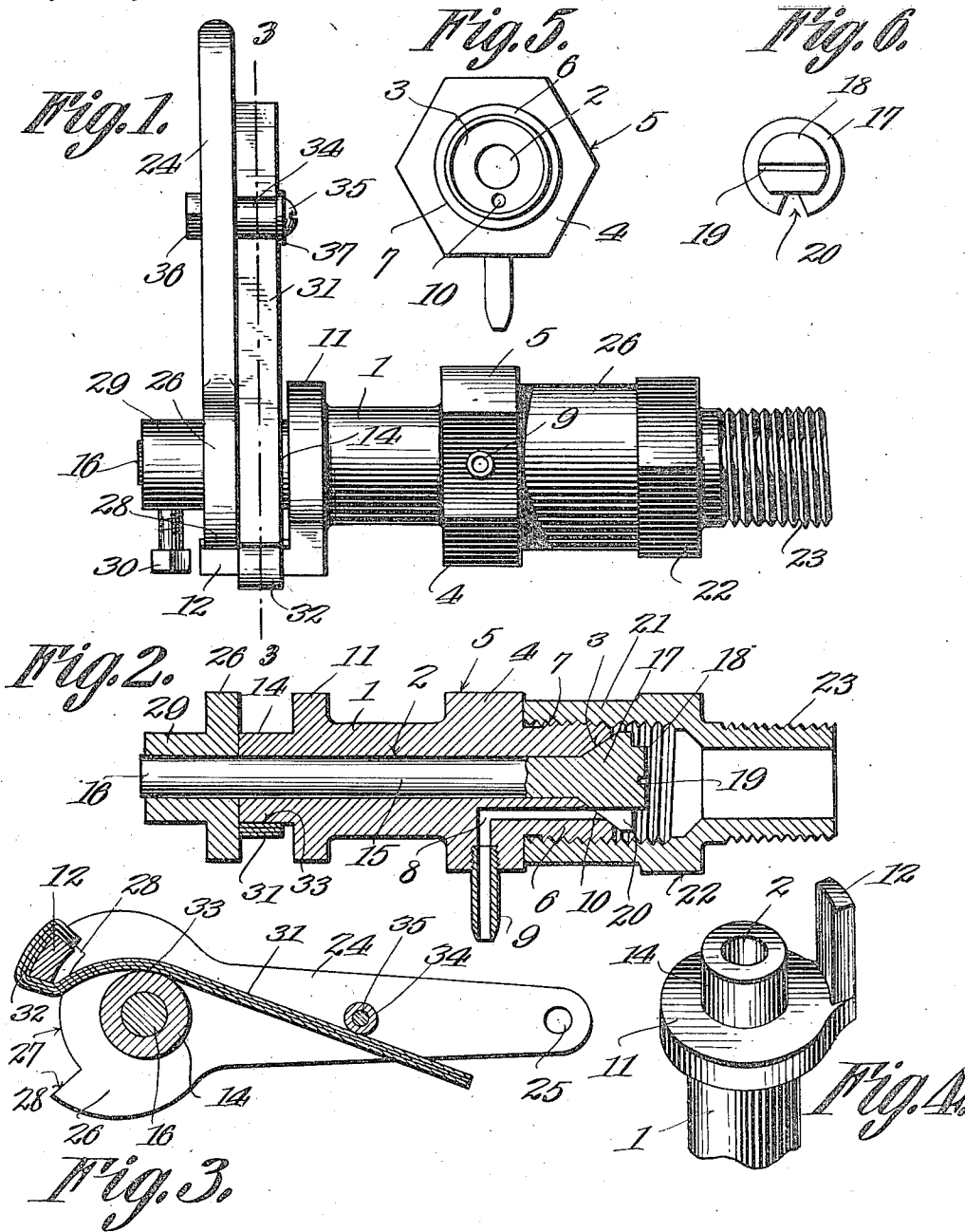


H. B. ROBINSON.
GAGE COCK.
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Patented June 3, 1913.



Witnesses
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UNITED STATES PATENT OFFICE.

HARRY B. ROBINSON, OF MUSKEGON, MICHIGAN.

GAGE-COCK.

1,063,390.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY B. ROBINSON, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented a new and useful Gage-Cock, of which the following is a specification.

One object of the present invention, is to provide novel means for resiliently actuating the valve of a device of the type hereinafter described, so that the valve will normally assume a predetermined position.

Another object of the invention is to provide a structure of this class having a novel resilient means for actuating the valve, whereby the direction of rotation of the valve may be changed at will. The invention aims further to provide a valve and a valve casing of novel form.

