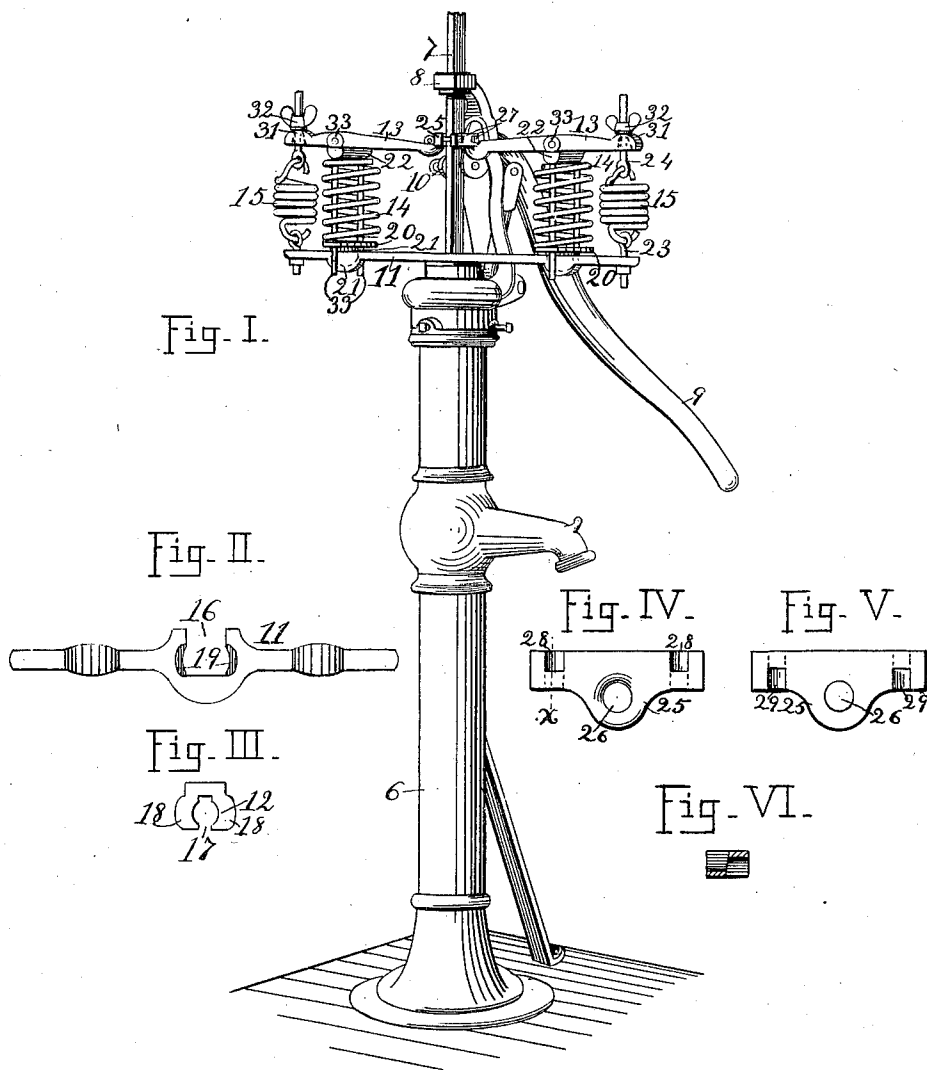


J. O. BANE.
 COUNTERACTING DEVICE FOR PUMPS.
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1,029,580.

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COUNTERACTING DEVICE FOR PUMPS.

1,029,580.

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To all whom it may concern:

Be it known that I, JAMES O. BANE, a citizen of the United States, residing at Waseca, in the county of Waseca and State of Minnesota, have invented certain new and useful Improvements in Counteracting Devices for Pumps, of which the following is a specification.

This invention relates to means for counteracting the weight of the piston, its rods and the load of water in pumping.

It is generally known that pump pistons are seldom, if ever, so perfectly made as to drive all the air from under them at every stroke, and that a rapidly reciprocating piston reverses its movement so suddenly that the air under the piston is stretched nearly to a vacuum before the water follows, thus failing to deliver a full pump barrel at each stroke. And when the piston stops at the top of its stroke the water rushes up into the vacuum with a thump that is injurious to all connected parts.

