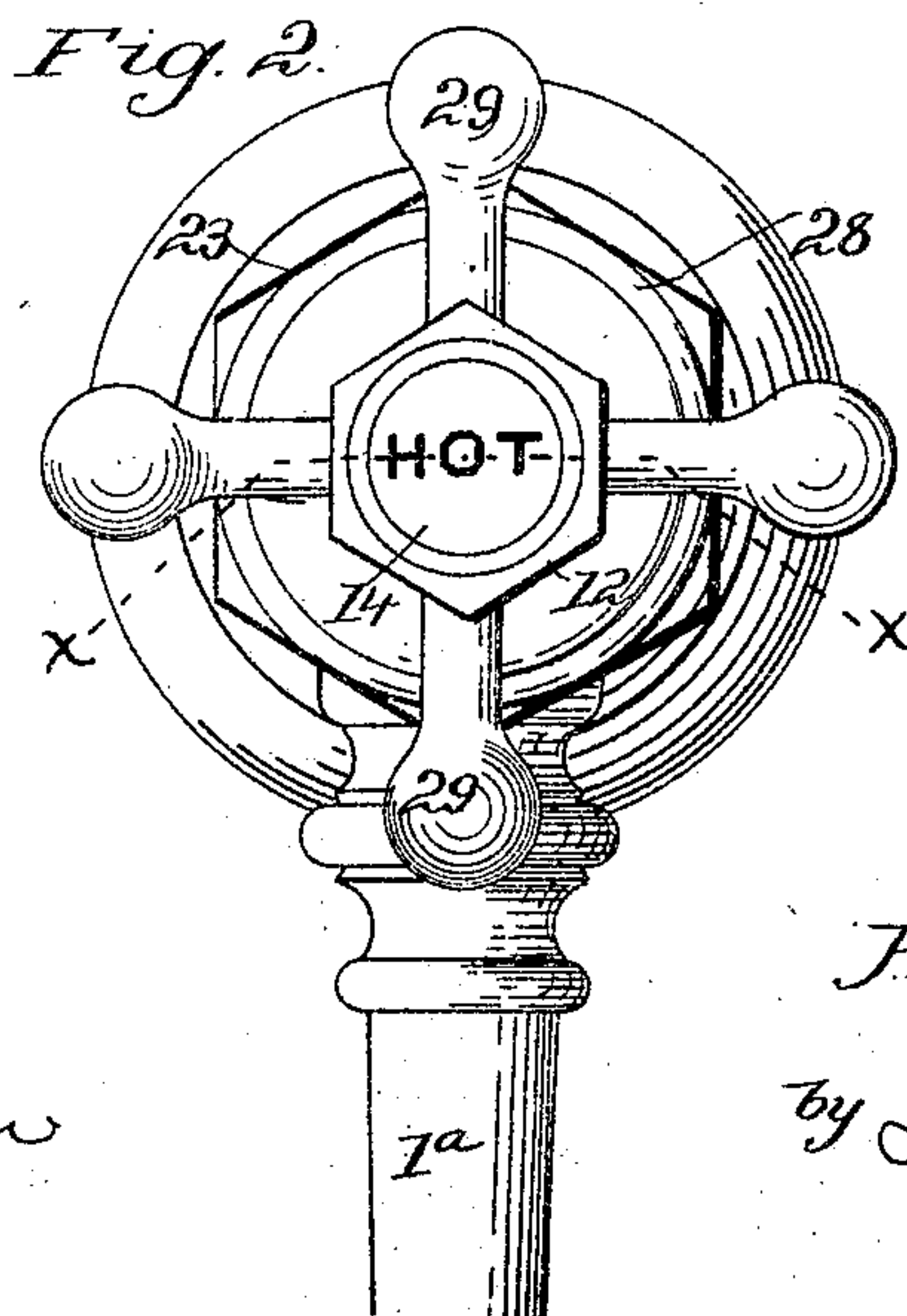
