(No Model.)

E. M. McGEE.

PUMP.

No. 528,378. Patented Oct. 30, 1894.

Fig. 1.

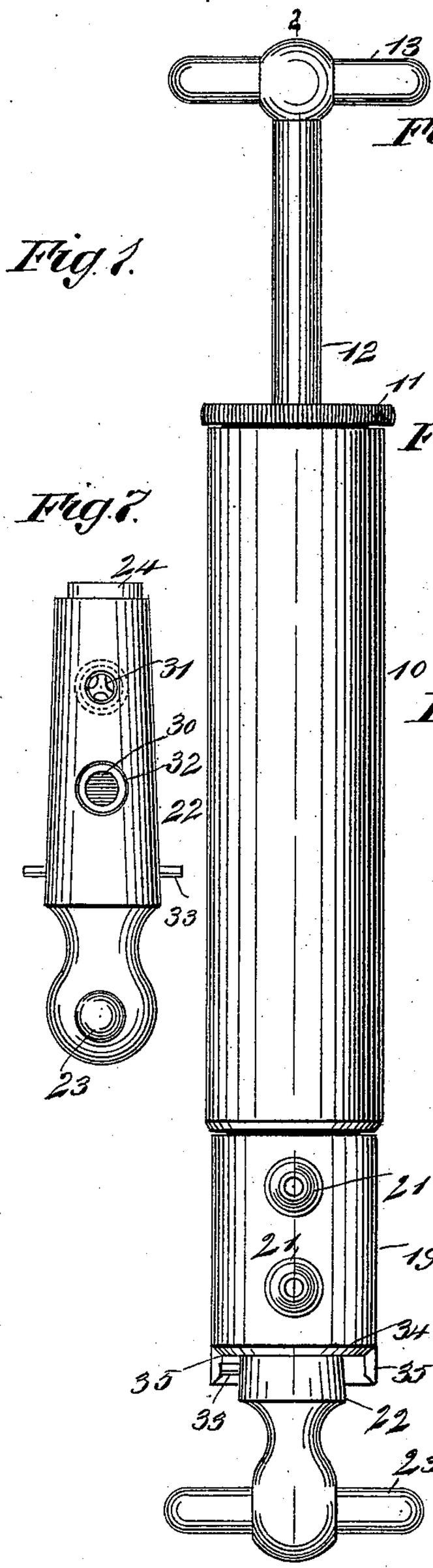


Fig. 4.

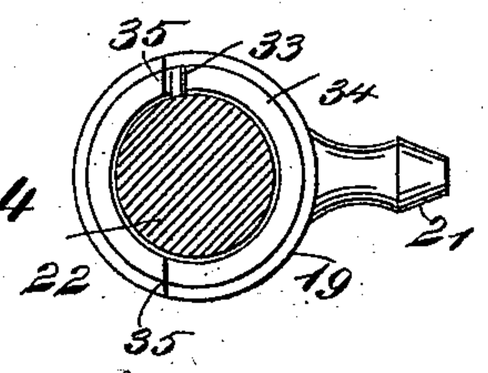


Fig. 2.

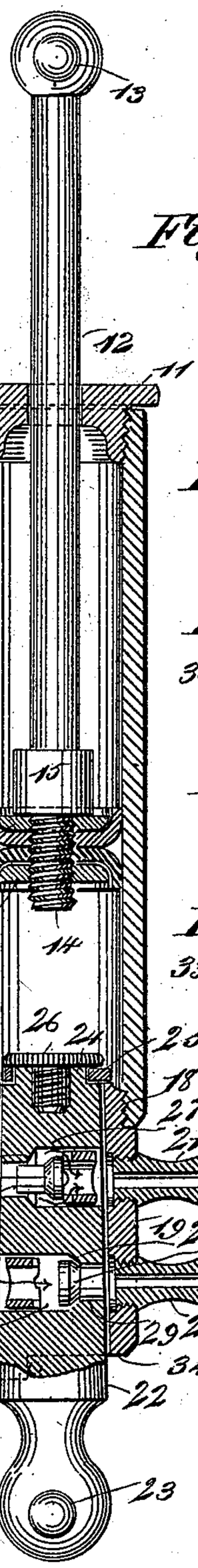


Fig. 5.

