W. H. BEES.

RELIEF VALVE.

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1,148,568.

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Fig. 1.

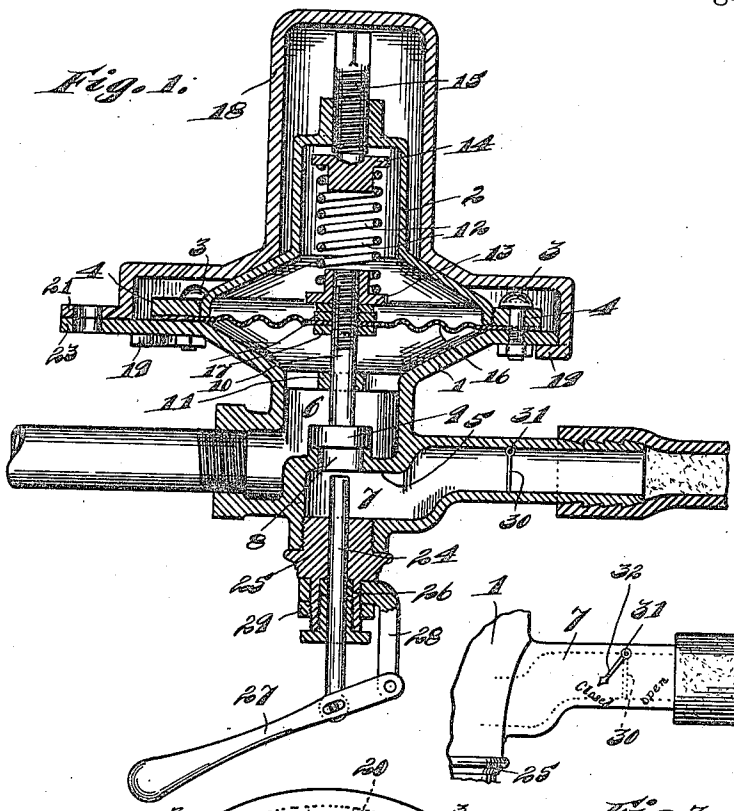
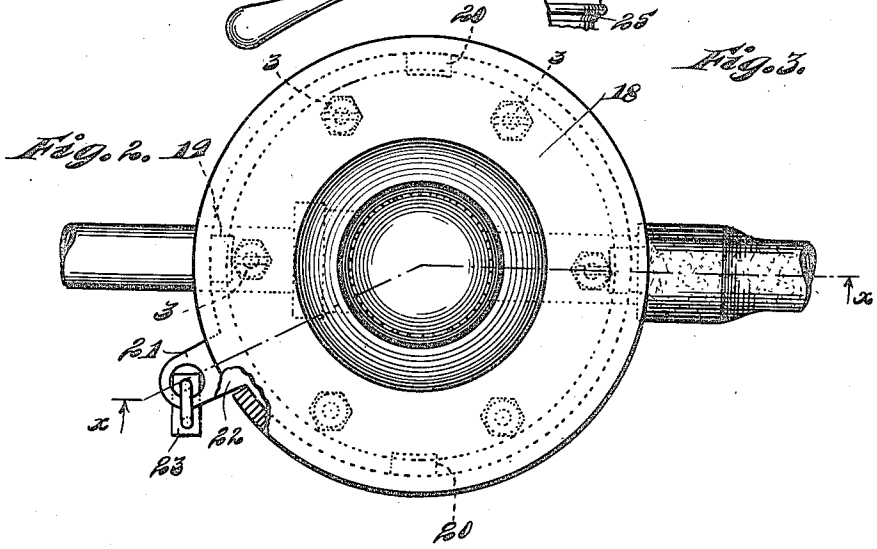


Fig. 3.

Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM H. BEES, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO ADOLPH STRAKA, OF CHICAGO, ILLINOIS.

RELIEF-VALVE.

1,148,568. Specification of Letters Patent. Patented Aug. 3, 1915.

Application filed February 25, 1913. Serial No. 750,588.

To all whom it may concern:

Be it known that I, WILLIAM H. BEES, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Relief-Valves, of which the following is a specification.

My invention relates to valves, and more specifically to relief valves designed for use especially in beer delivery apparatus employed in breweries.

The object of my invention is the production of a relief valve of the character mentioned which will be of durable and economical construction, and efficient in operation.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing forming a part of this specification, and in which,

Figure 1 is a vertical section of a valve embodying my invention, the same being taken on substantially line *x*—*x* of Fig. 2, Fig. 2 is a top plan view of the valve, partially in section, and Fig. 3 is a fragmentary detail side elevation showing the outlet nipple of the valve.