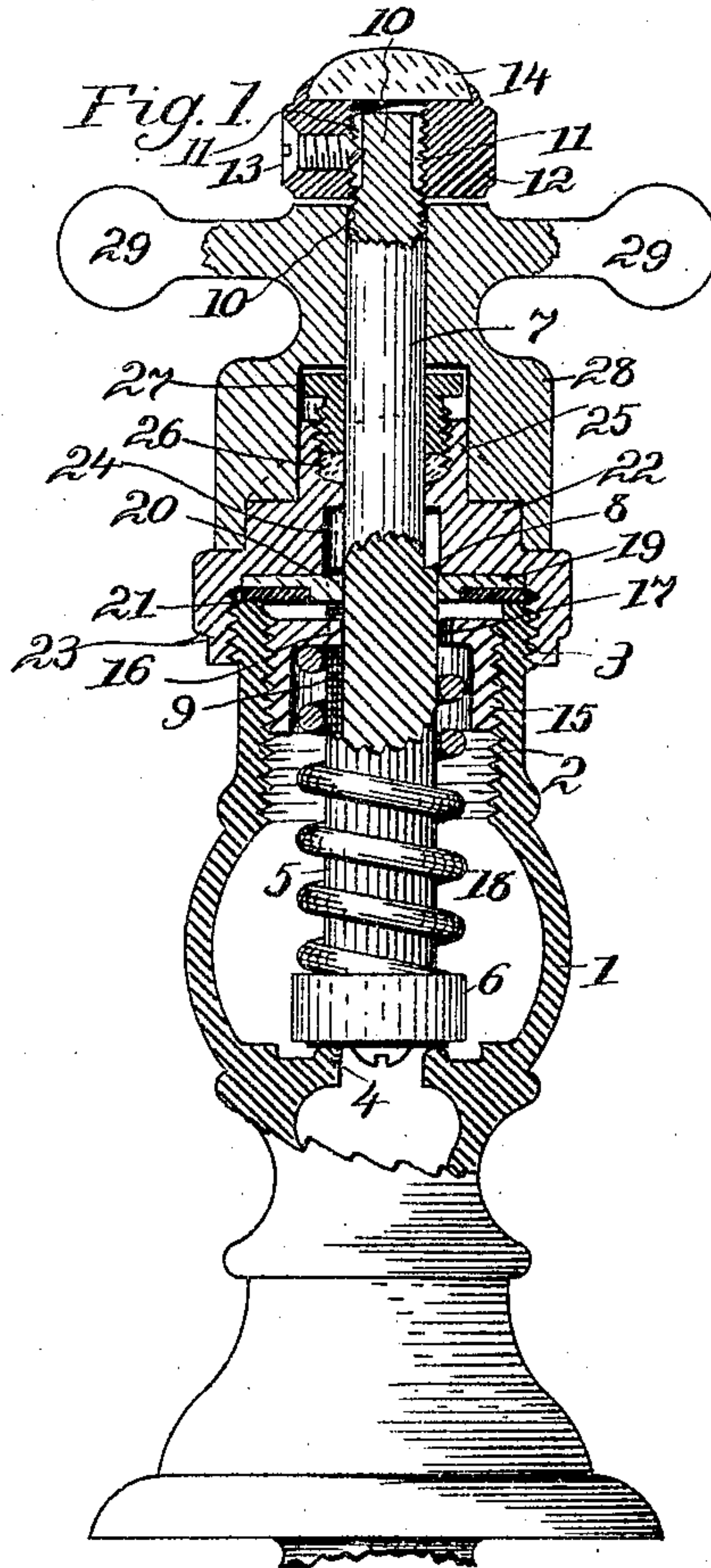


