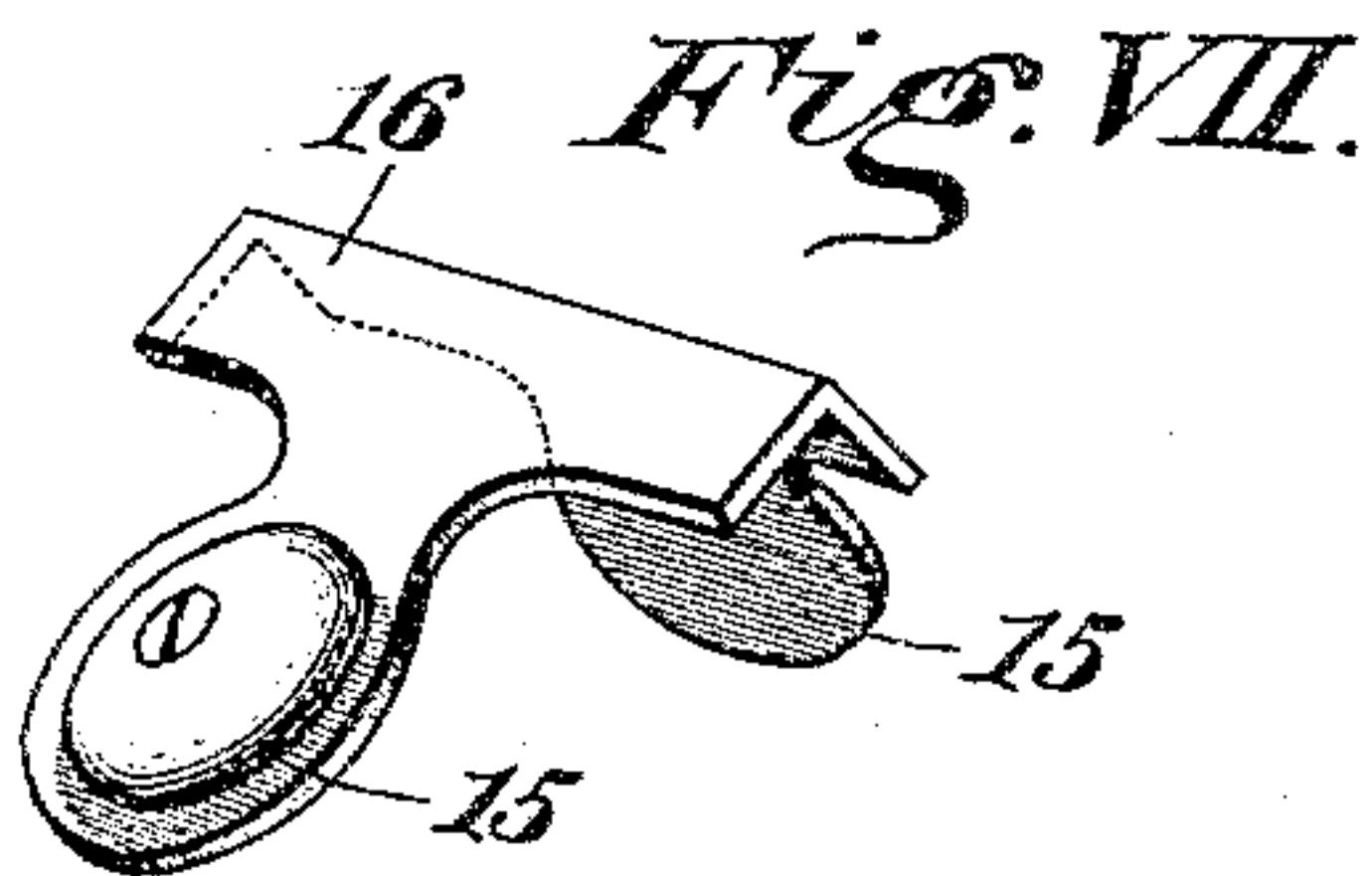
