No. 646,380. Patented Mar. 27, 1900.

# J. O. BANE.

## SPRING ATTACHMENT FOR PUMP RODS.

(Application filed Dec. 27, 1899.)

(No Model.)

Fig. I.

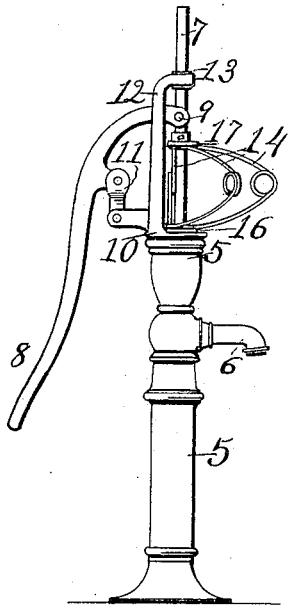



Fig. II.

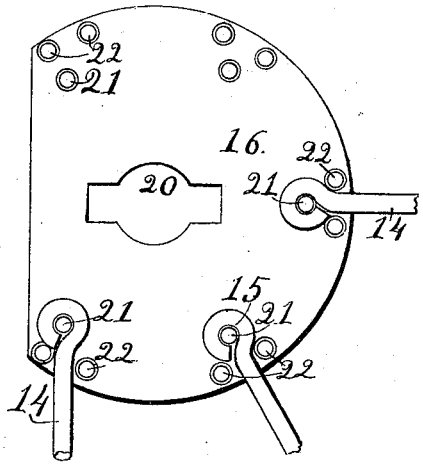
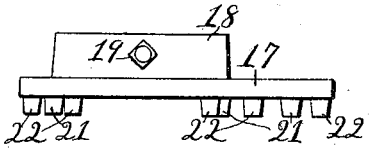



Fig. III.




Witnesses,
C. S. Stevens
C. W. Stevens.

Inventor.
James O. Bane.
by W. C. Stevens. Atty.

# UNITED STATES PATENT OFFICE.

JAMES O. BANE, OF WASECA, MINNESOTA.

## SPRING ATTACHMENT FOR PUMP-RODS.

SPECIFICATION forming part of Letters Patent No. 646,380, dated March 27, 1900.

Application filed December 27, 1899. Serial No. 741,732. (No model.)

*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 a new and useful Improvement in Spring Attachments for Pump-Rods; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to vertically-reciprocating piston-pumps; and its object is to equalize the resistance of the up and down strokes and to lessen the labor of pumping.

To this end my invention consists in certain details of construction whereby balancing-springs for the pump rod and piston may be economically attached to pumps of different makes already in service, as well as to new pumps made for this purpose, as will be more fully hereinafter described, and particularly pointed out in the claim, reference being had to the accompanying drawings, in which—

Figure I represents in side elevation a pump constructed according to my invention. Fig. II is a top view of the base-plate, showing parts of springs in position for service. Fig. III is an edgewise view of the attaching-plate.

5 represents the body of a pump of a style that is in common use.

6 is the delivery-spout; 7, the piston-rod; 8, the handle pivoted to the rod at 9 and mounted on the cap 10 by means of a pitman 11. The cap 10 is removable from the body 5 and is provided with an upward extension 12, having a bearing 13, through which the rod 7 slides.

14 represents the balancing-springs by means of which the weight of the piston, with its rod and other movable attachments, is to be balanced in service. These springs are usually made of thick wire or rods of steel bent to form an eye 15 at each end.

16 is the base-plate, shaped as the larger segment of a circle to fit upon the top of the pump-body or the cap thereof, the cut-away side giving room for the extension 12 to rise directly from the top of the cap 10.

17 is the attaching-plate, having an upward-projecting collar 18, through which a binding-screw 19 passes to bear against the side of the rod 7 and hold the plate rigidly secured thereto. The aperture 20, which is centrally through each plate, is circular midway to fit upon a round piston-rod and is elongated to the front and rear beyond the line of the said circular opening in parallelogram form to fit piston-rods which are in flat-bar form. By this means my spring attachments are adapted to fit upon pumps of many different manufactures, the same binding-screw 19 being adapted to press the round rod home against the circular portion of the aperture or to press the flat rod against the parallelogram-shaped portion.

21 represents a stud projecting from the face of the plate to receive the eye 15 of a spring. Each plate is provided with as many studs as there are to be springs used, and the studs are located opposite to each other, so that if the upper plate were let down upon the lower plate the studs of the two plates would register together. By this means the springs are held in vertical planes when in service, and by means of other studs 22, projecting at each side of the plane of the spring, that plane may be located radial to the piston-rod or at such an angle as will carry the spring clear of the upward extension 12. As many springs may be placed between the plates 16 17 as are required. Sometimes only springs enough are used to balance the moving parts of the pump, leaving the weight of the water only to be lifted. At other times the weight of the water is also partially balanced, so that the same amount of force will be required to press the piston down as to draw it and the water up, by which means the resistance is so evened that a windmill when used as the motive power will run steadily and be operated by less wind-pressure than if the whole work had to be done in the half-revolution of the rising crank. Flat-bar springs may have an eye bored in each end to fit over the studs 21, and the studs 22 may be set far enough apart to receive the body of such a spring; but I do not use a spring of wire bent to project a toe down through a hole in the plate, because the continual up-and-down working of the spring in service would grind over the edge of the plate and wear the spring away rapidly, so that it would soon break at that point. My springs have each a good-sized base to rest on the plate, and so resting there is hardly any wear on the stud

or spring. The plate 17 may be set up or down upon the piston-rod and be secured thereto by the binding-screw 19 to assist in adapting the tension of the springs to the work.

The various details described adapt this device for use with a variety of pumps now in service and fit them to meet the varying conditions of different times and localities.

Having thus fully described my invention, what I believe to be new, and desire to secure by Letters Patent, is the following:

The combination of a pump-body; a reciprocating piston-rod; a plate to rest on top of the pump; another plate having a binding-screw to bear upon the piston-rod; and springs having eyes at both ends; the said plates having studs to enter the said eyes and studs beside the springs, substantially as described.

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

JAMES O. BANE.

Witnesses:
JOHN MOONAN,
AGNES MOONAN.