Another object of the invention is to improve generally and to increase the utility of, devices of that type to which the present invention appertains.

With the foregoing and other object in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings, Figure 1 shows the invention in side elevation; Fig. 2 is a longitudinal section wherein sundry parts appear in elevation; Fig. 3 is a transverse section on the line 3—3 of Fig. 1; Fig. 4 is a detail perspective showing one end of the valve casing; Fig. 5 is an elevation showing the end of the casing which is opposite to the end depicted in Fig. 4; and Fig. 6 is an end elevation of the valve.

In carrying out the invention there is provided a tubular casing 1, having a bore 2 which is flared at one end to form a valve seat 3. Adjacent one end the casing 1 is equipped with a lateral enlargement 4 having wrench faces 5, that end 6 of the casing 1 in which the flared seat 3 is located being externally threaded, if desired, as shown at 7. Located within the casing 1 is a longitudinal passage 8 which extends laterally through the enlargement 4, as clearly shown

in Fig. 2, there being a nozzle 9 inserted into the enlargement 4, the nozzle constituting a continuation of the passage 8. At its opposite end, the passage 8 opens through the flared seat 3 as shown at 10.

The casing 1 is supplied with a head 11 from the edge of which projects a finger 12, the finger being located approximately parallel to the axis of the casing. Beyond the head 11, the casing 1 terminates in an end 14 which preferably is superficially plain.

There is provided a rotary valve denoted generally by the numeral 15, the valve being mounted in the bore 2 of the casing 1. The valve 15 comprises a stem 16 at one end of which is formed a cylindro-conical end 17, the conical portion of which fits for rotation, steam-tight, within the flared seat 3 of the casing 1. The head 17 is equipped with a projecting boss 18 in which there is a kerf 19. In the periphery of the head 17 of the valve, or formed otherwise therein, is an opening 20 which, when valve stem 16 is rotated, moves into and out of communication with the passage 8. If desired, the head 17 of the valve may be housed within a coupling 21 having wrench faces 22, the coupling terminating in a stem 23 which may be threaded or fashioned in any other desired manner, depending upon the nature of the structure in which the device constituting the subject matter of this invention is to be assembled. The coupling 21 is threaded upon the portion 7 of the casing 1 to form a steam-tight joint but the coupling is loosely threaded in place, so as to turn with comparative ease, thereby preventing any distortion of the end 6 of the casing, with an attendant distortion of the flared valve seat 3. The inner end of the coupling 21 abuts against the enlargement 4 of the casing 1 and thereby a leakage is prevented.

For the actuation of the valve 16 there is provided a lever 24 which at its free end may be equipped with an opening 25 to receive a cord or the like (not shown), the cord being manipulative, as will be understood readily, to actuate the lever and to actuate the valve 16. The lever 24 terminates in an enlarged head 26 having a notch 27 in its periphery, the notch 27 defining spaced shoulders 28, between which the finger 12 is located. Connected with the head 26 of the lever, or formed in-

tegrally therewith, is a hub 29 with which the end of the valve stem 16 is received, there being a set screw 30 threaded into the hub 29 and engaging the stem 26 to prevent rotation between the lever 24 and the stem 16.

A resilient means is provided for swinging the lever 24 and for rotating the stem 16, to the end that the opening 20 in the head 17 of the valve 15 may be maintained normally out of communication with the passage 8. This resilient means takes the form of a spring 31 provided at one end with a hook 32 which is engaged around the finger 12, the spring being fulcrumed intermediate its ends, as indicated at 33, upon the end 14 of the casing 1, the spring, adjacent its free end, bearing against a roller 34 or like anti-friction element, which is journaled upon a bolt 35 carried by the lever 24, the bolt 35 being held in place by a nut 36, there being a washer 37 upon the bolt, the washer being held in place by the head of the bolt. The washer 37 overhangs one edge of the spring 31 and operates to prevent the free end of the spring from slipping off the roller 34, longitudinally of the roller. It is to be observed that the spring 31 comprises a plurality of laminae.

