A. A. FICENER.

PUMP.

APPLICATION FILED MAY 3, 1909.

944,425.

Patented Dec. 28, 1909.

3 SHEETS—SHEET 1.

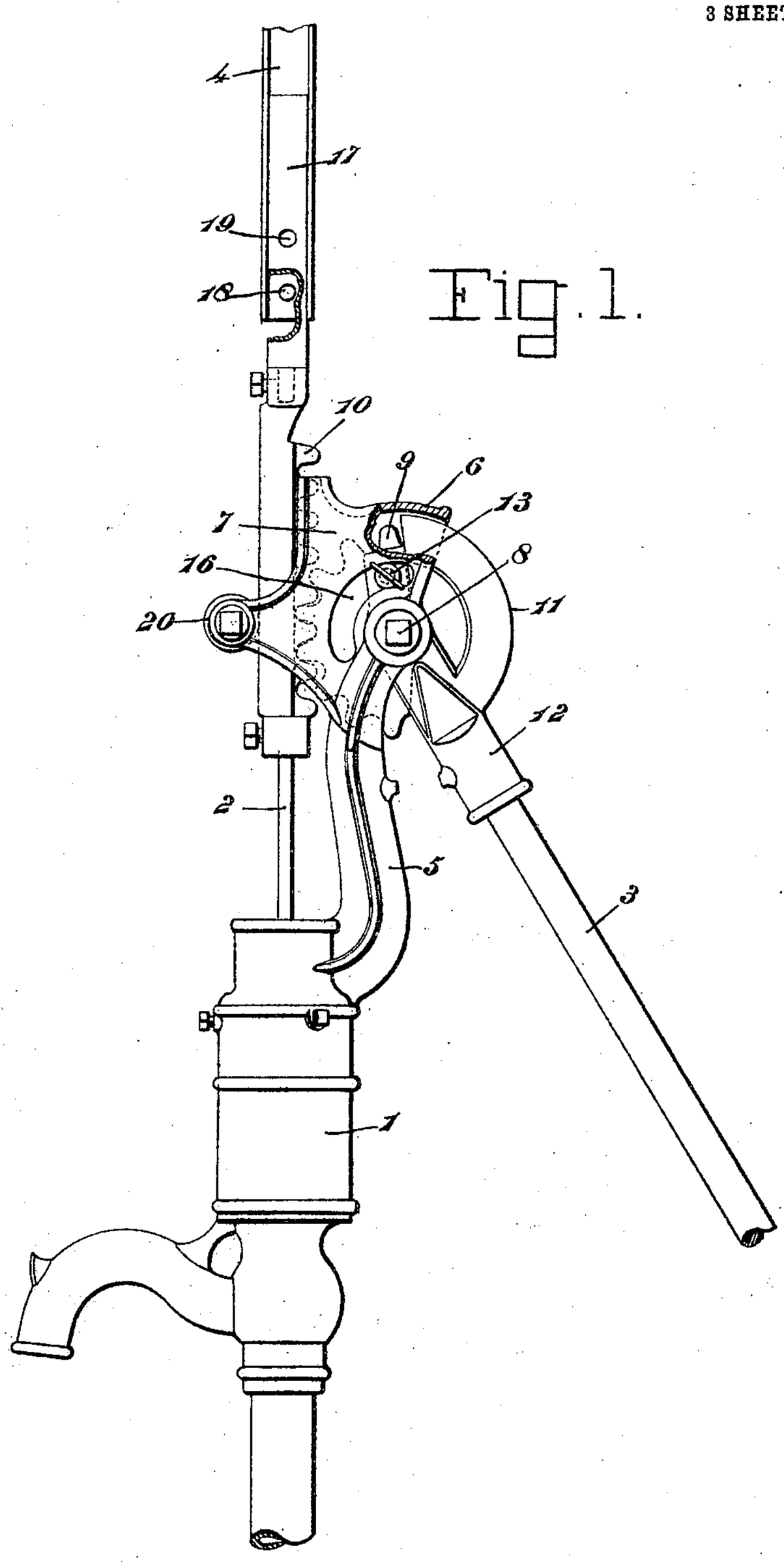

Fig. 1.