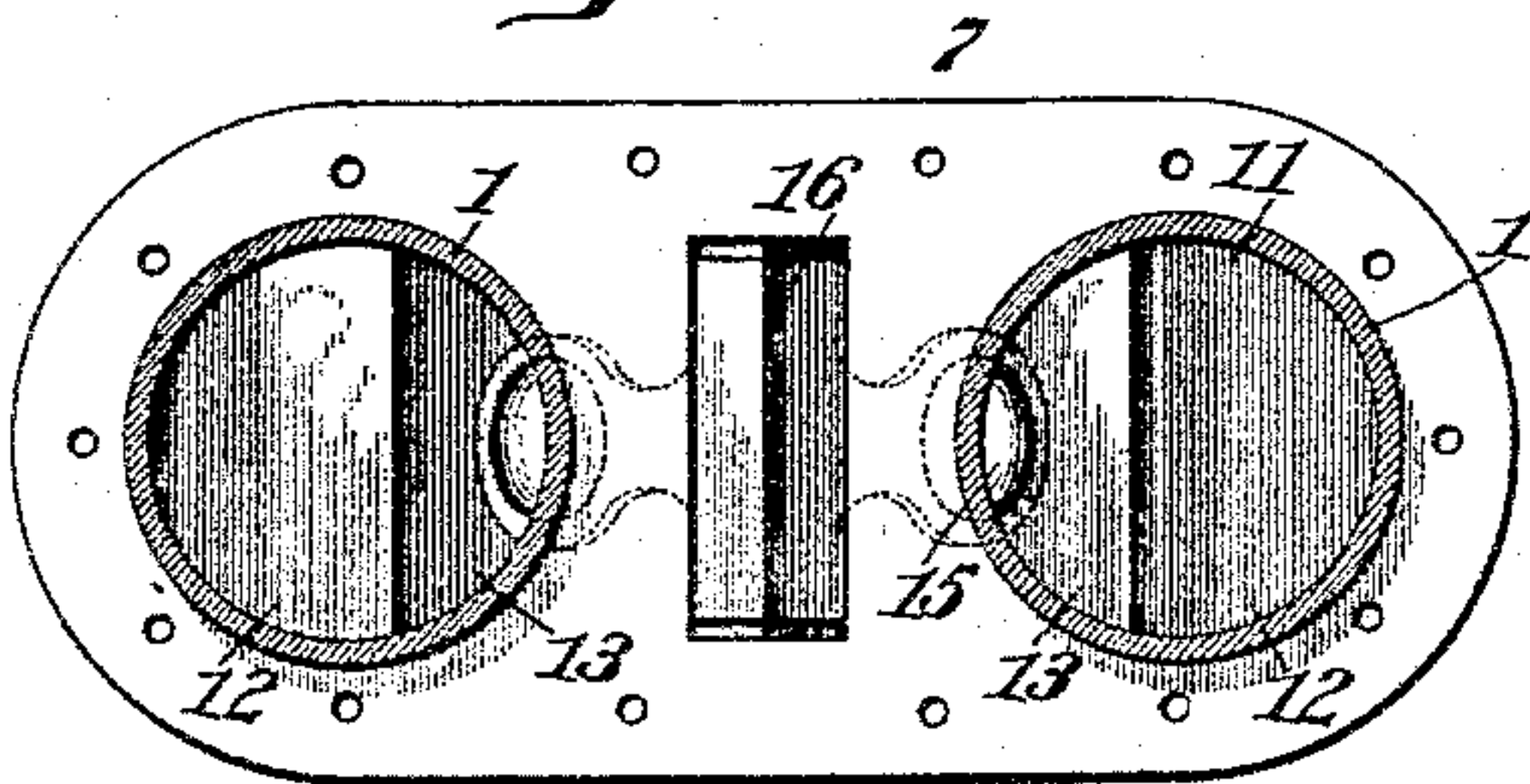


