

No. 653,860.

Patented July 17, 1900.

M. BULKLEY.

PUPPET VALVE FOR AIR COMPRESSORS.

(Application filed Jan. 18, 1900.)

(No Model.)

Fig. 1.

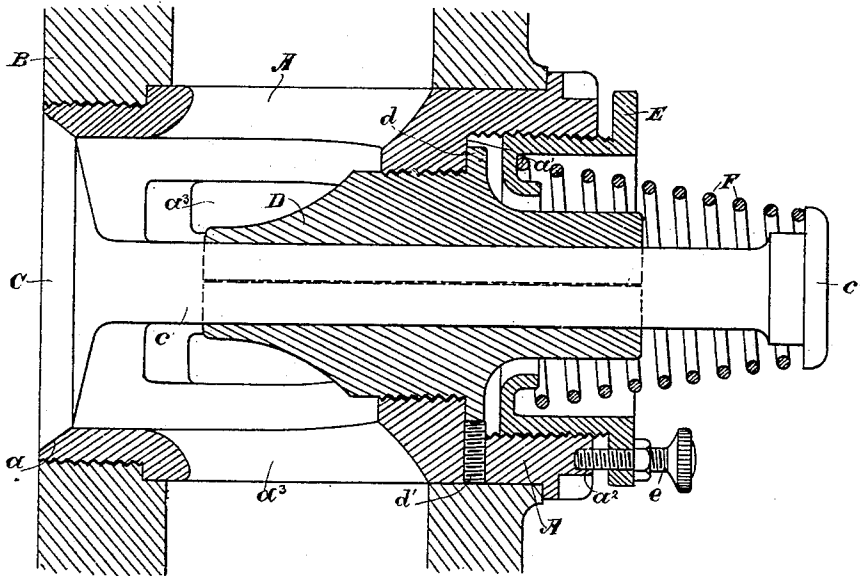


Fig. 2.

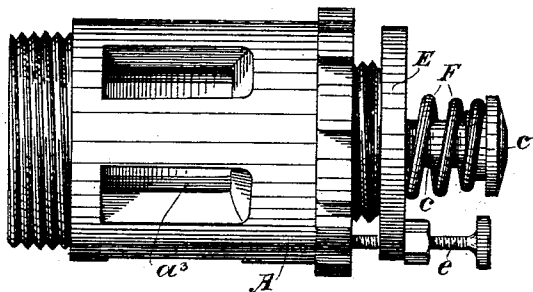
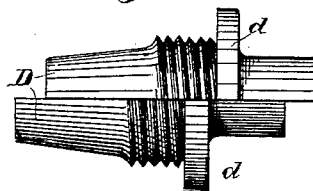


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

MILTON BULKLEY, OF OAKLAND, CALIFORNIA.

PUPPET-VALVE FOR AIR-COMPRESSORS.

SPECIFICATION forming part of Letters Patent No. 653,860, dated July 17, 1900.

Application filed January 15, 1900. Serial No. 1,449. (No model.)

To all whom it may concern:

Be it known that I, MILTON BULKLEY, a citizen of the United States, residing at Oakland, county of Alameda, State of California, have
5 invented certain new and useful Improvements in Puppet-Valves for Air-Compressors; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of puppet-valves especially adapted for the suction-valves of air-compressor cylinders. These valves are usually spring-controlled and are set in the cylinder-head in comparatively large numbers. It is very desirable to have
15 them operate or "beat" in unison; but where the controlling-springs have no means for regulating their tension this result cannot be reached, and the consequence is an irregularity in action, which causes hammering,
20 and a reduction in the volumetric efficiency of the compressor. To avoid these difficulties by providing means for regulating the valves to cause them to beat in unison is one object of my invention.

Another object is to provide means for readily and effectively seating the valve, particularly when of that form in which the valve, its stem, and stem-head are made in one piece, to avoid the trouble of the usual
30 independent or separable head shaking off the stem.

With these ends in view my invention consists in means for regulating the tension of the controlling-spring of each valve whereby
35 all the valves may be caused to beat in unison; and, further, it consists in the combination and arrangement of parts for seating the valve, which I shall hereinafter fully describe.

Referring to the accompanying drawings,
40 Figure 1 is a longitudinal section of my puppet-valve, showing it applied to the cylinder-head. Fig. 2 is a side view of my puppet-valve. Fig. 3 is a view of the divided or sectional guide.

A is the shell or holder of the valve, screwed into the head B of the cylinder and having at its inner end the seat *a* for the valve C, which, as shown in Fig. 1, has a stem *c* and a stem-head *c'*, these parts being in the best form
50 made in one piece.