WITNESSES

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3 SHEETS—SHEET 2.

Fig. 2.

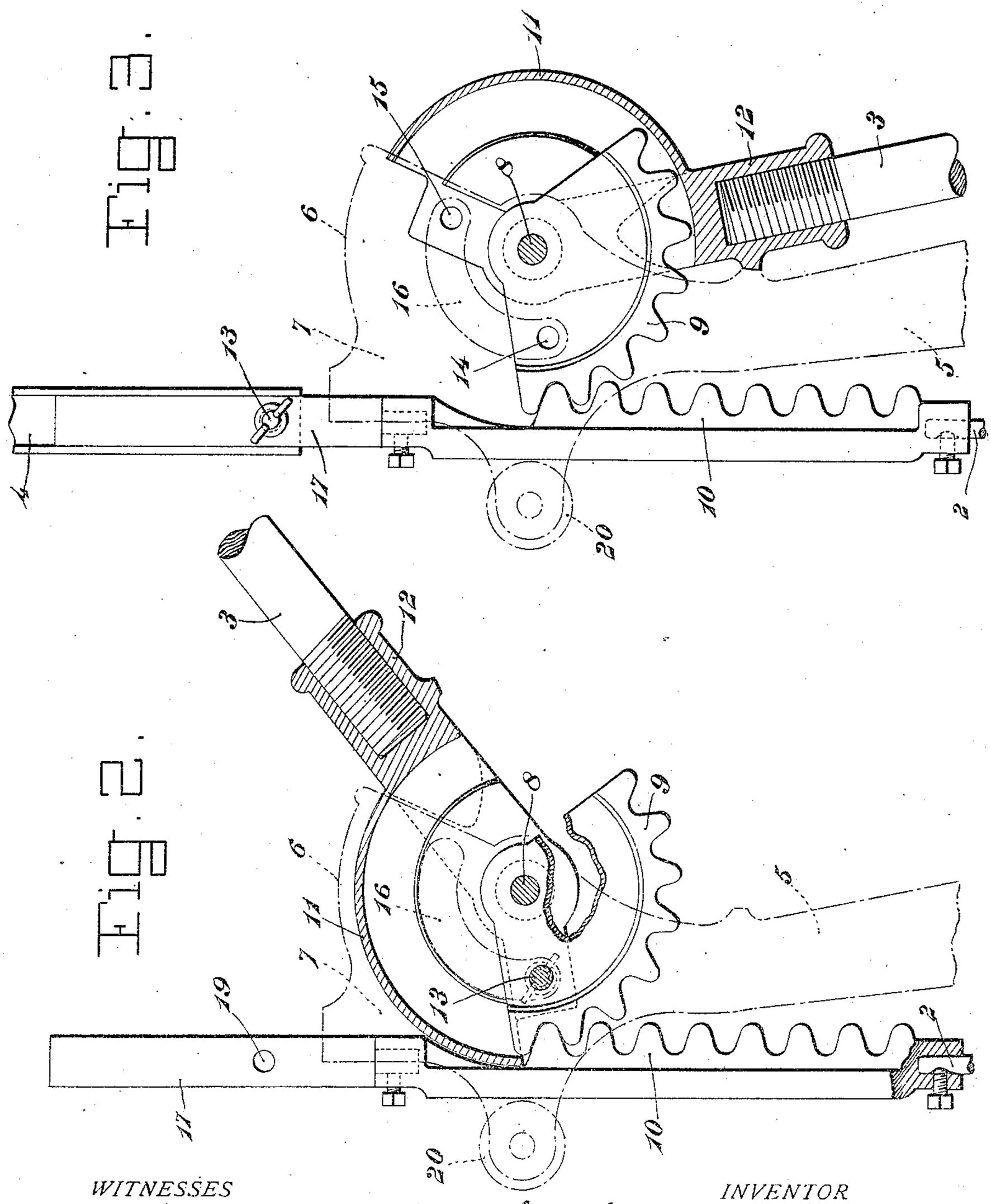

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Fig. 5.