Fig. VI.

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UNITED STATES PATENT OFFICE.

JOSEPH B. RODGER, OF LAMONI, IOWA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 545,379, dated August 27, 1895.

Application filed December 20, 1894. Serial No. 532,481. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. RODGER, of Lamoni, in the county of Decatur and State of Iowa, have invented certain new and useful Improvements in Pumps, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to produce a simple and efficient pump of the variety known as "double-acting pumps," in which a plurality of cylinders are employed in connection with a common discharge-pipe and common piston-driving mechanism, wherein provision is made for priming, the liability of derangement is reduced to the minimum, and its accessibility for repair and its adjustability to suit varying conditions is increased to the maximum.

In the accompanying drawings, Figure I is an elevation of my pump partly broken away. Fig. II is a side view of the cylinders, valve-box, and adjacent parts. Fig. III is a detail sectional view of one of the valved pistons and cylinders. Fig. IV is a vertical central sectional view through the cylinders and valve-box. Fig. V is a horizontal sectional view on line 5 5 of Fig. IV. Fig. VI is a plan view of the valve-box partly broken away with the valve removed, and Fig. VII is a detail perspective view of the valve.

Referring to the figures on the drawings, 1 1 indicate the cylinders of my pump connected by a union 2, provided with screw-threaded apertures at its top and upon one side, respectively, for the reception of a discharge-pipe 3, and a connection 4, said connection being provided with a depending priming-cylinder 5 and with a gland 6.

7 indicates a base-plate secured across the bottom of the cylinders provided with apertures 8, correlative and corresponding in size with the inner periphery of the cylinders, and with a medial aperture 9, adapted to be closed by a plate 10, provided with depending lugs 10^a, for a purpose hereinafter specified.

11 indicates a valve-box, having downwardly-converging sides 12, and the upwardly-converging walls 13, provided with the valve-seats 14, adapted to receive the valves 15, which are connected by a spring-band 16, passing over the apex of the upwardly-converging walls 13. It will be observed that

when one of the valves is raised the action of water in the opposite cylinder will force the opposite valve securely in place and prevent the back flow of the water which has previously been admitted therebeyond.

The valve-box is provided with a top plate 17, correlative in size with the base-plate 7, which is secured thereto by bolts 18, as illustrated, and is provided with apertures correlative with the apertures 8 and 9 in the base-plate. The valves are secured in place by the plate 10, the lugs 10^a of which bear against the connecting-spring upon either side of and below the apex of the converging walls. The plate 10 is secured in place by a wedge 19, located between it and the union 2.

20 indicates a three-way connection contiguous to the valve-seats and communicating with a downwardly-projecting sucker-pipe 21, suitable means—as, for instance, a nut 22 screwed upon the upper end of the pipe—being employed to secure the parts and prevent the derangement of the valve-seats incident to a casual vibration of the sucker-pipe.

23 23 indicate cylinder-heads in the upper ends of the cylinders 1 1, provided with glands 24 and annular flanges 25, as usual.

26 26 indicate pistons adapted to reciprocate within the cylinders 1 1 and consisting, respectively, of a cylinder 27, provided with external annular packing 28 and with a skeleton head 29, surmounted by an annular flange of less diameter than the diameter of the cylinder, the flange being externally screw-threaded to receive the internally-threaded ends of a valve-frame 30 and adapted to constitute a seat for the valve 31, limited in its movement by the valve-frame and counterweighted as illustrated.

32 32 indicate piston-rods passing through the glands in the cylinder-heads, being connected at their lower ends with the valve-frames and provided with extensions 33, upon which the valves are adapted to reciprocate, said valves being provided with a central bore for the reception of the extension.

The priming-cylinder is provided with a piston, as usual, and a piston-wire 46, extending upwardly into convenient reach of the operator.