Screwed into the holder A is the guide D, which, as shown in Fig. 3, is a sectional or di-

vided one to enable it to be fitted upon and removed from the valve-stem. It has a flange *d*, which by abutting against an internal
55 shoulder *a'* of the holder defines its place therein, and said guide is held in its seat by a set-screw *d'*, which passes through the holder from the outside at such a place, as is shown in Fig. 1, as to conceal and protect it from
60 loosening behind the head-casting when the holder is seated in said head-casting. Into the outer end of the holder A is screwed an adjusting-nut E, against the inner end or base of which the base of the spring F finds a seat,
65 Fig. 1, the other end of the spring being snapped under the head *c'* of the valve-stem. The nut E has a set-screw *e*, which by engaging with any of several holes, one of which is shown by *a''* in Fig. 1, is adapted to fix said
70 nut in the position to which it is adjusted. The holder A has the peripheral openings *a'''* to admit the air.

By turning nut E the tension of spring F may be varied in order to regulate its influence
75 on the valve. Where, as before stated, a large number of these valves are used in the head of an air-compressor cylinder, it is possible with my construction to so regulate their controlling-springs as to cause them all
80 to beat in unison. The springs may be readily fitted to place and removed as necessity may demand. The shell A forms a durable and stable holder easily fitted to the cylinder-head, while the divided or sectional guide
85 D is simple and efficient and permits the use of the best form of valve—to wit, one in which the valve, its stem, and its head are made in one piece.

Having thus described my invention, what
90 I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a valve, having a stem and a stem-head, a holder, adapted, at its inner end, to be screwed into the cylinder-head, and having said end formed as a seat for the valve, a nut seated in the outer end of the holder, and a spring seated between said nut and stem-head of the valve, for regulatably controlling said valve.
95 100

2. In combination with a valve, having a stem and a stem-head, a holder, adapted, at its inner end, to be screwed into the cylinder-head, and having said end formed as a

seat for the valve, a nut seated in the outer end of the holder, a spring seated between said nut and stem-head of the valve, for regulatably controlling said valve, and means on the nut, engaging the holder, for fixing the nut where adjusted.

3. In combination with a valve, having its stem and its stem-head made in one piece therewith, a holder adapted at its inner end to be screwed into the cylinder-head and having said end formed as a seat for the valve, a divided or sectional guide fitted within the holder and embracing the valve-stem, a spring in the outer end of the holder and operating against the head of the valve-stem for controlling the valve, and means for regulating the tension of the spring.

4. In combination with a valve, having its stem and its stem-head made in one piece therewith, a holder for seating and carrying the valve, a divided or sectional guide fitted within the holder, and embracing the valve-stem, a spring acting against the head of the valve-stem, to control the valve, and a nut screwed into the holder, and acting against the spring, to regulate its tension.

5. In combination with a valve, having its stem and its stem-head made in one piece therewith, a holder for seating and carrying the valve, a divided or sectional guide fitted within the holder, and embracing the valve-stem, a spring acting against the head of the valve-stem, to control the valve, a nut screwed into the holder and acting against the spring to regulate its tension and means on the nut engaging the holder, for fixing the nut where adjusted.

6. In combination with a valve, having its stem and its stem-head made in one piece therewith, a holder for seating and carrying the valve, and adapted to be fitted, at its inner end, to its bearing, a divided or sectional

guide fitted within the holder, and embracing the valve-stem, a set-screw for holding the guide in place, and seated in the holder, at a point where the bearing to which said holder is fitted will cover it, and a spring for controlling the valve.

7. In combination with a valve, having its stem and its stem-head made in one piece therewith, a holder for seating and carrying the valve, and adapted to be fitted, at its inner end, to its bearing, a divided or sectional guide fitted within the holder, and embracing the valve-stem, a set-screw for holding the guide in place, and seated in the holder, at a point where the bearing to which said holder is fitted will cover it, a spring acting against the head of the valve-stem, to control the valve, and a nut screwed into the holder, and acting against the spring, to regulate its tension.

8. In combination with a valve, having its stem and its stem-head made in one piece therewith, a holder for seating and carrying the valve, and adapted to be fitted, at its inner end, to its bearing, a divided or sectional guide fitted within the holder, and embracing the valve-stem, a set-screw for holding the guide in place, and seated in the holder, at a point where the bearing to which said holder is fitted will cover it, a spring acting against the head of the valve-stem, to control the valve, a nut screwed into the holder, and acting against the spring, to regulate its tension, and a set-screw in said nut, adapted to engage the holder, to fix the nut where adjusted.

In witness whereof I have hereunto set my hand.

MILTON BULKLEY.

Witnesses:

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