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C. E. BURKHOLDER.

PUMP OPERATING DEVICE.

APPLICATION FILED FEB. 6, 1902.

NO MODEL.

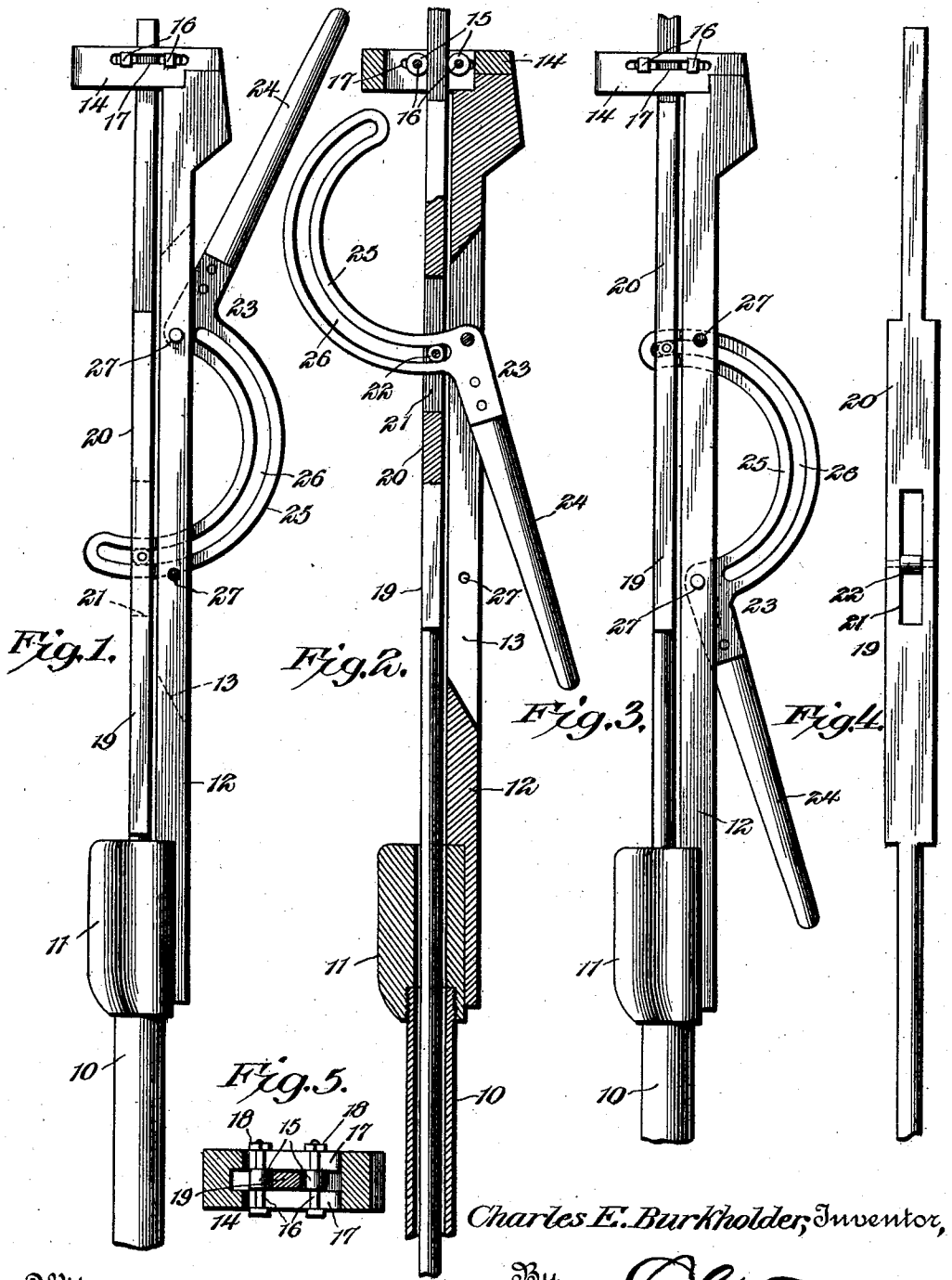


Fig. 1. Fig. 2. Fig. 3. Fig. 4.

Fig. 5.

Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES E. BURKHOLDER, OF MARION, PENNSYLVANIA.

PUMP-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 720,322, dated February 10, 1903.

Application filed February 6, 1902. Serial No. 92,856. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BURKHOLDER, a citizen of the United States, residing at Marion, in the county of Franklin and State of Pennsylvania, have invented a new and useful Pump-Operating Device, of which the following is a specification.

The present invention relates to pumps and the like, and particularly to the connection between the handle or operating-lever and the reciprocatory element.

One of the objects of this invention is to provide a connection between the plunger and operating-lever of a pump whereby said plunger has a comparatively great movement with relation to the stroke of the lever without creating undue friction or side strain, thereby providing easy coaction between the elements.

