

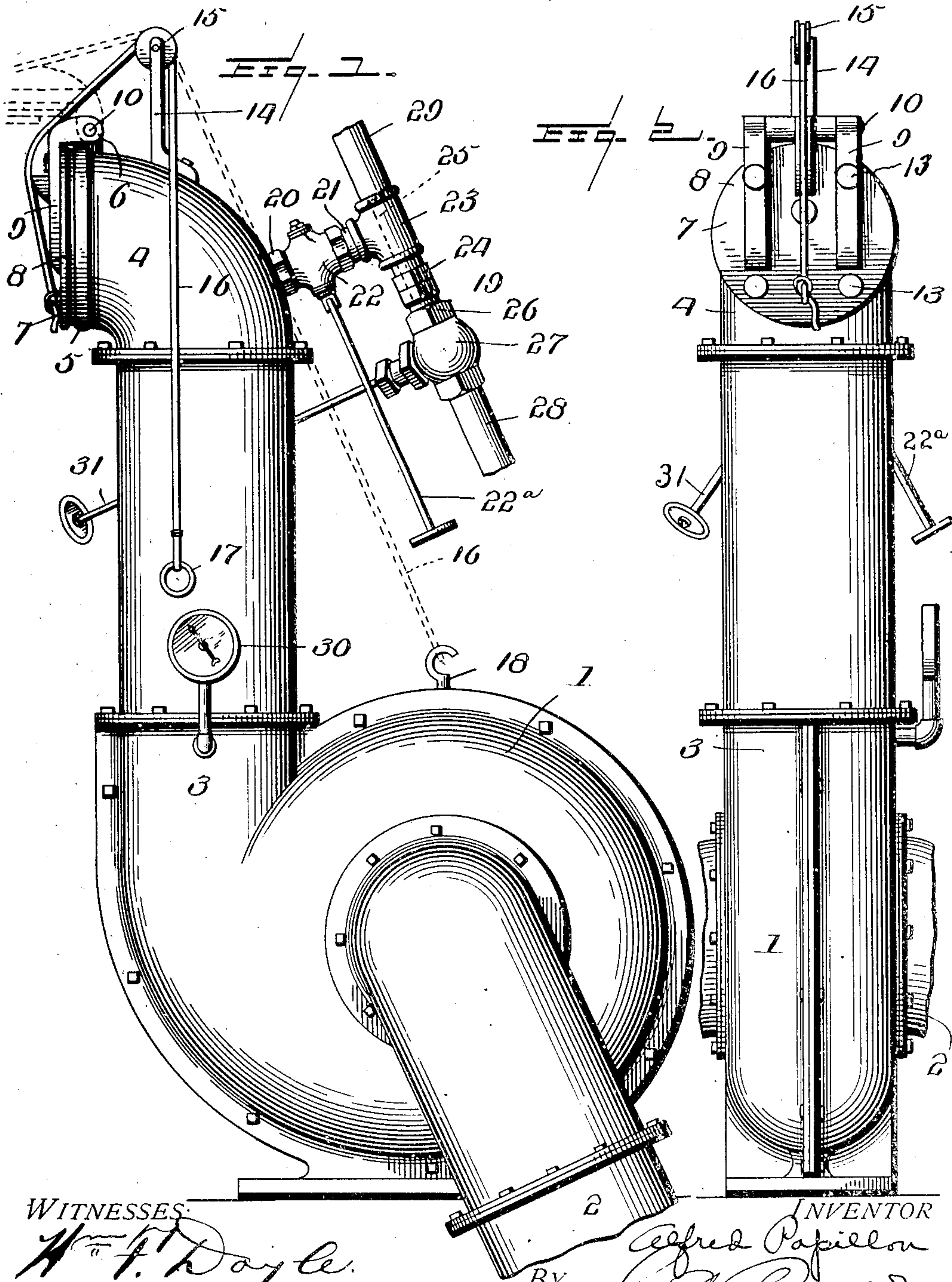
No. 869,387.

PATENTED OCT. 29, 1907.

A. PAPILLON.
PUMP.

APPLICATION FILED SEPT. 4, 1902.

