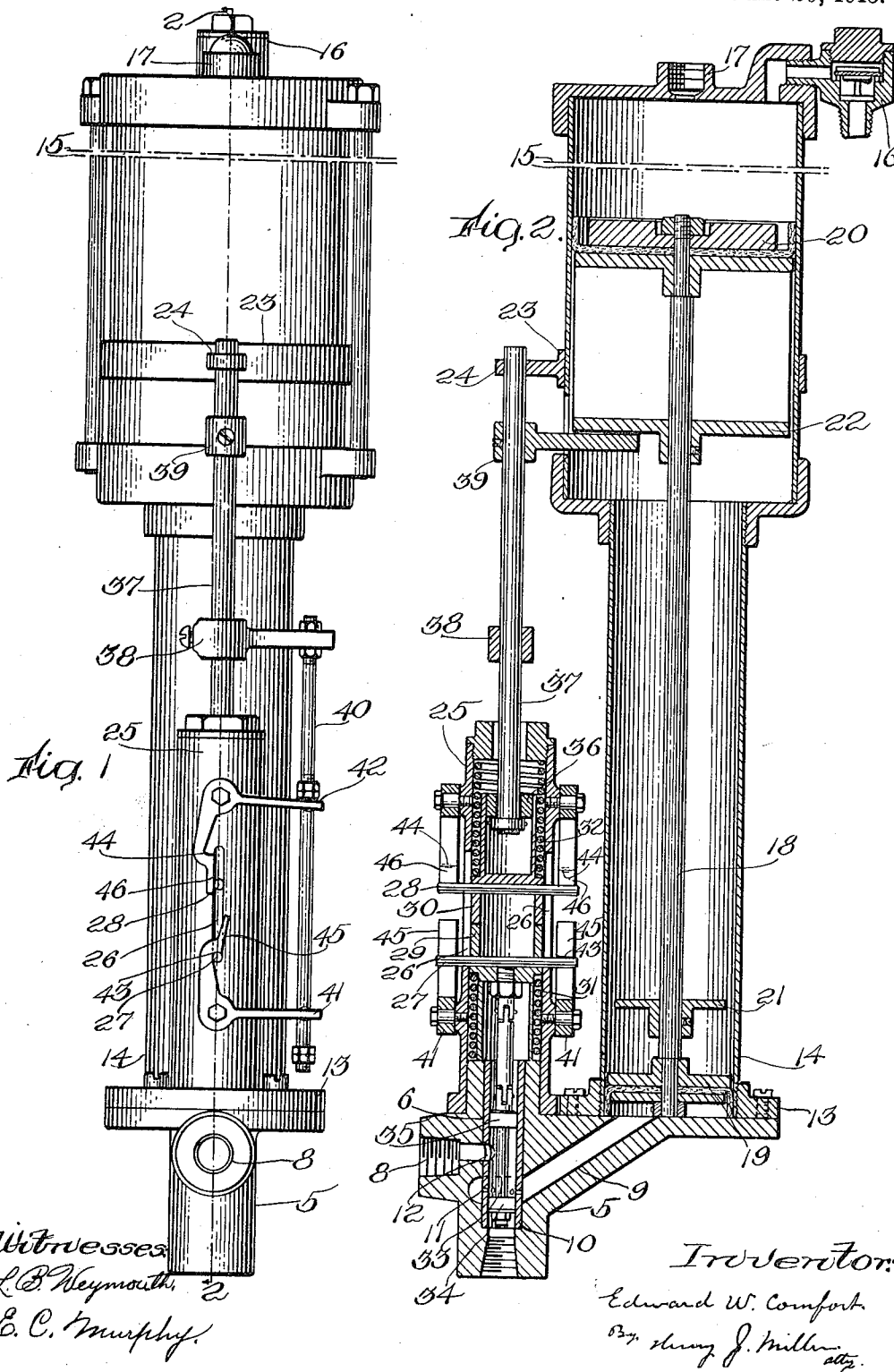


E. W. COMFORT,
COMPRESSOR PUMP.
APPLICATION FILED FEB. 15, 1913.

1,144,641.

Patented June 29, 1915.



UNITED STATES PATENT OFFICE.

EDWARD W. COMFORT, OF WINCHESTER, MASSACHUSETTS, ASSIGNOR TO AMERICAN MOISTENING COMPANY, A CORPORATION OF MAINE.

COMPRESSOR-PUMP.

1,144,641.

Specification of Letters Patent.

Patented June 29, 1915.

Application filed February 15, 1913. Serial No. 748,586.

To all whom it may concern:

Be it known that I, EDWARD W. COMFORT, of Winchester, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Compressor-Pumps, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

This invention has reference to improvements in compressor pumps and particularly to improvements in fluid operated pumps and the invention resides particularly in the means for controlling the fluid under pressure whereby the operation of said compressor is effected.

The object of the invention is automatically to control the supply of fluid under pressure through the operation of mechanism actuated by or through the operation of the pump.

Other objects of the invention will appear from the following description.

The invention consists in such novel features of construction and combination of parts as shall hereinafter be more fully described and pointed out in the claims.

Figure 1, represents a side elevation of the improved compressor pump detached from connecting pipes. Fig. 2, represents a sectional view thereof as taken on a line between points 2, 2, Fig. 1.

Similar characters of reference designate corresponding parts throughout.

As shown in the drawings, in its preferred form, the compressor and its fluid pressure controlling means are mounted on the base 5 having the bore 6 which terminates at its lower end in the outlet 7 and communicates with the inlet 8 and with the upwardly extending channel 9. Within said bore 6 is mounted the casing 10 having the perforations 11, 11, in registry with channel 9, and the opening 12 located above said perforations 11, 11 and communicating with the inlet 8.