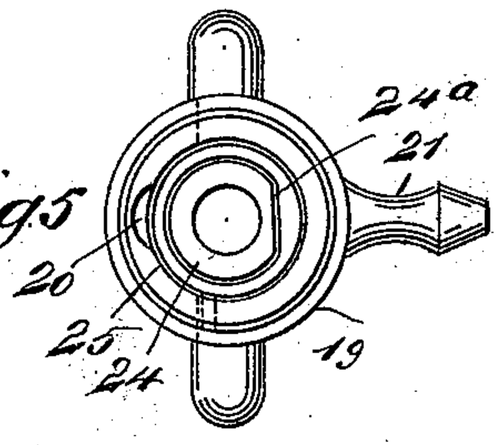


Fig. 7.

Fig. 6.

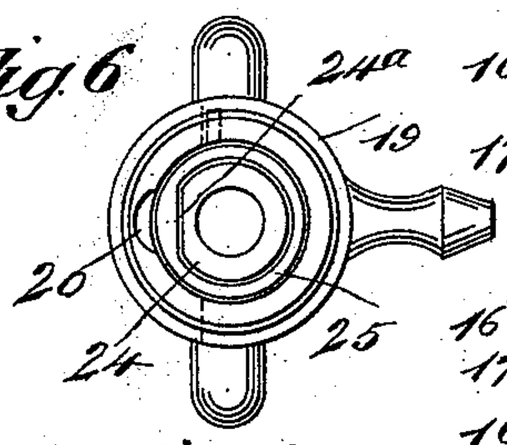


Fig. 8.

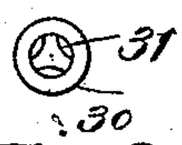


Fig. 9.

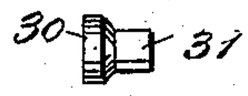
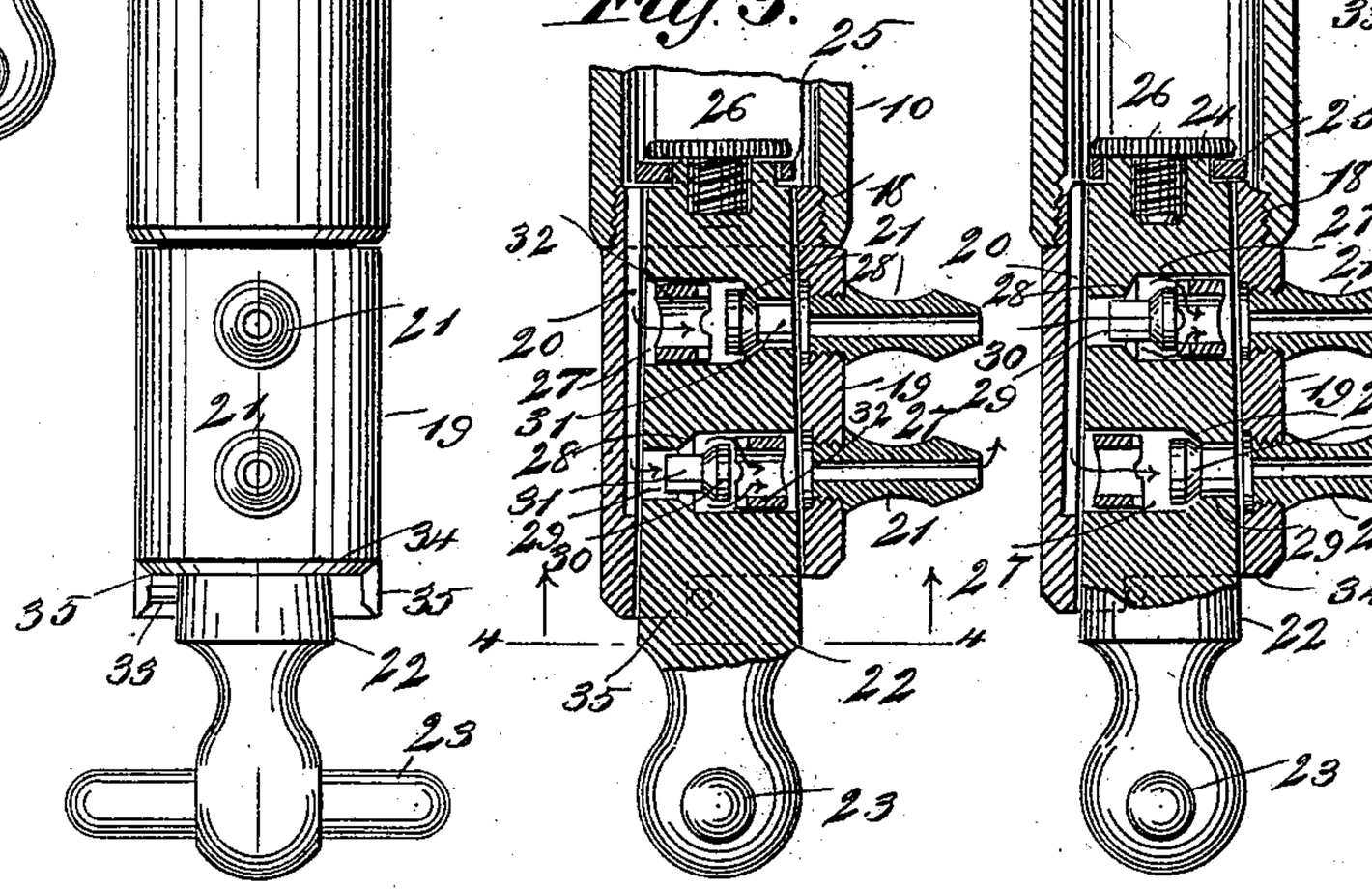