No. 841,092.

PATENTED JAN. 8, 1907.

H. MUELLER.
SELF CLOSING COCK.
APPLICATION FILED OCT. 11, 1905.

2 SHEETS—SHEET 1.



Witnesses

Wm A Graham
Nora Graham

Inventor,

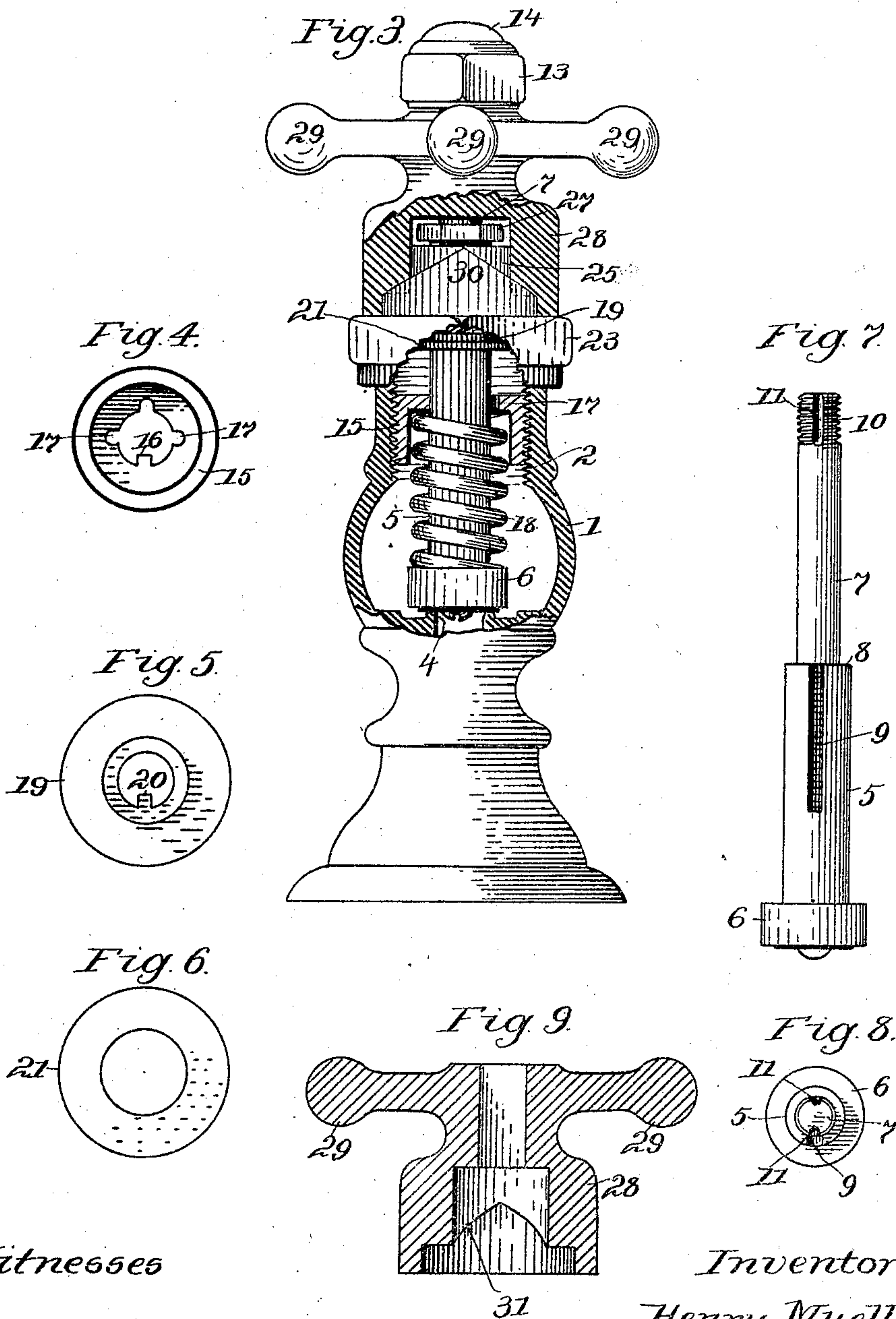
Henry Mueller
by *L. P. Graham*
his attorney.