The preferred form of construction as illustrated in the drawing comprises a valve casing 1 and a cap 2 connected by bolts or other securing devices 3, said bolts passing through a ring 4 which is in threaded connection with the base of cap 2. The interior of the valve casing is divided by a partition 5 into inlet and outlet chambers 6 and 7, said chambers communicating as shown with inlet and outlet pipes. The partition 5 is provided with an opening 8 which establishes communication between the chambers 6 and 7. Arranged over the opening 8 is a valve 9 adapted when in lowered position to seat over said opening to prevent passage therethrough. The valve 9 is carried at the lower end of a stem 10 which is mounted for reciprocation in a guide 11. Coöperating with the valve 9 is a helical compression spring 12 the lower end of which engages a flanged nut 13 provided at the upper extremity of stem 10, the upper end of said spring engaging against a flanged nut 14 which is held in operative position by a screw 15 threaded into cap member 2. The arrangement is such, as will be observed, that the spring 12 will serve normally to hold the valve 9 seated or in closing position. By adjusting the screw 15 the tension of the spring 12 may be varied to exert a greater or less pressure tending to close the valve, as will be readily understood. With this arrangement then, it will be seen that in order to open the valve to permit the passage through the opening 8, it is necessary to overcome the influence of the spring 12. This influence of the spring 12 is counteracted when the device is in use by the pressure in the chamber 6 acting against the under side of a diaphragm 16 the peripheral portion of which is secured in position between the upper side of the casing 1, and the ring 4 and adjacent edge of cap 2 of the valve casing, the center of said diaphragm being connected with the upper end of the valve stem 10 by means of nuts 17. It should be noted that the internal diameter of the lower portion of the cap is substantially equal to that of the operative portion of the diaphragm. The arrangement is such as will be observed, that upon the pressure in the chamber 6 becoming greater than the force exerted by the spring 12, the diaphragm 16 will be flexed upwardly causing the valve to be elevated to open position. Thus, in using the device when the pressure at the inlet side of the valve exceeds a predetermined point or exceeds the pressure of the spring 12 upon the valve 9, the latter will be opened to relieve this pressure.

The upper end of the screw 15 projects exteriorly and is squared, as is shown, to permit the engagement thereof by a wrench for adjusting said screw to regulate the tension of the spring 12. In order to prevent tampering with the screw 15 after the screw has been adjusted, a cover 18 is provided which is adapted to fit over said end of said screw and the upper end portion of the casing part 2. Said cover is adapted to rest upon the upper side of the conical portion of the casing part 2 and extends over ring 4 and the upper edge of part 1, the lower edge of the flange portion of said cover being provided with inwardly turned fingers 19 which are adapted to engage recesses or notches 20 provided in the periphery of the upper end portion of the casing part 1, and so that after passage of the fingers 19

through said recesses and turning the cover through a partial rotation, the latter will be locked in position against removal.

In order to lock the cover against rotary movement, such as is necessary to effect disengagement thereof, the base portion of said cover and the periphery of the upper end portion of the casing 1 are provided with registerable perforated ears 21 and 22 respectively. The ears 21 and 22 are positioned for registration with each other when the fingers 19 are locked with the periphery of the upper end portion of casing part 1, a suitable lock 23 being employed for locking said ears in registration. In use, the key to the lock 23 will be in the possession of the Government inspector, and so that access to the screw 15 for adjusting the same may be had only by the inspector.

Arranged below the valve 9 is a vertically movable pin 24 mounted in a plug 25 which closes the under side of the casing part 1. A packing 26 is provided at the under side of the plug 25 for preventing leakage around said pin 24. The pin 24 is so arranged that, upon upward movement thereof, the same will engage against the under side of valve 9 to move the latter to open position, in order to permit of passage through the pipe in which the relief valve is interposed for cleansing and flushing the same when the beer delivering apparatus is not in use. Such movement of the pin 24 is effected by an oscillatory hand operable lever 27 which is fulcrumed to a member 28 the upper end of which is loosely mounted upon the lower end of the plug 25, being held in position by a retainer nut 29. The lower end of the pin 24 is in slot-and-pin connection with the lever 27 and so that upon upward oscillation of said lever, the pin 24 will be actuated to move the valve 9 to open position. Arranged in the outlet nipple leading from the chamber 7 is a blade 30 the upper end of which is loosely pivoted at 31 in said nipple. Said blade is adapted normally to assume a vertical position, the passage of liquid through said nipple causing said blade to be rocked under the influence of the flowing liquid. Operatively connected with the blade 30 is an exteriorly positioned hand or indicator 32 whereby the position of the blade 30 will be indicated, and hence the position of the valve 9, whether open or closed.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claim.

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

In a regulator valve of the class described a valve casing; a diaphragm across the upper side of said valve casing; a valve in said casing connected with said diaphragm; a ring secured to the upper side of said casing and clamping said diaphragm to said casing, said ring being threaded on its inner side; and a cap having an internal diameter substantially equal to that of the operative portion of the diaphragm and threaded in the threaded portion of said ring to cover said diaphragm; an adjusting screw threaded in said cap and connected with said diaphragm; a locking cap inclosing said cap and having a flange fitted over the upper edge of said valve casing; and fingers lockingly engaging under the latter, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. BEES.

Witnesses:
A. A. Olson,
Helen F. Lillis.