Fig. 10.

Fig. 11.

Fig. 3.



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PUMP.

SPECIFICATION forming part of Letters Patent No. 528,378, dated October 30, 1894.

Application filed February 21, 1894. Serial No. 500,996. (No model.)

To all whom it may concern:

Be it known that I, EDWIN M. McGEE, of Carleton, in the county of Thayer and State Nebraska, have invented a new and Improved Pump, of which the following is a full, clear, and exact description.

My invention relates to improvements in suction instruments; and the object of my invention is to produce a very cheap, simple, and easily operated instrument in the nature of a pump, which may be used as either a suction or injecting pump.

A further object of my invention is to produce an instrument which may be used for any purpose where it is necessary to inject or eject air or a liquid, which has two nipples, one for injection and the other for ejection, which is arranged so that by simply turning a plug in the instrument the action of its valves may be reversed and the water which has been injected through one nipple may be drawn back through the same nipple and ejected through the other nipple, and which is constructed in such a way that all the parts may be easily removed for cleaning or renewal.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a front elevation of the pump embodying my invention. Fig. 2 is a longitudinal section on the line 2—2 of Fig. 1. Fig. 3 is an enlarged detail sectional view of the end of the pump which carries the plug and valves, the valves being shown in the reverse position to that illustrated in Fig. 2. Fig. 4 is a cross section on the line 4—4 of Fig. 3. Fig. 5 is a plan view of the lower end of the pump. Fig. 6 is a similar view, but with the plug in the reverse position to that shown in Fig. 5. Fig. 7 is a detail front elevation of the plug. Fig. 8 is an end view of one of the plug valves. Fig. 9 is a side elevation of the valve shown in Fig. 8. Fig. 10 is an end view of one of the valve gages; and Fig. 11 is a section of one of the said gages.

The pump is provided with a suitable barrel 10, which at one end is closed by a removable cap 11, and extending centrally through this cap is a piston or plunger rod 12, which at its outer end is provided with a suitable handle 13 and which has its inner end screw threaded, as shown at 14, and provided with a collar 15 against which one of the washers 16 abuts, these washers being screwed to the threaded end of the plunger rod and they have each a suitable packing 17 which is doubled over the edge of the valve, but the two packings are doubled in opposite directions so that the pump works properly when the plunger or piston is moved in either direction. The arrangement of these valves is common and forms no part of my invention.

The barrel 10 is internally screw threaded at its lower end, as shown at 18, and into this threaded portion is screwed an extension end 19 of the barrel, which extension end is provided with a longitudinal channel 20 opening into the barrel 10 and adapted to connect with the nipples 21 on the end 19 of the barrel, through the medium of the valves which will be described presently. The nipples 21 are arranged one above the other in longitudinal alignment and they are preferably screwed into the end 19 of the barrel and they are adapted to connect with tubes in the usual way, one tube being connected with the liquid to be injected and the other being connected with the place into which the liquid is to be forced.

In the extension end 19 of the pump barrel is held a plug 22 which is preferably slightly tapering, the plug having at its outer end a handle 23 to enable it to be conveniently turned or pulled out, and the plug is somewhat longer than the end 19 and has its inner end reduced, as shown at 24, the reduced end being slightly flattened on one side, as shown at 24^a, to enable the washer 25, which encircles the reduced end, to turn with the plug. The washer 25 fits the reduced end of the plug snugly and rests on the upper or inner end of the extension end 19 of the barrel and the head of a set screw 26 rests against the washer and holds it in place.