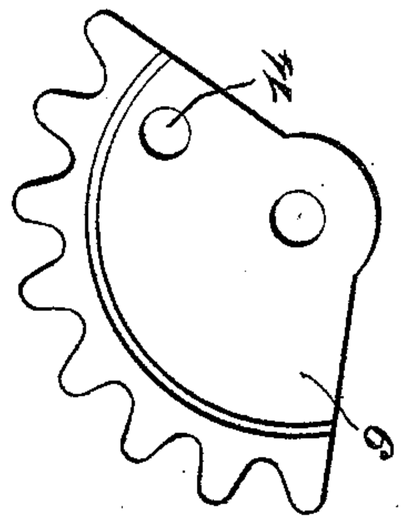


Fig. 3.

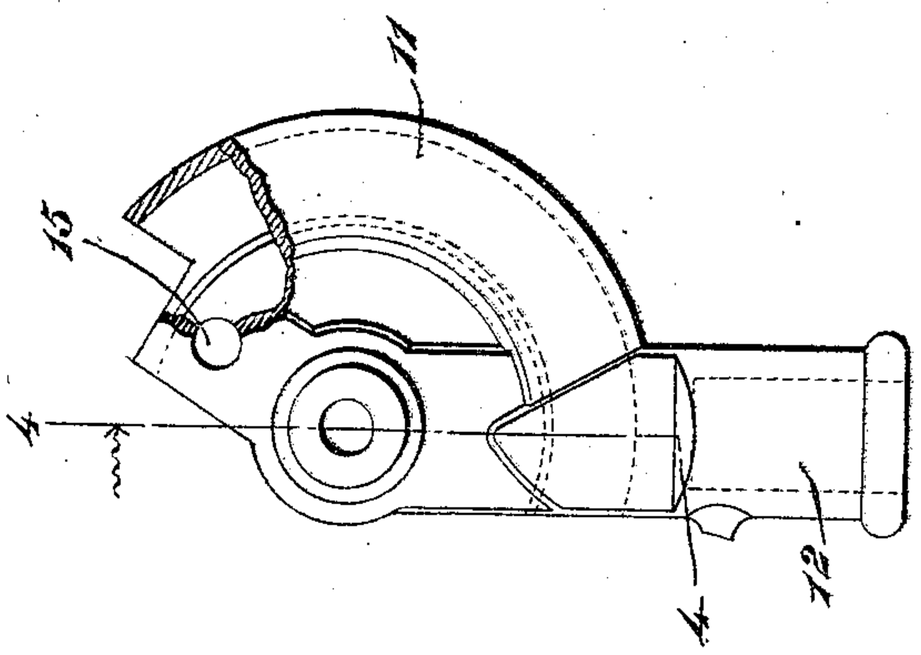
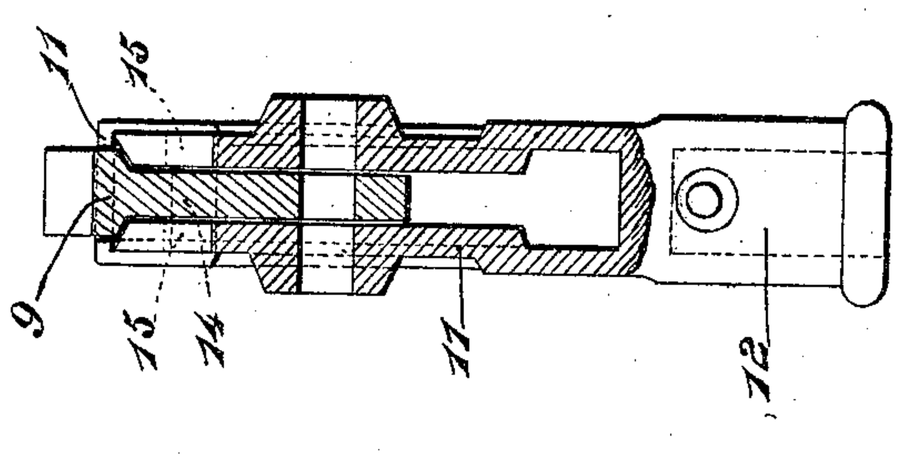


