P. W. BOLTON.

PRESSURE VALVE.

APPLICATION FILED NOV. 7, 1919.

1,367,452. **Patented Feb. 1, 1921.**

FIG. 1.

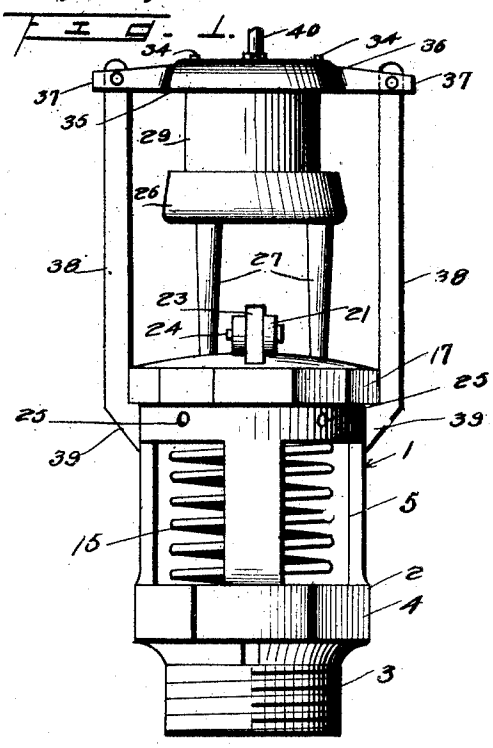


FIG. 2.

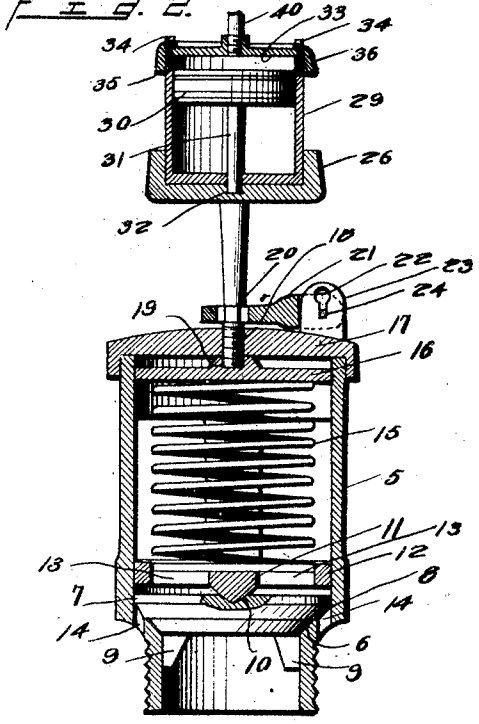


FIG. 3.

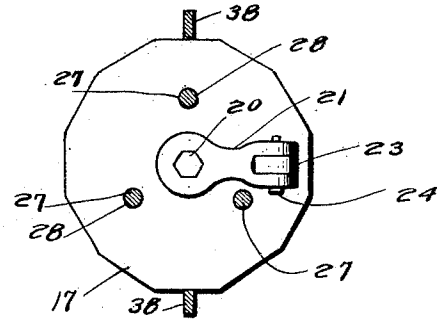


FIG. 4.

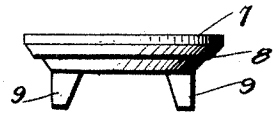


FIG. 5.

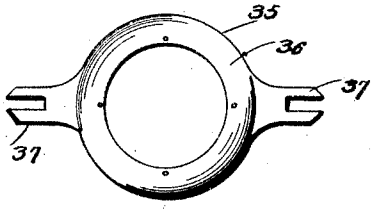
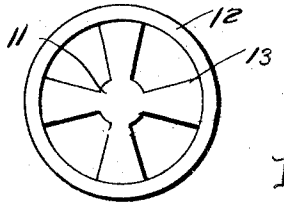


FIG. 6.



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PRESSURE-VALVE.

1,367,452. Specification of Letters Patent. Patented Feb. 1, 1921.

Application filed November 7, 1919. Serial No. 336,522.

To all whom it may concern:

Be it known that I, PHILIP W. BOLTON, a citizen of the United States, residing at Coffeyville, in the county of Montgomery and State of Kansas, have invented certain new and useful Improvements in Pressure-Valves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in pressure valves for automatically releasing the pressure within the tank or the like after reaching a predetermined amount and has for one of its objects the provision of a tension valve having means whereby the tension can be varied, so that the valve can be regulated to release different degrees or amounts of pressure.

Another object of this invention is the provision of means whereby the pressure regulating means can be locked against accidental movement during the use of the device, thereby assuring the proper operation of the valve at all times or obviating the danger of the tension means being accidentally varied so as to permit improper opening of the valve.

A further object of this invention is the provision of pneumatic means for compressing the tension means so that the pressure regulating means can be conveniently adjusted.

A still further object of this invention is the provision of a pressure valve of the above stated character, which shall be simple, durable and efficient, and which may be manufactured and sold at a comparatively low cost.

With these and other objects in view as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination, and arrangement of parts as will be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a side elevation of a pressure valve constructed in accordance with my invention,

Fig. 2 is a vertical sectional view of the same,

Fig. 3 is a plan view of a cap and locking means,

Fig. 4 is a side elevation of the valve,

Fig. 5 is a plan view of an anchoring member,

Fig. 6 is a plan view of an equalizing plate or disk.