2 SHEETS—SHEET 1.



WITNESSES:

W. F. Doyle.
C. O. Gargner

BY

Alfred Papillon
Attorney

INVENTOR

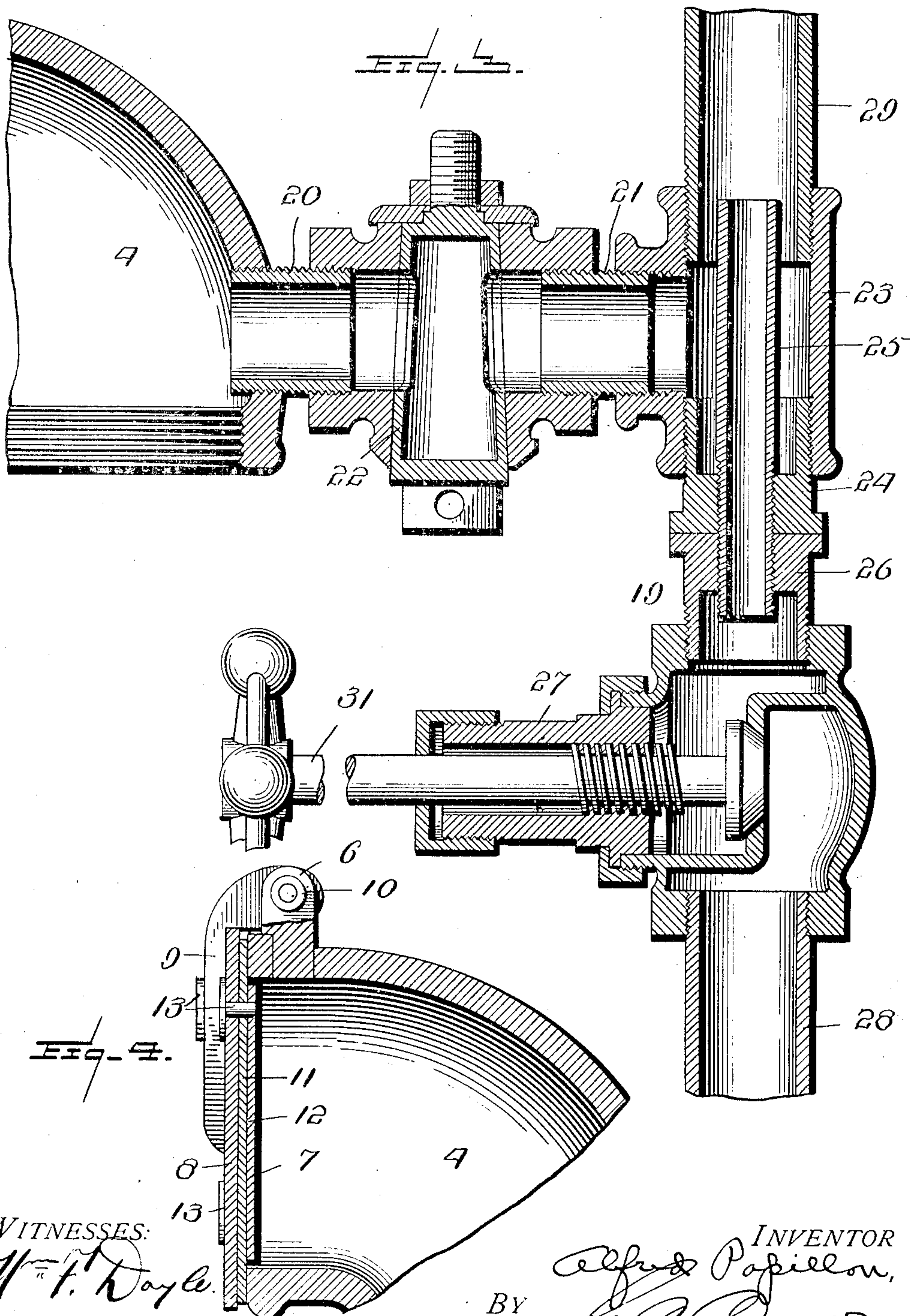
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UNITED STATES PATENT OFFICE.

ALFRED PAPILLON, OF MERMENTON, LOUISIANA.

PUMP.

No. 869,387.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed September 4, 1902. Serial No. 122,132.

To all whom it may concern:

Be it known that I, ALFRED PAPILLON, a citizen of the United States, residing at Mermenton, in the parish of Acadia and State of Louisiana, have in-
5 vented certain new and useful Improvements in Pumps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 This invention relates to improvements in pumps, and more particularly relates to improvements for priming pumps of the rotary type.

