

No. 609,000.

Patented Aug. 16, 1898.

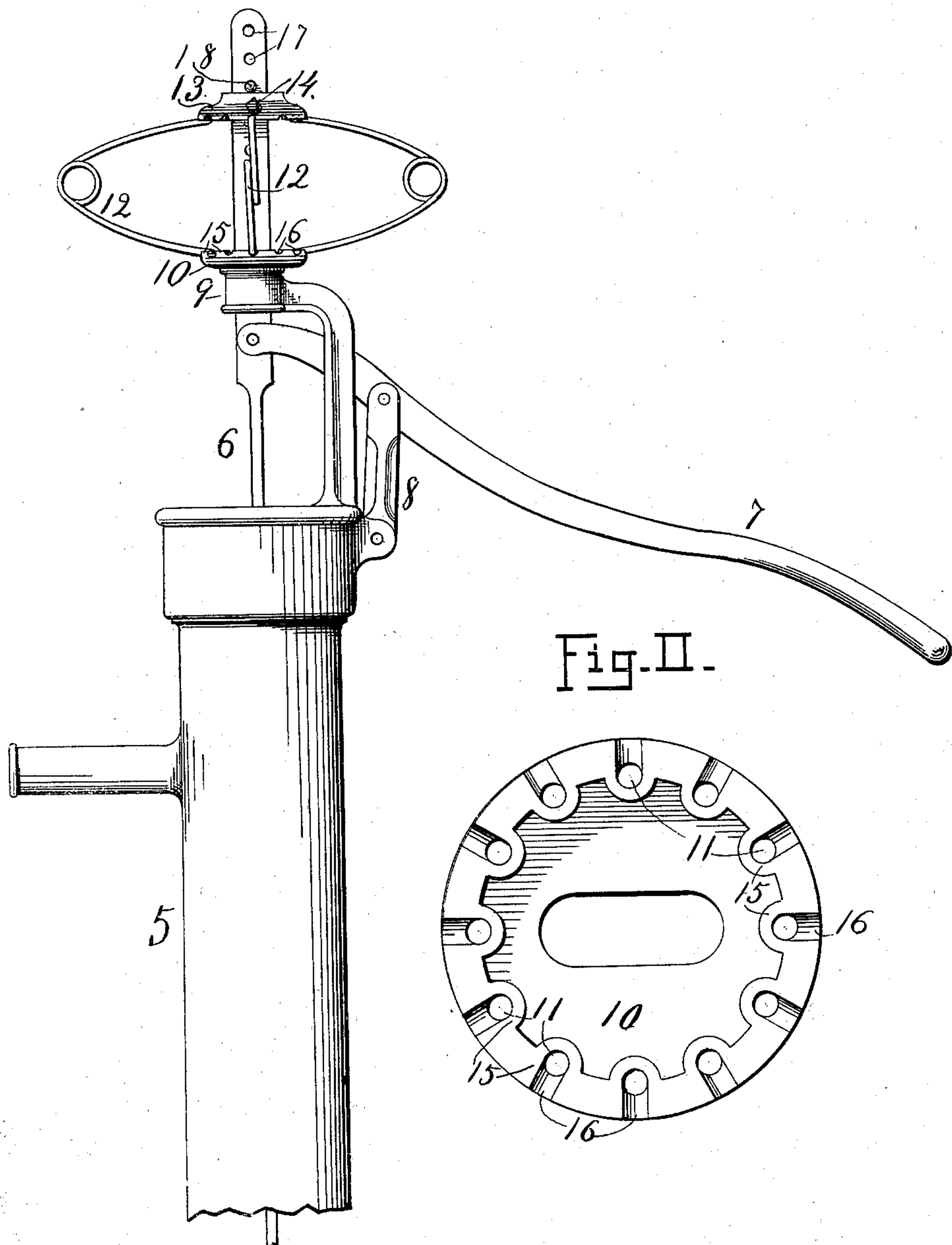
J. O. BANE.