Referring in detail to the drawing, the numeral 1 indicates as an entirety, a pressure valve consisting of a body 2 which has its lower end provided with screw threads 3 for threaded connection with a tank or the like, and at a point above the screw threads, the body 2 is provided with wrench engaging faces 4 so that said body can be conveniently threaded in place. The intermediate portion of the body 2 is provided with openings 5 to reduce the amount of material required to construct the body and also rendering the body of a light weight. The lower portion of the body 2 is inclined on the interior thereof to form a valve seat 6 adapted to be engaged by a valve 7. The valve 7 has a seat engaging portion 8 constructed of lead or other material suitable for the purpose and said valve 7 has formed thereon relatively spaced guiding elements 9, which are adapted to engage the inner wall of the lower end of the body so that the valve will evenly engage its seat during the operation of the same. The top face of the valve 7 is provided with a central depression or socket 10 for receiving a projection 11 formed on the bottom wall of an

equalizing plate 12. The equalizing plate 12 is provided with a plurality of openings 13 to permit the air pressure to readily pass through the same and also reduce the amount of material required to construct this plate or disk. The body 2 at a point above the valve seat 6 is provided with pressure escaping openings 14, so that when the valve 7 is unseated by the air pressure, the same can readily escape from the body through said openings 14. A coil spring 15 is located within the body 2 and has its lower end resting upon the equalizing plate or disk 12 and its upper end bearing against a plate or disk 16 slidably mounted within the upper end of the body. A cap 17 is threaded to the upper end of the body 2 and is adapted to limit the upward movement of the plate 16 as well as the spring 15. The cap 17 has threaded therein an adjusting bolt or screw 18 which has its lower end disposed within a depression or socket 19 formed in the top face of the plate 16. The adjusting bolt or screw 18 is provided with a head 20 that has a plurality of wrench engaging faces. A locking lever 21 has formed in one end an opening of such a shape so as to fit the wrench engaging faces of the head 20, and the other end of said locking lever is provided with an opening to receive a pin 22. Spaced ears 23 are formed on the cap 17 and each provided with key hole slots 24 to receive the end of the pin 22. The key hole slots 24 are so arranged that in order to disengage the locking lever 21 from the head of the adjusting bolt or screw 18, the same has to be bodily lifted upwardly in a horizontal plane before said lever can be swung about its pivot or the pin 22 thereby obviating any danger of the locking lever disengaging the set bolt or screw 18 during the use of the device. The upper portion of the body 2 is provided with openings 25 for the purpose of receiving suitable tools for the purpose of holding the spring 15 downwardly within the body when assembling the plate 16 and cap 17 on the body.

A cup-shaped member 26 is disposed over the cap 17 and has formed thereon downwardly depending legs 27 that extend through openings 28 in the top wall of the cap 17 so that the lower ends of said legs can engage the plate 16. A cylinder 29 is supported within the cup-shaped member 26 and has located therein a piston 30 provided with a stem 31 that extends through the lower wall of the cylinder and is received within a depression 32 formed in the bottom wall of the cup-shaped member 26. The upper end of the cylinder 29 has the usual removable head 33 secured to said cylinder by set bolts 34. An annular anchoring member 35 is provided with a concaved inner face 36 to receive the removable head 33 of the cylinder 29 and said member 35 is secured to the head by the bolt 34 passing through openings in said member 35. Oppositely disposed ears 37 are formed on the anchoring member 35 and have pivoted thereto downwardly depending rods 38 which have formed on their lower edge hooks 39 adapted to engage under the cap 17 for the purpose of holding the cup and cylinder in an assembled position over the body 2. The removable wall 33 of the cylinder 29 is provided with a nozzle 40 to which an air source may be connected for the purpose of supplying the cylinder with air to force the piston downwardly which forces the cup shaped member downwardly, and as said cup shaped member has its legs into engagement with the disk or plate 16, the same will be forced downwardly compressing the spring 15, and holding said spring in a compressed condition so that the set screw or bolt 18 can be adjusted upwardly and downwardly to regulate the tension of the spring.

When the device is applied to a tank or the like, and the pressure within the tank or the like passes beyond a given amount, the valve 7 will be unseated permitting the pressure to escape through the body or the openings 14 thereof.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in construction, combination, and arrangement of parts may be made without departing from the spirit and scope of the invention as claimed.

Having thus described my invention, what I claim is:—

1. A pressure valve comprising a body, a seat in said body, a valve in said body and engaging the seat, a spring placing the valve under tension, a disk resting on said spring, a cap secured to said body, an adjusting screw carried by said cap and engaging the disk, spaced ears formed on the cap and having key hole slots, a pin disposed in said slots, a locking lever carried by said pin and having an opening to receive the locking screw for holding the same against accidental adjustment.

2. A pressure valve comprising a body, a spring pressed valve in said body, a cap secured to said body, means adjusting the tension of said spring, and pneumatic means for compressing the spring while adjusting said adjusting means.

3. A pressure valve comprising a body, a valve in said body, a spring engaging said valve, a plate engaging said spring, a cap secured to said body and having spaced openings, adjusting means carried by said cap and engaging the plate, a cup shaped member disposed over the cap, legs carried by the cup shaped member and extending through the openings and the cap for en-

gagement with the plate, a cylinder carried by said cap, a piston in said cylinder, a stem carried by said piston and engaging the cup shaped member, an anchoring element secured to the cylinder, pivoted arms carried by the anchoring element and engaging the cap, and means whereby air pressure may be furnished to the cylinder.

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

PHILIP W. BOLTON.

Witnesses:
RAEPHS F. BROWN,
E. C. BROWN.