Fig. 4.



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UNITED STATES PATENT OFFICE.

ANTHONY A. FICENER, OF MANSFIELD, OHIO, ASSIGNOR TO BARNES MANUFACTURING COMPANY, OF MANSFIELD, OHIO, A CORPORATION OF OHIO.

PUMP.

944,425. Specification of Letters Patent. **Patented Dec. 28, 1909.**

Application filed May 3, 1909. Serial No. 493,499.

To all whom it may concern:

Be it known that I, ANTHONY A. FICENER, a citizen of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented 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.

The object of this invention is to provide improved means for reciprocating the piston-rod of a pump either by hand or by motive power, as for example by a windmill.

The invention will be first fully described with reference to the accompanying drawings, which form a part of this specification, and then more particularly pointed out in the appended claims.

In said drawings, Figure 1 is a side elevation of a force-pump having actuating means embodying my invention. In this view the mechanism is shown arranged for working the piston-rod by the pump-handle. Fig. 2 is an enlarged sectional elevation of the actuating mechanism connected for working the pump by the handle, the frame or casing of said mechanism being indicated by dotted lines. Fig. 3 is a similar view of said mechanism with the pump-handle disconnected and the connecting-rod of a windmill attached to the piston-rod of the pump. Fig. 4 is a cross-section on line 4—4 of Fig. 5, looking in the direction of the arrow. Fig. 5 is a side view of the toothed-segment-case which is provided with the handle-socket and in practice constitutes a part of the handle or lever. Fig. 6 is a side view of the toothed-segment.

1 denotes the pump-stock or casing; 2 the piston-rod; 3 the pump-handle; and 4 the connecting-rod of a windmill.

From the pump-stock 1, there extends upwardly an arm or standard 5 which carries the bearing or fulcrum for the pump-handle. Said arm is branched or bifurcated at its upper end and formed with a casing or housing 6 having flat vertical sides 7. A pivot-bolt 8 extends through the upper branches of the arm 5 for connecting the pump handle thereto.

Within the casing 6 is a toothed-segment 9 which meshes with a rack 10 on or attached to the piston-rod; and also a segmental-case 11 for said toothed-segment. Said segment-case 11 forms in effect a part of the pump-handle or lever 3, having a socket 12 therefor. The construction is more clearly shown in Figs. 2 to 5. The toothed-segment 9 and segment-base 11 are fulcrumed upon the arm 5, within the casing 6, by means of the pivot-bolt 8 aforesaid; and they are adapted to be connected by means of a pin 13 inserted through holes 14 in the toothed-segment and segment-case respectively, said pin working in a segmental or arcuate slot 16 in one of the side plates 7 (shown by dotted lines in Figs. 2 and 3). When thus connected, the relative position of the toothed-segment and segment-case is as shown in Fig. 2, the teeth of the segment being out of the segment-case and the latter being behind the segment. Movement of the pump-handle will thus oscillate the toothed-segment which is in mesh with and reciprocates the rack 10 carried by the piston-rod, the latter being thus operated by hand.