The set screw 26 fits in the inner end of the plug 22. In the plug are transverse bores 27, each bore being reduced at its inner end, as shown at 28, the reduced portion being beveled

to form a seat and connecting with a smalle bore 29 extending through the opposite side of the plug, and the bores 27 and 29 are oppositely arranged, as shown clearly in Figs. 2 and 3, so that the small bores are on diametrically opposite sides of the plug. In each bore of the plug is a valve 30 having an inclined face to meet the inclined shoulder 28 of the bore 27, which shoulder acts as a valve seat and having also a winged shank 31 to move in the small bore 29. The valves are oppositely arranged, as the drawings show, and in each bore 27 outside the valve 30, is a cage or bushing 32 having in its inner edge ports 33, as shown clearly in Figs. 10 and 11, through which air or liquid may pass.

The bores 27 and 29 in the plug are arranged so as to register with the groove or channel 20 and with the nipples 21. It will be seen that when the plug 22 is arranged as illustrated in Fig. 2, the valves are in such a position that by the pulling out of the main plunger, the liquid will flow inward through the lower nozzle and by pushing in the main plunger, the lower valve will be closed and the upper or inner one opened against its cage, so that the liquid which has been drawn in will be ejected through the upper or inner nipple 21. Now, if the action is to be reversed, the plunger is turned half around, as shown in Fig. 3, in which case the drawing out of the main plunger causes the liquid to be drawn inward through the upper nipple while the pushing in of the main plunger ejects the liquid through the lower nipple. This arrangement enables the action of the pump to be reversed without changing the connections to the nipples 21, and thus makes it an admirable instrument for use as a stomach pump or for analogous purposes.

To enable the operator to know exactly when the plug valves are in the desired position, the plug is at its lower end provided with a pin or boss 36, and the lower extremity of the extension end 19 is cut away for half its diameter, as shown at 34, thus forming two shoulders 35 against both of which the pin or lug is adapted to strike. It will thus be seen that when the plug is turned till the pin or lug 36 rests on one shoulder, the plug valves will be in the position shown in Fig. 2, and by turning the plug until the pin or lug strikes the opposite shoulder, the valves will be in the position shown in Fig. 3. It will thus be seen that the pump may be instantly reversed so as to cause the nipples 21 to act alternately as injection and ejection nipples by the simple turning of the plug, and it will be further observed that the extension end 19 and plug 22 may be quickly removed so that every part of the pump may be easily reached to be cleaned or repaired.

It will be seen that the action of the plug and its valves would be the same if the barrel of the pump were in one piece instead of two pieces, but it is desirable to have the barrel separable, as described, so that the parts may be readily reached.

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

1. The combination, with the pump barrel having a suitable plunger therein and a longitudinal channel near its open lower end, of nipples projecting from the side of the barrel opposite the channel, a movable plug mounted longitudinally in the barrel having transverse bores to register with the channel and nipples, and oppositely arranged valves in the bores of the plug, substantially as described.

2. The combination, with the pump barrel having a suitable plunger therein, and a longitudinal groove or channel near its open lower end of a pair of removable nipples opening from the barrel opposite its channel, a revoluble longitudinal plug in the barrel, and a valve mechanism carried by the plug opposite the nipples and adapted by the turning of the plug to reverse the course of the matter passing through the nipples, substantially as described.

3. The combination, with the pump barrel having a suitable plunger therein and a groove or channel near its lower open end, of the removable nipples opening from the barrel on the side opposite the channel, a movable longitudinal plug mounted in the barrel opposite the channel and nipples, transverse bores extending through the plug to register with the channel and nipples, the bores having oppositely arranged valve seats therein, oppositely arranged valves held in the ports adjacent to the seats, and removable tubular notched or ported bushings or washers to limit the movement of the valves, substantially as described.

4. The combination, with the pump barrel having a suitable plunger therein, of the removable longitudinal extension end on the barrel, the said end having a longitudinal channel and laterally extending nipples on the side opposite the channel, a revoluble plug in the extension end having transverse bores to register with the channel and nipples, oppositely arranged valves in the bores, and means for limiting the movement of the plug, substantially as described.

5. The combination, with the removable longitudinal extension end of the barrel, and the plug therein carrying valve mechanism, as specified, of the washer on the inner end of the plug arranged to overlap the extension end, and a binding screw entering the end of the plug and overlapping the washer, substantially as described.

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Witnesses:
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WM. W. LICHTY.