Jan. 9, 1923. 1,441,730.

H. H. MARSHALL.

HAND PUMP.

FILED SEPT. 16, 1921. 2 SHEETS—SHEET 1.

Fig. 2.

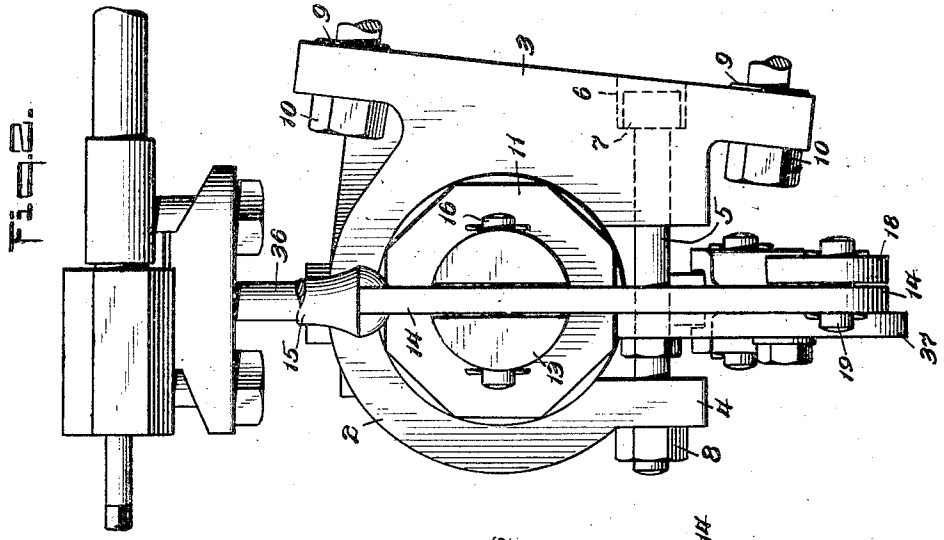
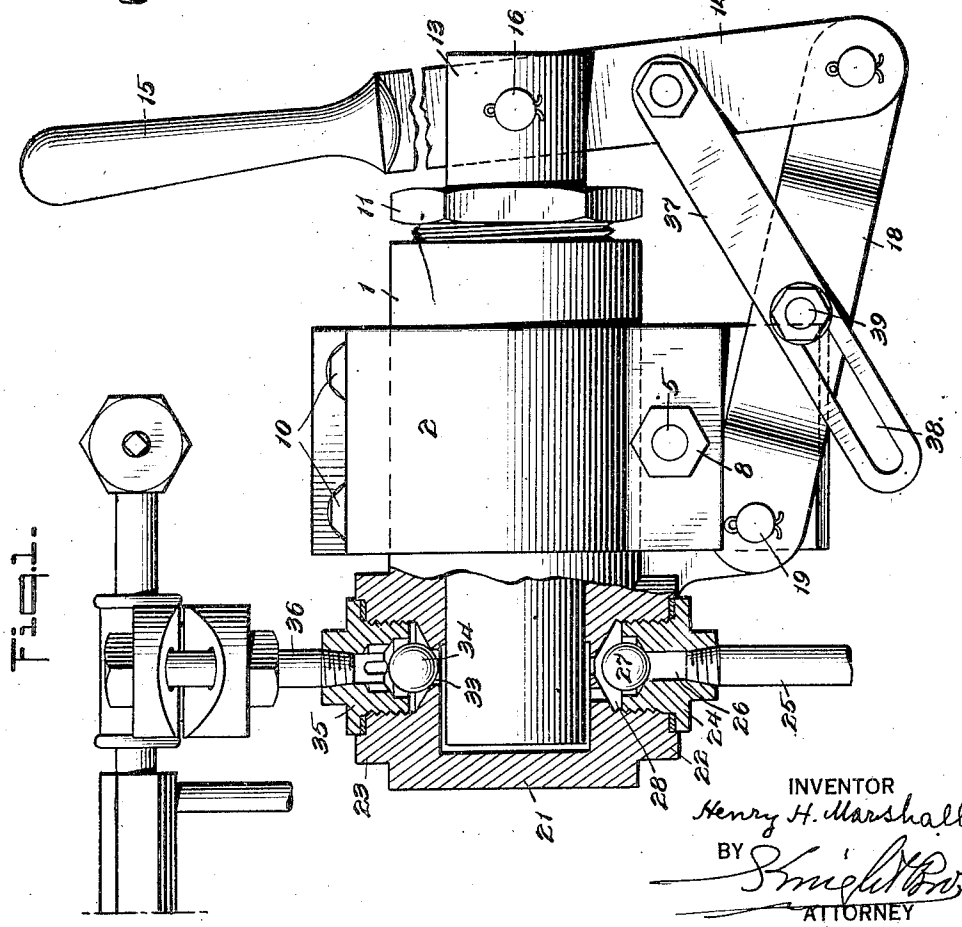


Fig. 1.