One of the features of my invention being the adjustability of the spout with respect to

the platform without the necessity of raising or lowering the pump proper, I construct the discharge-pipe of two sections having their adjacent ends externally screw-threaded to receive the internally-threaded collar 34 of the spout 35, the upper part of the pipe constituting a dome and being surmounted by a cap 36. A brace 37 is preferably secured to the floor and is detachably fastened to the spout-collar to prevent casual displacement thereof.

38 indicates a flaring collar surrounding the pipe and secured to the platform as usual.

In order to raise or lower the actuating mechanism to correspond with the adjustment of the spout or for any other purpose, I provide a sleeve 39, provided with a laterally-projecting stud and adjustably secured upon the discharge-pipe above the spout by means of set-screws 39^a or similar mechanism.

40 indicates a handle-frame revolvably mounted upon the stud, provided with arms 41, to which the piston-rods 32 are pivotally united, and with a handle-socket 42, provided with a set-screw 43, adapted to adjustably secure the handle 44 within the socket. The piston-rods are preferably provided with turn-buckles 45, as illustrated, in order to permit of the elevation or depression of the handle-supporting mechanism.

It is unnecessary to describe in detail the operation of my pump, except in so far as the special construction which I employ is involved. It will be seen that the ascending plunger will draw water from the sucker-pipe into the valve-box and up into the cylinder, the piston-valve being seated and preventing the ingress of air below the piston. Downward movement of the piston permitting its valve to rise, the water is forced into the cylinder thereabove, the valve 15 immediately therebelow being closed by the back pressure. Continued movement of the piston forces the water upwardly through the union and discharge-pipe and out at the spout, sufficient water escaping into the priming-cylinder to fill the same. If for any cause the pistons should require priming, a pull upon the wire 46 will raise the piston in the priming-cylinder and cause the water therein to flow back into the main cylinders and effectually prime the pistons, the succeeding operation of either piston refilling the priming-cylinder for a repetition of the operation of priming when necessary. When it is desired to raise the spout, it is only necessary to turn the same upon the pipe in the proper direction, when, as is obvious, it will ascend by reason of the correla-

tive threads upon the parts, vertical adjustment of the handle being accomplished by loosening the set-screws 39^a, sliding the sleeve 39 to the desired position, and thereafter securing it in place. When access to the valve 15 is desired, it is only necessary to remove the wedge 19 and the plate 10, debris which would accumulate in the valve-box being easily removed by the same means.

I do not desire to limit myself to the details of construction herein shown and described, but reserve to myself the right to vary, modify, or change the same within the scope of my invention.

What I claim is—

1. In a pump, the combination with a plurality of cylinders and a common discharge pipe, of a priming cylinder common to both pump cylinders, pistons within the pump cylinders, and a piston within the priming cylinder designed to be actuated to prime the pump cylinders, substantially as specified.

2. In a pump, the combination with a plurality of pump cylinders and a common discharge pipe, of a priming cylinder common to the pump cylinders and located intermediate thereof, pistons within the pump cylinders designed when actuated to incidentally fill the priming cylinder, and a piston within the priming cylinder independent of the pistons within the pump cylinders and designed to be actuated to simultaneously prime the pistons within the several pump cylinders, substantially as specified.

3. The combination with the cylinders and discharge pipe, of a plurality of valves connected by a spring, and a plate provided with depending lugs adapted to secure the valves in place, substantially as specified.

4. The combination with the cylinders and discharge pipe, of a valve box, a plurality of valves therein connected by a spring, a plate provided with depending lugs adapted to secure the valve in place and a wedge adapted to secure the plate 10 in place, substantially as set forth.

5. The combination with the cylinders and discharge pipe, of a valve box provided with a medial aperture in its top, a plurality of valves in the valve box, and a detachable plate adapted to close the aperture and secure the valve in place, substantially as specified.

In testimony of all which I have hereunto subscribed my name.

JOSEPH B. RODGER.

Witnesses:

OSCAR I. THOMAS,
FRANK. A. BLACK.