The object of the present invention is the provision of simple and efficient means whereby a pump may be
15 quickly and thoroughly exhausted of accumulations of air which retard the starting of the same, and through the medium of which the pump may be placed in condition for immediately raising water or other fluids without the annoying delays usually incident to the
20 starting of the pump; and, furthermore, the invention aims to provide a novel construction of pump wherein is embodied efficient means for rendering the operation of the pump extremely light and easy and capable of giving more water than is usually the case.

25 The invention further contemplates the provision of means whereby the pump may be stopped and again started without the necessity of repriming the same.

With these general objects in view, and others which will appear as the nature of the improvements is better
30 understood, the invention consists substantially in the novel construction, combination and arrangement of parts as will be hereinafter fully described, illustrated in the accompanying drawings, and finally pointed out in the appended claims.

35 In the drawings—Figure 1 is a side elevation of a pump embodying the hereinafter described invention. Fig. 2 is a front elevation thereof. Fig. 3 is a longitudinal sectional view, on an enlarged scale, of the ejector, and Fig. 4 is a transverse sectional view, also on an
40 enlarged scale, of the valve controlling the discharge pipe.

Referring to the drawings, the numeral 1 designates a rotary pump of the usual construction, which pump is provided with an inlet or suction pipe 2 and a dis-
45 charge or outlet pipe 3, and said discharge pipe extends in a vertical plane from the body of the pump and terminates at its upper end in an elbow 4 through which the water raised by the pump is finally discharged. The elbow 4 is provided at its free end with a peripheral flange 5, and projecting upwardly from the upper
50 side of said elbow is a vertically-extending hinge lug 6.

In order to control the interior conditions of the discharge pipe 3, a valve 7 is provided, and said valve comprises a body plate 8 to the outer face of which is
55 connected a pair of hinge arms 9, the upper ends of which project beyond the edge of the body plate 8 and

are connected to the hinge lug 6 through the medium of a pin 10, or its equivalent. It will be observed that the diameter of the body plate 8 is sufficient to overlap the flange 5 of the elbow 4, and fitted upon said body
60 plate, and of substantially the same diameter as the body plate, is a packing washer 11, which washer is preferably formed of leather. A clamping plate 12 is fitted upon the washer 11, whereby the latter is firmly held
65 upon the body plate 8, and said clamping plate is in turn secured upon the body plate through the medium of a series of bolts 13 or their equivalents, which bolts also pass through the hinge arms 9 for securing the same to the valve. The diameter of the clamping plate 12,
70 however, is such as to enter and fit within the free end of the elbow 4 when the valve is closed, and by reason of this it is obvious that the packing washer 11 will fit upon the flange 5 and thus form an air-tight joint between said valve and the elbow. By reason of the valve
75 7 being hinged at the upper side of the elbow 4, and consequently swinging in a vertical plane, it will also be observed that said valve will be held in its closed position by gravity, thus insuring a positively air-tight joint when the valve is closed. By reason of such
80 joint it is evident that the entrance of air into the discharge pipe 3, under the conditions to be hereinafter more fully stated, is prevented.

Also mounted upon the elbow 4 and projecting above the same is a supporting standard 14, and journaled in the upper end of said standard is a roller 15 over which
85 passes an operating cable or rope 16. One end of said cable or rope is connected to the valve 7, while the other end of said cable or rope is provided with an eye or ring 17 which is designed to be engaged with a fastening hook 18 suitably connected to the body of the
90 pump. When the eye 17 is connected to the hook 18, the valve 7 will be held in its raised position, as shown by dotted lines in Fig. 1, and the discharge of the water from the discharge pipe 3 is thus unobstructed. Moreover, the water discharged during the operation
95 of the pump is not compelled to support the weight of the valve during its discharge, and consequently the exit of the water from the discharge pipe is free from obstructions so that such discharge is effected with the least possible degree of friction.

100 In starting the pump it is essential that the interior conditions thereof should be such that the raising of the water or other fluids being pumped may commence simultaneous therewith, and in order to accomplish this result it is necessary to prime the pump or to adjust the
105 conditions therein in such manner that there is absolutely no pressure to be overcome by the body of water or other fluid being raised. For this purpose the present invention contemplates the provision of an air ejecting device, or vacuum producer, for the discharge
110 pipe, and said ejector is designated by the numeral 19. The ejector 19 is connected to the elbow 4 through the