INVENTOR
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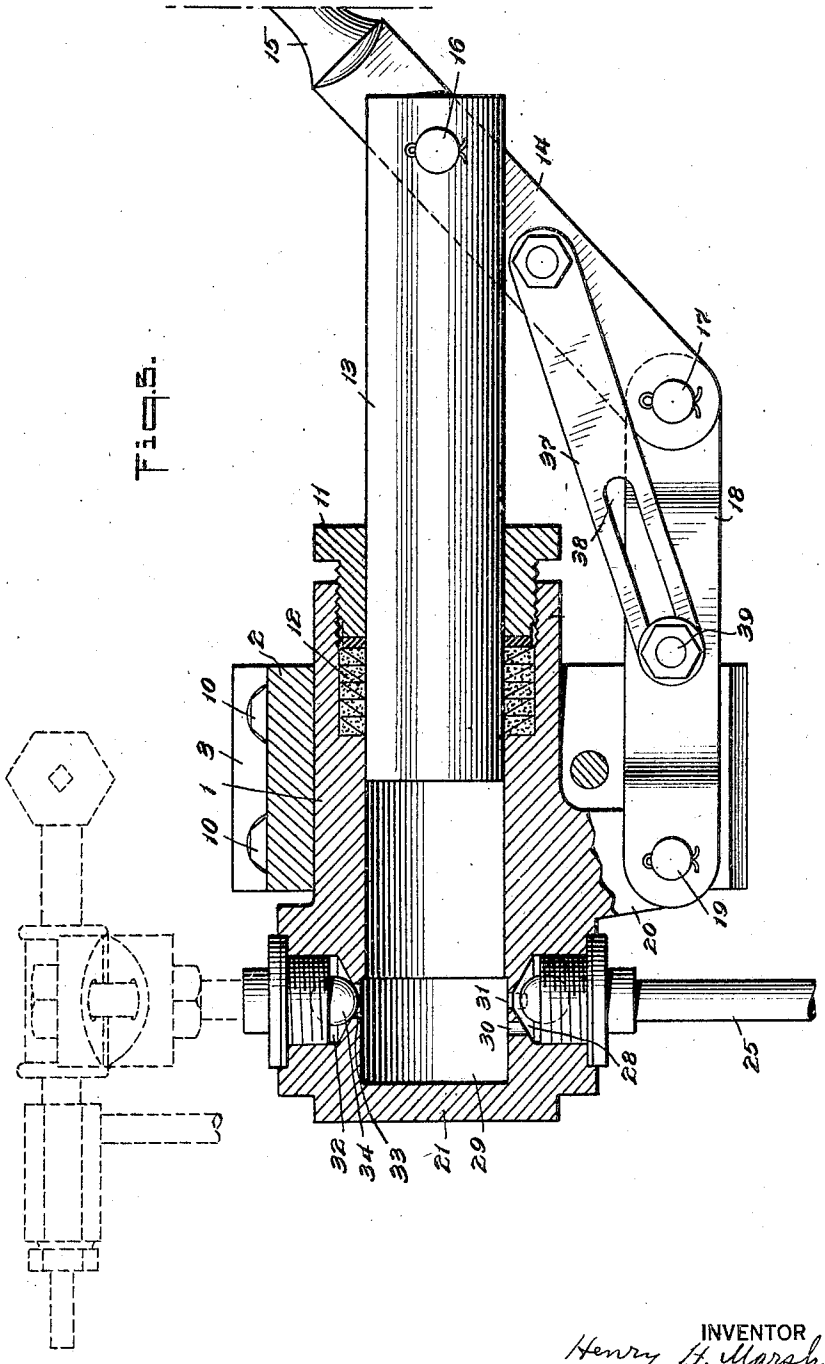
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2 SHEETS—SHEET 2.

Fig. 3.




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Patented Jan. 9, 1923. 1,441,730

# UNITED STATES PATENT OFFICE.

HENRY H. MARSHALL, OF WEST HARTFORD, CONNECTICUT, ASSIGNOR TO THE AUTOMATIC REFRIGERATING COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF NEW JERSEY.

## HAND PUMP.

Application filed September 16, 1921. Serial No. 501,012.

*To all whom it may concern:*

Be it known that I, HENRY H. MARSHALL, a citizen of the United States, residing at West Hartford, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Hand Pumps, of which the following is a full and clear specification.