When it is desired to work the pump by the windmill, the connecting-rod 4 of the windmill may be connected to the pump-rod 2, or rather to an extension of or a bar 17 attached to the upper end of the rack 10, either by means of a separate pin or by means of the pin 13, after the latter has been withdrawn from its holes in the toothed-segment and segment-case. The connecting-rod 4 and extension-piece 17 are provided with holes 18 and 19 adapted to be brought into registration for this purpose. When the connecting-rod of the windmill has thus been attached to the pump-rod, and the pump-handle has been disconnected by withdrawing the pin 13, the pump-handle and segment-case 11 will drop out of the way, as shown in Fig. 3, leaving the toothed-segment 9 free for oscillation as the pump-rod is reciprocated by the motive power. As the piston-rod works up and down, the toothed-segment can oscillate freely in its segment-case 11, the latter affording a closure at the front of the housing or casing 6.

It will be seen that the toothed-segment 9 and its segment-case 11 are co-fulcrumed, but are independent of each other, unless they be connected by the pin 13, and it is a very simple matter to remove the pin and insert it through the holes 18 and 19 for connecting the pump-rod to the windmill, or to

remove it from the latter and insert it through the holes 14 and 15 for connecting the pump-rod to the pump-handle, accordingly as it may be desired to work the pump by hand or by motive power.

The side plates 7 of the casing 16 have portions projecting beyond the back side of the rack to support a roller 20, which affords a roller-bearing for the back side of the rack and is intended to reduce friction.

Where the pump is installed for hand use only, the upper attachment 17 on the rack may be omitted, and when the windmill is subsequently installed, said attachment may be supplied; or, if preferred, the rack may be formed with an integral upward extension for windmill service. The attachment 17 is shown connected to the rack by a set-screw, the rack being similarly connected to the piston-rod.

I reserve the right to such modifications in details of construction and arrangement as may be made within the scope of my invention, as set forth in the following claims.

What I claim as my invention and desire to secure by Letters Patent of the United States is:

1. In a pump, the combination of the piston-rod, an oscillatory member operatively connected therewith, a casing for said oscillatory member adapted for attachment of a handle thereto, and means for detachably connecting said oscillatory member and casing.

2. In a pump, the combination of the piston-rod having a rack, an oscillatory toothed segment in mesh with the rack, a pivoted segment-case adapted for attachment of a pump handle thereto, and means for detachably connecting said segment and segment-case.

3. In a pump, the combination of a reciprocatory rack connected with the pump-rod, a toothed segment engaging the rack, a segment-case rigid with the pump-handle, and means for detachably-connecting said segment-case and segment, the said segment-case when disconnected adapted to drop back and allow oscillation of the segment therein when the pump-rod is reciprocated independently of the handle.

4. In a pump, the combination of a reciprocatory rack connected with the piston-rod, of a co-fulcrumed toothed segment and segment-case, the former in engagement with the rack and the latter operable by the pump-handle, and means for detachably connecting said segment-case with said segment in position to enable said segment to operate said rack.

5. In a pump, the combination with the pump-stock and piston-rod, of a rack connected with the piston-rod, a toothed segment engaging said rack, a segmental segment-case rigid with the pump-handle, and an arm on the pump-stock on which said segment and segment-case are fulcrumed with a common pivot-bolt, said arm provided with a housing for said segment and segment-case, said housing having a lateral slot, and a removable coupling-pin working in said slot and engaging registering holes in said segment and segment-case and thereby connecting them in position for operating the rack by said segment.

6. In a pump, the combination of a reciprocatory piston-rod provided with a rack, a toothed segment in engagement with the rack, a handle-socket having a segment-case, the toothed segment being positioned within the case, an extension from the pump-stock, a pin supported by said extension and forming a pivot upon which the handle-socket and toothed segment are independently pivoted, the extension from the pump casing having a slot formation concentric with said common fulcrum, a removable pin adapted to be inserted in openings in the handle-socket and toothed segment through said slot formation, and motor means, the piston-rod being also adapted, connection to said motor-means.

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

ANTHONY A. FICENER.

Witnesses:

J. C. CUSTER,

J. A. PALM.