Secured to the base 5 above the channel 9 is the collar 13 which carries the cylinder 14 provided at its upper end with the pump chamber 15 cylindrical in shape and of larger diameter than cylinder 14 and provided at its upper end with the valved inlet 16 and with the outlet 17. Within the cylinder 14 and the pump chamber 15 is freely movable a piston comprising the rod 18

having at its lower end the head 19 and at its upper end the head 20 while secured at points on said rod are the plates or members 21 and 22.

On the exterior of the pump chamber 15 is mounted the collar 23 having the guide member 24.

Mounted on a tubular extension of base 5 which forms a wall for this end of bore 6 is the actuator chamber 25 having diametrically disposed vertical slots 26, 26 forming guides for the transversely extending pins 27 and 28 which extend through and are carried by the sleeve members 29 and 30 slidably mounted within said actuator chamber 25. Sleeve member 29 is under the upward pressure of spring 31, located between said sleeve member 29 and said extension of base 5 while sleeve member 30 is under the downward pressure of spring 32 located between said sleeve member 30 and the upper end of said chamber 25 and it is to be noted that spring 32 is considerably stronger than spring 31 so that spring 31 may be compressed by the downward movement of sleeve member 29 and 30 under the action of spring 31.

Slidable in casing 10 is the rod 33 having the valve heads 34 and 35 fitting closely the bore of said casing and said rod 33 is connected by pivoted members with a fitting carried by sleeve member 29. Sleeve member 30 has the plug 36 which is engaged on rod 37 so that by the upward movement of said rod said member 30 may be moved upward and its related spring 32 thereby compressed. The upper end of said rod 37 is slidable in guide member 24 and said rod is furnished with the arms 38 and 39 of which arm 39 extends through a slot in the wall of the pump chamber 15 at a point below head 22 and toward the axis of said chamber to be engaged by the heads 21 and 22 during the respective upward and downward movements of rod 18.

Carried by arm 38 is rod 40 which is connected with two pairs of bell crank levers or dogs 41, 41 and 42, 42 which are pivotally mounted on screws secured in the wall of chamber 25 and have the hooks 43, 43 and 44 furnished with the guard fingers 45, 45 and 46, 46.

With the parts in position as shown in the drawings fluid under pressure is admitted through inlet 8 and passes through

opening 12 into casing 10 and thence through perforations 11, 11 into channel 9 from which said fluid enters cylinder 14 beneath the head 19 of rod 18 and moves upward
 5 said rod and the parts carried thereby so that air contained in the upper end of the pump chamber 15 is forced therefrom under pressure through the outlet 17. At or about the limit of upward movement of rod 18 and
 10 its members the plate 21 engages with the inner end of arm 39 and carries upward said arm 39, its rod 37, the arm 38 and rod 40, and the sleeve member 30. Spring 32 is thereby compressed and pin 28 is brought
 15 to position to be engaged by hooks 44, 44 of the bell cranks 42, 42 which, by the upward movement of rod 40 are swung into the engaging position. At the same time rod 40 operates bell cranks 41, 41 to disengage the
 20 hooks 43, 43 from pin 27 whereby spring 31 is permitted to act to move upward sleeve member 29 and the parts carried thereby so that the head 34 on rod 33 is brought to position between perforations 11, 11 and the
 25 inlet opening 12 of casing 10, thus preventing the flow of fluid from said casing 10 through perforations 11, 11 to channel 9 but opening the way for the passage of fluid from channel 9 through perforations 11, 11
 30 into casing 10 and thence through the lower open end of said casing to the outlet 7. As the fluid flows from cylinder 14 the head 19 with its rod 18 and the parts carried by said rod will move downward by gravity and
 35 member 22 will engage and move downward the arm 39 whereby rod 37 will be moved relatively to member 36 of sleeve member 30 and rod 40 will thus be moved to swing bell cranks 42, 42 in a direction to disengage
 40 hooks 44, 44 from pin 28 whereby spring 32 will be permitted to act. The result of such operation of spring 32 will be to force sleeve members 30 and 29 downward against the resistance of the weaker spring 31 until pin
 45 27 reaches a point where it is engaged by the hooks 43, 43 and the head 34 of rod 33

is below the perforations 11, 11 of casing 10 as shown in the drawings so that said perforations 11, 11 are open to permit the flow of the pressure fluid to again lift the head 19 50 and the parts attached thereto to effect another pumping stroke.

While I have herein shown a simple embodiment of my invention it is not my intention thereby to limit my invention. 55

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. The combination with a motor valve, a pair of slidable members with one of which 60 said valve is connected, springs acting on said members in opposite directions, and means for locking said members against the action of their springs, of a piston and means operated through the movement of 65 said piston for actuating one of said members against the action of its spring.

2. The combination with an element having inlets and outlets, of a motor valve slidable in said element, a chamber mounted on said element, a pair of members slidable in said chamber and having pins extending through slots in the wall of said chamber, connections between one of said members 70 and said motor valve, springs for actuating said members in opposite directions, the spring of the motor valve member being relatively the weaker, a rod slidably engaged with the member having the stronger spring, pairs of hooks pivotally mounted and adapted 80 to engage the pins of said members, means connected with said rod to move said hooks into and out of the pin engaging position, a piston slidably mounted, and cooperating means on said piston and said rod for intermittently actuating said rod in opposite 85 directions.

EDWARD W. COMFORT.

Witnesses:

HENRY J. MILLER,
 ESTHER C. MURPHY.

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