This invention relates to hand pumps and has for its object to provide means of improved construction for mounting a hand pump on some heavier or larger structure while at the same time rendering it readily adaptable to be connected up in the manner desired. Other and more specific objects of invention will appear in the specification and be pointed out in the appended claims, reference being had to the accompanying drawings which exemplify my invention in a preferred embodiment, and in which—

Figure 1 is a side elevation of a hand pump embodying the principles of my invention, parts being broken away and parts shown in section,

Figure 2 is an end elevation of the same looking from the right of Figure 1, and

Figure 3 is a vertical section of the same, showing the parts in different positions, parts being shown in side elevation.

According to the embodiment of my invention shown on the drawings, the pump cylinder 1 is provided exteriorly with a cylindrical bearing surface to adapt it to be adjusted angularly and axially within a clamping strap 2 which is provided on its inner wall with a cylindrical bearing surface. As shown in Figure 2, the strap 2 extends in a part circle from the base 3 of the support and is provided with a deflected end 4 which is spaced from the base 3. A bolt 5 extends thru the end 4 of said strap and said base 3 which is provided with a recess 6 to accommodate the head 7 of the bolt 5. Said bolt 5 is also provided with a nut 8 by which the strap 2 may be drawn into clamping engagement with the cylinder 1. By loosening the nut 8, the cylinder 1 may be readily adjusted angularly and axially to permit it to be properly located with respect to its connections and the contiguous portions of the structure upon which it is mounted. The base 3 is provided with bearing pads 9, 9, which determine a contacting surface inclined to the axis of bolt 5, bolts 10, 10, which may be employed to secure the support to some other structure, being arranged normal to said contacting surface. As shown in Figure 3, a gland nut 11 is threaded into the outer recessed end of cylinder 1 for retaining the packing 12 around a piston 13 which reciprocates in the cylinder 1. The outer end of the piston 13 is slotted as shown in Figure 2 for the reception of the flattened shank 14 of a handle 15, a pin 16 being passed thru the slotted end of piston 13 and shank 14 for movably connecting these parts together. The shank 14 is pivotally connected by a pin 17 to one end of a link 18, the other end of said link being pivotally mounted on a pin 19 which is carried by a slotted lug 20 which constitutes an integral part of the cylinder 1. Said cylinder 1 is provided with a closed end wall 21 and with bosses 22, 23, diametrically opposite to each other and having a common axis of symmetry. Threaded into the boss 22, is a plug 24 to which, in the present embodiment of my invention, is connected an oil supply pipe 25 leading to an inlet port 26 controlled by a ball valve 27 arranged in valve chamber 28. The pump chamber 29 is connected to the inlet valve chamber 28 by means of ports 30, 31 and to a discharge valve chamber 32 by means of a port opening 33 controlled by a ball valve 34. A discharge outlet plug 35 which is threaded into the boss 23, is connected to a pipe 36 leading therefrom. Simple and efficient means for limiting the throw of the piston 13, may be provided by a slotted link 37 which has one end pivoted at 16 to the shank 14 of handle 15 and at the other end is provided with a longitudinal slot 18 within which slides a pin 39 mounted in the link 18. The function of this pin and slot connection is clearly shown in Figures 1 and 3 which illustrate the inner and outer limits respectively of the piston movements. By an inspection of Figure 2 it will be seen that the link 18 extends thru the gap which exists between the end 4 of strap 2 and the base 3. The utility of this construction has been described above.

I claim:—

1. A hand pump comprising in combination, a cylinder, a piston reciprocable in said cylinder, a handle mounted on said cylinder for operating said piston, and a

supporting member, said cylinder, piston and handle being adjustable as a unit both longitudinallly and rotatably with respect to the axis of said cylinder, and said supporting member having clamping means for holding said cylinder, piston and handle in adjusted position.

2. A hand pump comprising in combination, a cylinder, a piston reciprocable in said cylinder, a handle mounted on said cylinder through a link connection for operating said piston, and a supporting member, said cylinder, piston and handle being adjustable as a unit both longitudinally and rotatably with respect to the axis of said cylinder, and said supporting member having clamping means for holding said cylinder, piston and handle in adjusted position.

3. A hand pump comprising in combination, a cylinder rotatably and axially adjustable, a supporting member having clamping means for holding said cylinder in adjusted position, a piston reciprocable in said cylinder, an operating handle pivotally mounted, at one point, on said piston and fulcrumed at another point on a link, said link being pivotally mounted on said cylinder, and a second link connecting said handle and said first link at intermediate points, said second link having a slot, at least at one of its points of connection, for limiting the motion of said piston.

HENRY H. MARSHALL.