medium of nipples 20 and 21, interposed between which is a valve or cock 22 for affording communication between the elbow 4 and the ejector 19, and said valve or cock is provided with an elongated operating handle 22^a, which may have a detachable connection therewith, in order to conveniently operate the same. The ejector comprises a T-coupling 23 which is connected with the nipple 21, and extending from one end of said coupling is a bushing 24 in which is fitted a steam pipe or nozzle 25, the diameter of which is considerably less than the diameter of the coupling 23 in order that said steam pipe may lie within and project through said coupling. One end of the pipe 25 projects beyond the bushing 24 and is connected to a bushing 26 to which in turn is connected a controlling valve 27, and said valve 27 is attached to a steam supply pipe 28 which may be connected to any suitable source. Projecting from the other end of the coupling 23 is a discharge pipe 29, the diameter of which is substantially the same as the diameter of the coupling 23, and it is thus obvious that as the steam supplied from the pipe 28 under the control of the valve 27 is discharged through the pipe 25 and into the pipe 29, a suction is created within the nipples 20 and 21, if the valve 22 be opened, and this suction also creates a suction within the discharge pipe 3 and elbow 4, so that whatever air may be within said discharge pipe and elbow is exhausted therefrom into the pipe 28 and discharged therethrough. As the suction is created within the discharge pipe 3 and the elbow 4 it is obvious that the valve 7 will be drawn upon the flange 5, which forms the seat thereof, to a greater extent so that a vacuum is created within the discharge pipe 3 and the elbow 4. As this vacuum removes all pressure above the piston of the pump, it is also obvious that the pump is primed, and as soon as the piston begins to operate the water or other fluid being raised immediately commences to flow through the discharge pipe without the usual delays occasioned in pumps not provided with means for priming the same. As the fluid is discharged through the elbow 4 the valve 7 is raised from its seat, and through the medium of the operating cable 16, the ring 17 being attached to the hook 18, the valve is raised and suspended in its elevated position. Consequently the volume of water passing through the elbow is not required to sustain the weight of the valve but freely issues from the elbow and so continues during the operation of the pump. After the priming of the pump the valve 22 is closed, and the flow of steam from the pipe 28 to the pipe 25 cut off by the controlling valve 27. If at any time it is desired to stop the pump momentarily, the cable 16 is released from the hook 18 and the valve 7 permitted to become seated on the flange 5, and by starting the ejector, the valve 22 having been previously opened, it is obvious that the pump will remain primed so that the same is in condition for immediately raising the fluid at the starting of the piston.

In order to indicate the pressure conditions within the discharge pipe 3 the latter is provided with a vacuum gage 30, which gage may be of any approved construction, and through the medium of said gage may be observed the complete priming of the pump.

The controlling valve 27 is also provided with an elongated operating handle 31 for the convenience of the attendant of the pump in operating said valve.

It will also be observed that the valve 7 is hinged to the discharge pipe 3 at its upper side, and consequently said valve is normally seated by gravity. Hence it is obvious that so long as the cable 16 is detached from the hook 18 the valve will also be seated, and as soon as the ejector is started the valve 7 will be drawn closely upon the discharge end of the pipe 3, by reason of the suction in said pipe, and thereby establish an air-tight joint between the packing of the valve and the discharge pipe.

From the foregoing description the operation of the pump is obvious without further explanation, and it will be observed that through the medium of the herein described invention a pump is provided which may be quickly and thoroughly exhausted of accumulations of air retarding the starting of the same and in which a condition for immediately raising the fluid without the annoying delays usually incident to the starting of the pump is insured. The construction of the pump is also such as to render the operation of the same extremely light and easy and capable of giving more water than is usually the case in which a priming device is not employed.

While the invention is described and illustrated as embodied in a rotary pump, it is obvious that the same is not restricted to such use, as the invention is adapted also in conjunction with pumps of other types.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

In a pump of the class described, the combination with the discharge pipe thereof, and a valve hinged thereto, of an ejector connected to the discharge pipe and coöperating with said valve to create a vacuum within said discharge pipe, said ejector comprising a T coupling, a bushing arranged in one end thereof, a pipe or nozzle connected to said bushing and having its inner end projecting into the T coupling, the outer end of said pipe or nozzle projecting beyond said bushing, a second bushing connected to the outer end of said pipe or nozzle, a valve connected to said second bushing for controlling the flow of a vacuum-producing agent to said pipe or nozzle, and a valve interposed between the ejector and said discharge pipe for controlling communication between the ejector and the discharge pipe.

In testimony whereof I affix my signature, in the presence of two witnesses.

ALFRED PAPILLON.

Witnesses:

ERNEST J. HEBERT,
G. A. MAYNARD.