The preferred means for accomplishing the above object is fully illustrated in the accompanying drawings and described in the following specification.

In said drawings, Figure 1 is a side elevation of the upper portion of the improved pump. Fig. 2 is a vertical sectional view through the same. Fig. 3 is another side elevation showing the position of the lever when reversed. Fig. 4 is a face view of the upper end of the reciprocatory element. Fig. 5 is a horizontal sectional view through the guide-bracket.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.

A portion of a barrel 10 of a pump is illustrated, to the upper end of which is attached a head 11, that carries an upright standard 12, said standard being provided with an intermediate longitudinally-disposed opening 13 and having secured to its upper end an outstanding guide-bracket 14. This bracket is in the form of a horizontal loop in which are journaled a pair of spaced guide-rollers 15, rotatably mounted on journal-pins 16, that pass through slots 17, formed in the opposing side walls of the guide-bracket. As a result it will be seen that the rollers may be moved toward or from each other and secured in adjusted position by means of nuts 18, threaded on the ends of the journal-pins. The reciprocatory element 19 in the form of the plunger-rod passes through the head 11 and between the guide-rollers 15. It is provided contiguous to its upper end with an angular enlargement 20, in which is an aperture 21, that is in alinement with the opening 13 of the standard, and in this aperture is journaled an antifriction-roller 22.

The operating-lever is designated as a whole by 23. It is pivoted intermediate its ends in the opening 13 of the standard, one of the arms of said lever being formed into a suitable handle 24, the other arm 25 being curved in substantially semicircular form and having a longitudinally-disposed similarly-curved slot 26. This curved arm 25 passes through the aperture 21 of the reciprocatory element, and the antifriction-roller 22 is located in the slot 26. As shown in Figs. 1 and 2, the lever is pivoted contiguous to the upper end of the opening 13 and the arm 25 curves downwardly, this being the preferred arrangement, although said lever may be reversed, as shown in Fig. 3, and pivoted contiguous to the lower end of the opening, suitable holes 27 being provided to receive the pivot.

The operation of the elements is very simple. The arm 25 when raised by depressing the handle constitutes practically an inclined plane or wedge that is forced beneath the antifriction-roller 22, consequently raising the same and the plunger-rod, to which it is secured. Because of the curvature of said arm, or at least the surface upon which the roller rides, the grade of said inclined plane remains practically the same during the entire sweep of the lever, although the leverage of the arm 24 of course gradually increases as the antifriction-roller approaches the pivot of said lever. Although there is practically no friction at the connection between the reciprocatory element and the lever, the under face of the curved slot may in time become worn, as this face receives the entire weight of the plunger and water lifted. It may therefore be desirable in time to reverse the lever, and this can be done, as clearly shown in Fig. 3, in which case the opposite face of the slot will constitute the surface upon which the roller will ride, and said

surface will act in exactly the same manner as already described.

The advantages for this construction are as follows: It will be seen that the plunger-rod or reciprocatory element is given a comparatively great movement with relation to the movement of the lever and without imparting any side strain or undue friction to said reciprocatory element. This is due to the semicircular arm having the slot extending the length thereof to a point contiguous to the pivot, for, as already described, the incline up which the roller rides remains constant and comparatively slight, while the lever can swing through an arc of nearly one hundred and eighty degrees, as is evidenced by the showing made in Figs. 1 and 2 of the drawings. Furthermore, because of this semicircular arrangement, when the lever is reversed its movement will remain exactly the same, for the stroke will be as long and the incline will still be as slight. Further than this, because of the curved surface upon which the antifriction-roller bears there is no danger of binding action between the two. The guide-bracket at the upper end of the standard holds the reciprocatory element in proper vertical position, and the guide-rollers may be adjusted both to take up wear and to properly position said reciprocatory element.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a pump-operating device, the combination with a standard having a longitudinally-disposed opening and a plurality of pivot-receiving holes intersecting the opening, of a reciprocatory rod slidably mounted at one side of the standard, an actuating-lever comprising two arms, one of which is straight and constitutes a handle, the other arm being substantially semicircular in form and having a similarly-shaped longitudinal slot, a pivot passing through the lever and being arranged to engage in either of the pivot-receiving holes to support said lever in reversed positions upon the standard, and a roller journaled upon the reciprocatory rod and engaging in the slot of the curved arm.

2. In a pump-operating device, the combination with a standard having an outstanding bracket at its upper end, said bracket comprising a horizontal loop having alined slots in its opposite faces, of a pair of spaced rollers located within the loop, journals for the rollers engaging in the slots and movable toward and from each other, a reciprocatory element passing between the rollers, an operating-lever pivoted intermediate its ends to the standard and having one of its arms passing through the reciprocatory element, said lever being provided with a longitudinally-disposed slot, and a roller journaled upon the reciprocatory element and movably mounted in the slot of the arm.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES E. BURKHOLDER.

Witnesses:

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WM. M. MCFERREN.