The object of this invention is to render the starting and stopping of the piston elastic, to store up force in the down stroke that shall aid in the up stroke of lifting the water, and to so shape the connections that they may be economically made and be adapted for easy connection to the various kinds of pumps in use.

To this end my invention consists in the construction and combination of parts forming a counteracting device for pumps, hereinafter more fully described and particularly stated in the claims, reference being had to the accompanying drawings, in which:

Figure I is a perspective view of a hand pump with a counteracting device according to my invention attached. Fig. II is an under side view of the base beam. Fig. III is an under side view of the base locking piece. Fig. IV is an under side view of a clamping jaw, and Fig. V is a top view of the same. Fig. VI shows a transverse vertical section at line *a*, Fig. IV.

Numeral 6 represents the barrel of a pump, 7 the piston rod, 8 a guide for the rod, 9 the pump lever connected at 10 with the piston rod.

My counteracting device comprises a base beam 11, a locking piece 12, two spring levers 13, two compression springs 14, two weight adjusting springs 15 and their accessories. The base beam has an opening 16

from one side to pass onto the rod 7. The locking piece 12 has an opening 17 also at one side, which opening is shaped to permit free passage through it of a piston rod of either round or flat form. This locking piece is provided with side projecting ears 18 which fit up into recesses 19 in the base beam, and the piece 12 resting upon the pump body is forced firmly into the said recesses 19, thereby locking the base beam in position. Base plates 20 are provided each with a depending boss 21, having a curved base to rock in a recess in the base beam to accommodate the inclination of the spring 14 which stands on it in action. Each lever 13 is provided with side projections 22 extending across the top of a spring 14 to rock thereon. The springs 15 are hung by screw eyes 23 and 24, respectively, to the beam 11 and the levers 13, whereby the tension of the springs may be adjusted.

The levers 13 are to be adjustably connected with the piston rod of the pump either above or below the lever connection 10, as may be most convenient, by means of clamping jaws 25 having holes 26 to receive curved up ends of the said levers, and bolts 27 which bind the jaws upon the piston rod. It is desirable that these jaws be made of very hard material, harder than can be drilled. I, therefore, give the patterns a peculiar form so that the holes may be made by casting in common two part flasks as follows. The vertical holes 26 are made through the pattern and with an open rounding flare on the under side. The horizontal holes for the bolts 27 are made by leaving the pattern open into the hole at one end 28 from the top, and at the other end 29 from the bottom, the plane of their juncture being at a little slant to facilitate drawing the sand out. The holes in the levers 13 for the screws 24 are flaring longitudinally of the levers, and a boss 31 on top of each lever is curved to form a rocking base for the binding nuts 32. Rods 33 loosely fitted in the base plates 20 and the side projections 22 pass down through the springs 14 to keep them in place. In order to adapt these counteracting springs to pumps of different lengths of stroke and yet maintain the desired amount of tension, I associate with each spring 14 and lever 13 a fulcrum made adjustable by means of the screws 23 and 24, and elastic by means of the spring 15. By

this means both hand and power pumps, through a great range of variety, may be enabled to store up the usual waste in the down stroke and use it in the working up stroke, thus equalizing the action and economizing power.

I claim:

1. A base beam; a rod mounted to reciprocate across the line of the beam; levers adapted to be adjustably connected with the rod, and two springs connecting each lever with the base beam, one of the two springs being adapted to act by compression and the other by extension.

2. A base beam; a rod mounted to reciprocate across the line of the beam; levers adapted to be adjustably connected with the rod; two springs connecting each lever with the base beam, one of the springs being

adapted to act by compression and the other by extension, and one of the springs provided with means for tensional adjustment.

3. A reciprocating rod; levers, and jaws for connecting them with the rod; and counterbalancing springs; the jaws having each a hole midway to receive the end of the lever, and having bolt holes transverse to the line of the rod, with an opening to one face part way across and an opening to the other face the rest of the way across in the direction of the said bolt holes.

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

JAMES O. BANE.

Witnesses:

J. M. BYRON,
JOHN MOONAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."