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2 SHEETS—SHEET 2



Witnesses

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Inventor.

Henry Mueller.
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UNITED STATES PATENT OFFICE.

HENRY MUELLER, OF DECATUR, ILLINOIS, ASSIGNOR TO H. MUELLER MANUFACTURING CO., OF DECATUR, ILLINOIS, A CORPORATION OF ILLINOIS.

SELF-CLOSING COCK.

No. 841,092.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed October 11, 1905. Serial No. 282,298.

To all whom it may concern:

Be it known that I, HENRY MUELLER, a resident of the city of Decatur, county of Macon, and State of Illinois, have invented certain new and useful Improvements in Self-Closing Cocks, of which the following is a specification.

This invention relates to cocks in which the valves are closed against fluid-pressure by action of springs. It is particularly applicable to basin-cocks; and one of its objects is to provide means for varying the tension of the valve-closing spring, so as to adapt the cock to different water-pressures.

Another object of the invention is to provide means for adjusting the valve-stem to compensate for wear in the valve; and still other objects will appear from the following detailed description.

In the drawings forming part of this specification, Figure 1 is a vertical section on line X in Fig. 2. Fig. 2 is a plan of a cock embodying my improvements. Fig. 3 is a vertical section through parts of the cock, showing an adjustment of the valve-closing spring different from that shown in Fig. 1 and illustrating in side elevation the inclined planes used in opening the valve against the tension of the spring. Fig. 4 is a plan of the under surface of the tension-controller. Fig. 5 is a plan of the under surface of the disk that is clamped to hold the tension-controller in place. Fig. 6 is a diagram of a fiber washer or gasket that coacts with the disk shown in Fig. 5 to form a more perfect joint. Fig. 7 is an elevation of the valve-stem. Fig. 8 is an end view of the valve-stem, and Fig. 9 is a section through the valve-opening collar.

The shell or body of the cock is shown at 1, and it has a cylindrical upward extension which is internally screw-threaded throughout and is externally screw-threaded at its upper end. The internal screw-threads of the extension of the cock-body are shown at 2, and the external threads are shown at 3, in Fig. 1. A spout or nozzle 1^a is formed on a side of the cock-body, as shown in Fig. 2, and a passage-way leading upward through the cock to the spout has a valve-seat 4. The valve-stem 5 has a valve 6 on its lower end, said valve being enlarged to form a shoulder for the valve-closing spring, and it is reduced at about its longitudinal center to form the

shoulder 8. The reduced part of the valve-stem 7 is threaded at its upper end, as shown at 10, and it has a pair of grooves 11 lengthwise of its threaded part and on opposite sides thereof. A longitudinal groove 9 is formed in the larger part of the valve-stem, and the valve 6 is provided with a rubber bearing-surface which contacts with the seat 4. A nut 12 is screwed onto the threaded end of the valve-stem, and a set-screw 13 extends radially through a side of the nut with its point engaging one of the grooves 11 and with its head flush with the face of the nut.

A cap-shaped tension-controller 15 is apertured to fit around the larger part 5 of the valve-stem. It has a rigid projection 16, which extends radially into the groove 9 of the valve-stem, and it is screw-threaded externally to conform to the internal threads 2 of the cock-body. The tension-controller 15 is recessed in its under surface to receive the upper end of the valve-closing spring 18, and it has notches 17 in its internal circumference which form passages for the ready escape of water from the space above the tension-controller.