SPRING ATTACHMENT FOR PUMPS.

(Application filed Apr. 14, 1898.)

(No Model.)

Fig. I.



WITNESSES,

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UNITED STATES PATENT OFFICE.

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SPRING ATTACHMENT FOR PUMPS.

SPECIFICATION forming part of Letters Patent No. 609,000, dated August 16, 1898.

Application filed April 14, 1898. Serial No. 677,593. (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 Pumps; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure I represents in side elevation a hand-pump provided with a spring attachment according to my invention. Fig. II is a top view of the base-plate in detail.

This invention relates to that class of pumps which are provided with vertically-reciprocating piston-rods.

In the operation of pumping from deep wells the weight of the piston-rod is a very considerable amount added to the weight of the fluid pumped, as the load to be lifted at each stroke of the pump, and in many wells the height of the fluid varies materially at different times, so that means for balancing the weight to be lifted under the varying conditions is a very important item in the construction and operation of pumps; and the object of this invention is to provide an adjustable governor for balancing the weight of the load, be the same more or less.

To this end my invention consists in the construction and combination of parts forming spring attachments for pumps, hereinafter more particularly described, and pointed out in the claims.

The numeral 5 represents the body, 6 the piston-rod, fitted to reciprocate vertically therein, and 7 the handle, of a pump, all of which may be of any common or preferred form of construction. As here shown, the handle is connected with the body by means of a pivoted pitman 8, in order that its forward end may follow the straight-line movement of the piston-rod, which in this case is provided with a bearing 9, through which as a guide it reciprocates freely. On top of this bearing 9 is a plate 10, located loosely around the piston-rod 6 and provided with a series of steps 11, each to receive the foot of a spring 12.

13 is a collar fitted to slide upon the piston-rod 6 and provided with a binding-screw 14,

whereby the collar may be fixed to the said rod at any point of its length to move therewith in service. In the under side of the collar 13 are steps to receive the upper ends of the springs 12 and registering with the steps 11, so that the springs may act in lines parallel with the movement of the piston-rod. Around each step 11 is a raised boss 15, having in it a radial notch 16 to receive the shank of a spring and maintain each spring in radial relation to the piston-rod, so that the springs may never interfere with each other and so that their action may be uniform.

17 represents a series of holes through the piston-rod, and 18 a stop-pin fitted to engage the same removably.

The action of the springs is to resist the descent of the piston-rod, and with a given number of springs in service their action may be increased or diminished by setting the collar 13 lower or higher upon the piston-rod until the load is satisfactorily balanced. The range of balancing is further increased by having more spring-steps in the base-plate 10 and collar 13 than are usually needed.

The pin-holes 17 may be so located as to serve for the average weights when great accuracy of balance is not essential; but when the latter is the case or when accuracy is required the binding-screw 14 may be used to fix the collar 13 at the exact point on the piston-rod required.

This spring attachment is applicable to every kind of vertical pumps, whether they be operated by hand or mechanical power, and the great economy of thus balancing the load to avoid the continual lifting of dead-weight is apparent.

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

1. In a spring attachment for pumps, a reciprocating piston-rod; a bearing for the rod; a plate mounted upon the said bearing around the rod and having in it a series of steps; a collar adjustably secured upon the piston-rod and having steps registering with the steps in the said plate, and springs adapted to be stepped in the said plate and collar, substantially as described.

2. In spring attachments for pumps, a re-

5 ciprocating piston-rod; a bearing for the rod;
a plate mounted upon the said bearing around
the rod and having in it a series of steps; a
collar removably secured upon the piston-rod
and having steps registering with the steps in
the said plate, and springs fitted to be stepped
in the said plate and collar; there being raised
bosses around the said steps, and a radial

notch in each boss to receive the shank of a
spring, substantially as described. 10

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

JAMES O. BANE.

Witnesses:

JOHN MOONAN,
AGNES MOONAN.