In practical operation the lever 24 is tilted, causing a rotation of the stem 16 and of the head 17, until one of the shoulders 28 in the lever comes into abutment with the finger 12. When one shoulder 28 and the finger 12 are in abutment, the opening 20 in the end 17 of the valve 15 will be alined with the passage 8 in the casing 1, whereupon communication will be established through the coupling 21, the opening 20, the passage 8 and the nozzle 9. During the aforesaid operation, the spring 31 will be put under tension, one end of the spring being held fixed by the enlargement between the hook 32 and the finger 12, the other end of the spring being engaged by the roller 34 which is carried by the lever 24, and the intermediate portion of the spring being flexed across the end 14 of the casing 1, as indicated at 33. When the lever 24 is released, the spring 31 will swing the lever until one of the shoulders 28 comes into abutment with the finger 12, the valve stem 16 being thereby rotated, and the spring openings 20 in the head 17 of the valve being moved out of registration with the passage 8 in the casing 1.

It is to be noted that the spring 31 comprises a plurality of laminae. Of these laminae there may be any number, the number of laminae being increased or decreased at will, to correspond with the boiler pressure, presupposing that the device is to be used as a gage cock.

Let it be supposed that during the fore-

going operation of the lever 24, the same, at its free end, has been swung downwardly and let it be supposed that it is desirable to adjust the parts, so that the lever may swing at its free end, in an upward direction, in order to aline the opening 20 with the passage 8. Under such circumstances, referring to Fig. 3, the hook 32 of the spring 31 is engaged in an opposite direction about finger 12, fulcrum point 33 of the spring is shifted to the opposite side of the end 14 of the casing, and the free end of the spring 31 is engaged with the opposite side of the roller 34. In order that the opening 20 may not stand alined with the passage 8 when the spring 31 is reversed in the manner above described, the lever 24 must be shifted upon the stem 16 of the valve, this operation taking place by loosening and resetting the screw 30. At this point it may with propriety be noted that it is within the scope of the invention to position the lever 24 in such a manner upon the stem 16 that the spring 31 will hold the opening 20 alined with the passage 8, should the exigencies of the proposed use demand such an operation.

The function of the kerf 19 in the head 17 of the valve will be obvious when it is recalled that during the adjustment of the lever 24 upon the stem 16, the stem 16 must be held against rotation, in order to secure a proper coöperation between the opening 20 and the passage 8. It is to be observed that the kerf 19 is alined with the bore of the coupling 21, and therefore, a screw driver or like tool may be inserted into the bore of the coupling 21, and be engaged in the kerf 19, to hold the stem 16 against rotation, during the adjustment of the operating member 24.

Having thus described the invention what is claimed is:—

1. In a device of the class described, a casing; a valve journaled in the casing; an operating member upon the stem and provided with spaced shoulders, the casing having a finger located between the shoulders, the casing and the valve having alinable openings, one shoulder and the finger coöperating to adjust the relative positions of the openings; and resilient means engaging the operating member and the finger to hold the other shoulder engaged with the finger.

2. In a device of the class described, a casing; a valve rotatable therein; and an operating member secured to the valve and provided with spaced shoulders, there being a finger on the casing, located between the shoulders; and resilient means connected with the finger and with the operating member for maintaining one shoulder engaged with the finger.

3. In a device of the class described, a casing having a lug; a valve journaled in the

casing; and a spring operatively connected with the valve, the spring comprising a plurality of individually removable laminae having interfitting element engaged around the lug.

4. In a device of the class described, a casing; a valve journaled therein; an operating member connected with the valve; and a spring bearing intermediate its ends upon the casing, the ends of the spring being detachably connected with the casing and with the operating member respectively, whereby the spring may be reversed and flexed across opposed portions of the casing to swing the operating member in opposite directions.

5. In a device of the class described, a casing provided with a finger; a valve journaled in the casing; an operating member connected with the valve; a projection upon the operating member; and a spring engaged by the projection and by the finger, to flex the intermediate portion of the spring against the casing between the projection and the finger.

6. In a device of the class described, a casing provided with a finger; a valve journaled in the casing; an operating member connected with the valve and provided with a projection; and a spring flexed against the casing, the extremities of the spring being engaged with the finger and with the projec-

tion, the spring comprising a plurality of laminae.

7. In a device of the class described, a casing provided with a finger; a valve journaled in the casing; an operating member secured to the valve; a projection upon the operating member; and a spring tongue having a hook at one end, engaging the finger, the tongue bearing against the projection, and the intermediate portion of the spring being disposed tangentially of the casing and being flexed across the casing, the casing constituting a support to put the spring under flexure.

8. In a device of the class described, a casing; a valve journaled for rotation therein; an operating member connected with the valve; an anti-friction element carried by the operating member; a spring connected at one end to the casing, the free end of the spring being engaged with the anti-friction element, there being a fixed support across which the spring is flexed, when the operating member is moved in one direction.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HARRY B. ROBINSON.

Witnesses:

P. C. NORTHOUSE,
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