A disk 19 fits slidably on the larger part 5 of the valve-stem, and it has a rigid projection 20, which extends radially into the groove 9 of the stem. A gasket 21, of fiber or the like, fits against the under surface of the disk 19 and rests upon the upper end of the cylindrical extension of the cock-body. A nut 23 has a ring extension, which is internally screw-threaded to engage the external screw-threads on the upper end of the cylindrical extension of the cock-body, and it provides a broad surface in contact with the upper surface of disk 19. The nut 23 fits the smaller part 7 of the valve-stem, and it is recessed from below, as shown at 24, to receive the upper end of the larger part of the valve-stem when the valve is raised from contact with its seat. A cylindrical upward extension 25 of nut 23 is recessed from above to form a packing-box and is internally screw-threaded to receive the packing-screw 27. Packing 26 is placed in the recess in the cylindrical upward extension of the nut and is held compactly therein by the screw 27. Outside the cylinder 25 are formed two pairs of inclined planes, one pair of which is shown at 30 in Fig. 3. Each pair of inclines converge upwardly to form an apex, and the inclines

are used in opening the valve of the cock by converting rotary motion in the handle-collar into longitudinal motion in the valve-stem.

5 A collar 28 is bored to fit the part 7 of the valve-stem. It is provided with cross extensions 29, which are shaped to form a handle or finger-hold for manipulating the collar, and it also has inclined planes 31, which are
10 arranged to conform to the inclines 30 of nut 23 and which coact therewith to open the valve. The spring 18 tends to hold the valve closed, and when the valve is closed the collar 28 occupies the position with relation to
15 nut 23 that is shown in Figs. 1 and 3. When it is desired to open the valve, the collar 28 is turned on its axis by means of the cross-handle, the inclined surfaces of the collar ride up the inclines of the nut, thus raising the collar,
20 and the upward motion of the collar is imparted to the valve-stem through nut 12. The recess 24 of nut 23 extends above the shoulder 8 of the valve-stem a distance somewhat less than the elevation of the inclined
25 planes, and the shoulder strikes the upper surface of the recess and stops rotation of the collar before the inclines of the collar are raised high enough to ride over the inclines of the nut 23.

30 The nut 12 is intended to be locked on the valve-stem with the rubber in the end of the valve resting on the seat 4 and sustaining the nut 12 slightly above the upper surface of the collar 28, as shown in the drawings; but the
35 rubber will in time become worn or compacted to an extent sufficient to cause the nut 12 to sustain the valve-stem with the rubber out of contact with the seat and leaking will of course result. When this occurs, the
40 set-screw 13 is loosened, the nut 12 is screwed upward on the valve-stem until the valve is properly seated, and the set-screw is made to engage one or the other of the grooves 11. The grooves 11 are placed one on each side of
45 the valve-stem in order to provide for nicer adjustment of the valve, and except for this result one groove would be sufficient.

The spring 18 closes the valve against pressure of the water, as hereinbefore explained,
50 and it is desirable that the tension of the spring shall be entirely sufficient to force the valve closed, but not needlessly strong. If the tension is insufficient, the cock will operate imperfectly, and if the tension is excessively strong in proportion to the water-pressure existing in any certain case the work of
55 opening the valve will be needlessly hard. To provide proper tension in any particular case, the nut 23 is loosened enough to permit the disk 19 to turn, the valve-stem is turned
60 by means of a wrench applied to nut 12, the tension-controller 15 is turned with the valve-stem and screwed up or down in the cylindrical extension of the cock-body, depending
65 upon whether the spring is to be loosened or

tightened, and after the proper tension is obtained the nut 23 is screwed down firmly upon the locking-disk 19.

The set-screw 13 holds the nut 12 from turning on the valve-stem during operation
70 of the valve, and during adjustment of the tension-controller the projection 16 compels the tension-controller to rotate with the valve-stem, the groove 9 permits the tension-controller to move lengthwise of the valve-
75 stem, and when the disk 19 is clamped between nut 23 and the upper end of the cylindrical extension of the cock-body the projection 20 locks the valve-stem against rotary motion and prevents manipulation of the
80 valve-stem from disadjusting the tension-controller.

Any water passing the tension-controller will readily escape through passage-ways formed by notches 17 and will not be re-
85 tained to slowly dribble from the spout after the valve is closed.

What I claim as new is—

1. In a spring-closed cock, the combination of a body having a cylindrical extension
90 interiorly screw-threaded, a valve-seat in the body, a valve-stem protruding axially through the cylindrical extension of the cock-body and having a longitudinal groove, a valve on the inner end of the valve-stem
95 adapted to the valve-seat, an exteriorly-threaded tension-controller screwed into the cylindrical extension of the cock-body and fitted slidably on the valve-stem, a projection of the tension-controller engaging the
100 groove of the valve-stem, a spring on the valve-stem between the valve thereof and the tension-controller, means for opening the valve against the tension of the spring, means for rotating the valve-stem to screw
105 the tension-controller in or out of the cock-body, and a lock to hold the stem against rotation in the cock-body and prevent disadjustment of the tension-controller.

2. In a spring-closed cock, the combination of a cock-body having a cylindrical extension
110 exteriorly and interiorly screw-threaded, a valve-seat in the body, a valve-stem protruding axially through the cylindrical extension of the cock-body and having
115 a longitudinal groove, a valve on the inner end of the valve-stem, adapted to the valve-seat, an exteriorly-threaded tension-controller screwed into the cylindrical extension of the cock-body and fitted slidably on the
120 valve-stem, a projection of the tension-controller engaging the groove of the valve-stem, a spring on the valve-stem between the valve thereof and the tension-controller, a nut bored to fit the valve-stem and having
125 an interiorly-screw-threaded ring extension adapted to be screwed onto the end of the cylindrical extension of the cock, a disk encircling the valve-stem with its edge between the end of the cylindrical extension of the
130

cock-body and the nut screwed onto said cylindrical extension, a projection of the disk engaging the groove of the valve-stem, means for moving the valve-stem lengthwise against tension of the spring, and means for turning the stem on its axis.

3. In a spring-closed cock, the combination of a cock-body having a cylindrical extension exteriorly and interiorly screw-threaded, a valve-seat in the body, a valve-stem protruding axially through the cylindrical extension of the cock-body and having a longitudinal groove, a valve on the inner end of the valve-stem, adapted to the valve-seat, an exteriorly-threaded tension-controller screwed into the cylindrical extension of the cock-body and fitted slidably on the valve-stem, a projection of the tension-controller engaging the groove of the valve-stem, a spring on the valve-stem between the valve thereof and the tension-controller, a nut bored to fit the valve-stem and having an interiorly-screw-threaded ring extension adapted to be screwed onto the cylindrical extension of the cock, a disk encircling the valve-stem, with its perimeter between the end of the cylindrical extension of the cock-body and the nut screwed onto said cylindrical extension, a projection of the disk engaging the groove of the valve-stem, a nut locked on the protruding end of the valve-

stem, a collar journaled on the valve-stem between the nut screwed onto the cock-body and the nut locked on the valve-stem, said collar having a handle or finger-hold for rotary manipulation, and inclined planes on the under side of the collar and the upper side of the nut screwed onto the cock-body, whereby the valve-stem is moved longitudinally as the collar is turned.

4. In a spring-closed cock, the combination of a cock-body, a valve-seat in the body, a valve-stem having a valve on its inner end and having its outer end screw-threaded and longitudinally grooved, a nut on the outer end of the valve-stem, a set-screw extending through the nut and engaging a groove of the stem, a spring to hold the valve closed, a collar rotatably movable on the valve-stem between the cock-body and the nut on the threaded end thereof, and inclined planes on the collar adapted to convert the rotary motion of the collar into motion lengthwise of its axis and to impart said longitudinal motion to the valve-stem through the nut, substantially as described.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

HENRY MUELLER.

Witnesses:

JOHN L. WADDELL,
L. P. GRAHAM.