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Patented Apr. 10, 1900.

W. GEURINK.
FAUCET.

(Application filed Feb. 8, 1900.)

(No Model.)

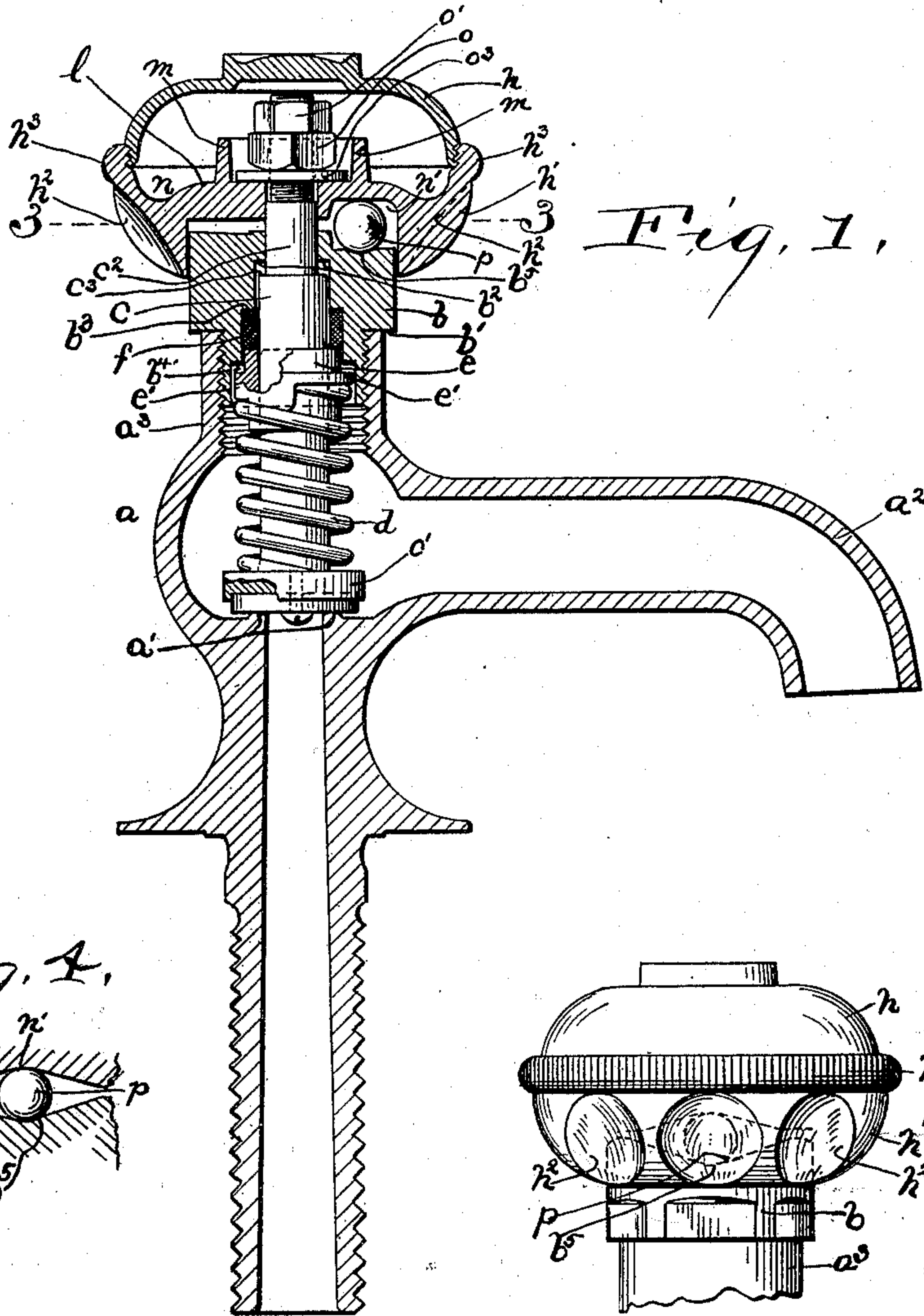


Fig. 1,

Fig. 1,

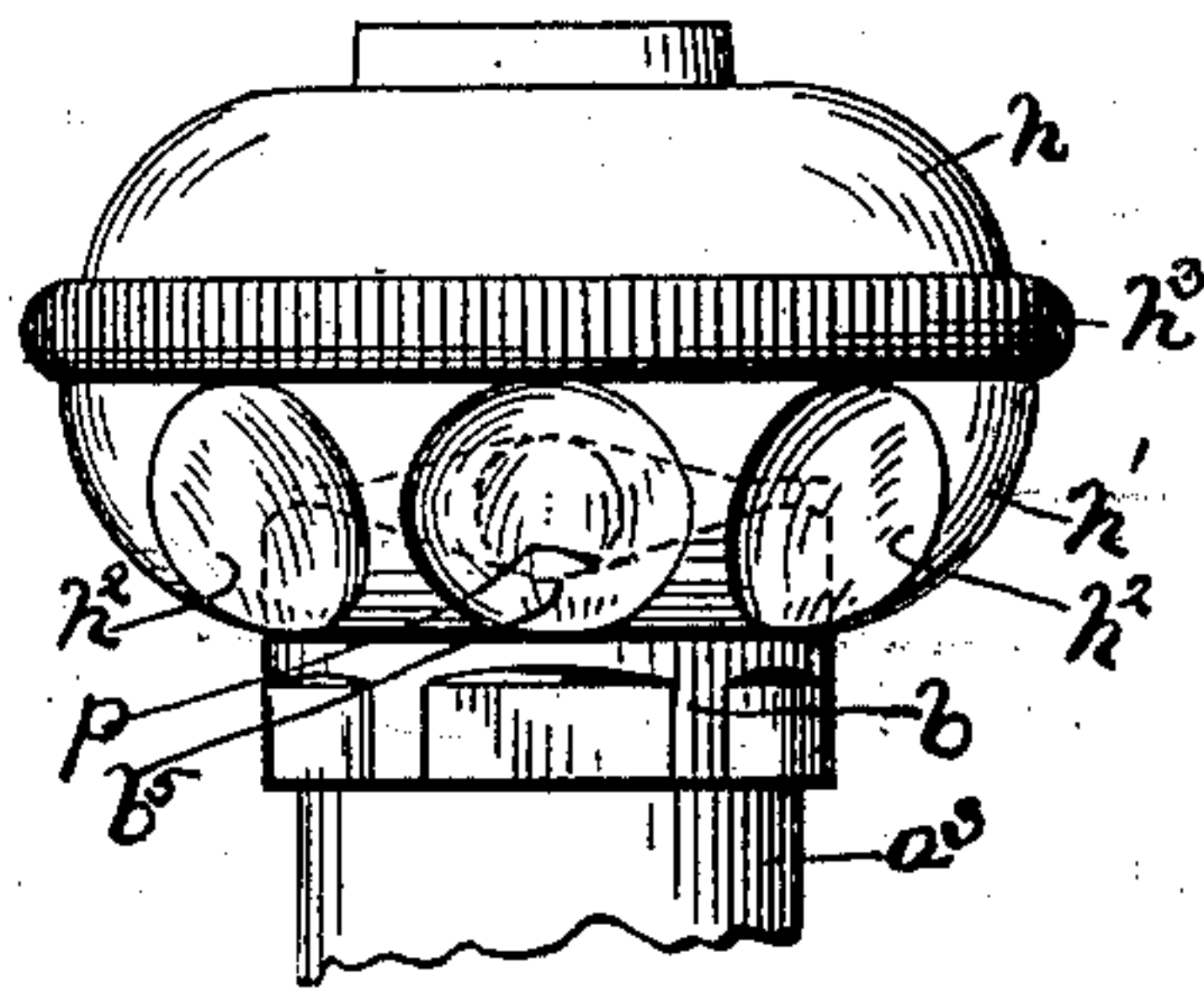
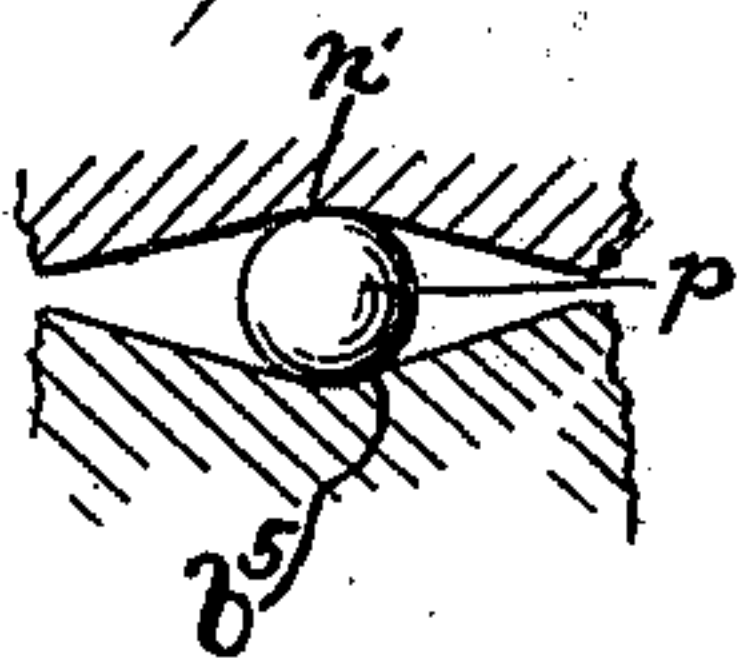
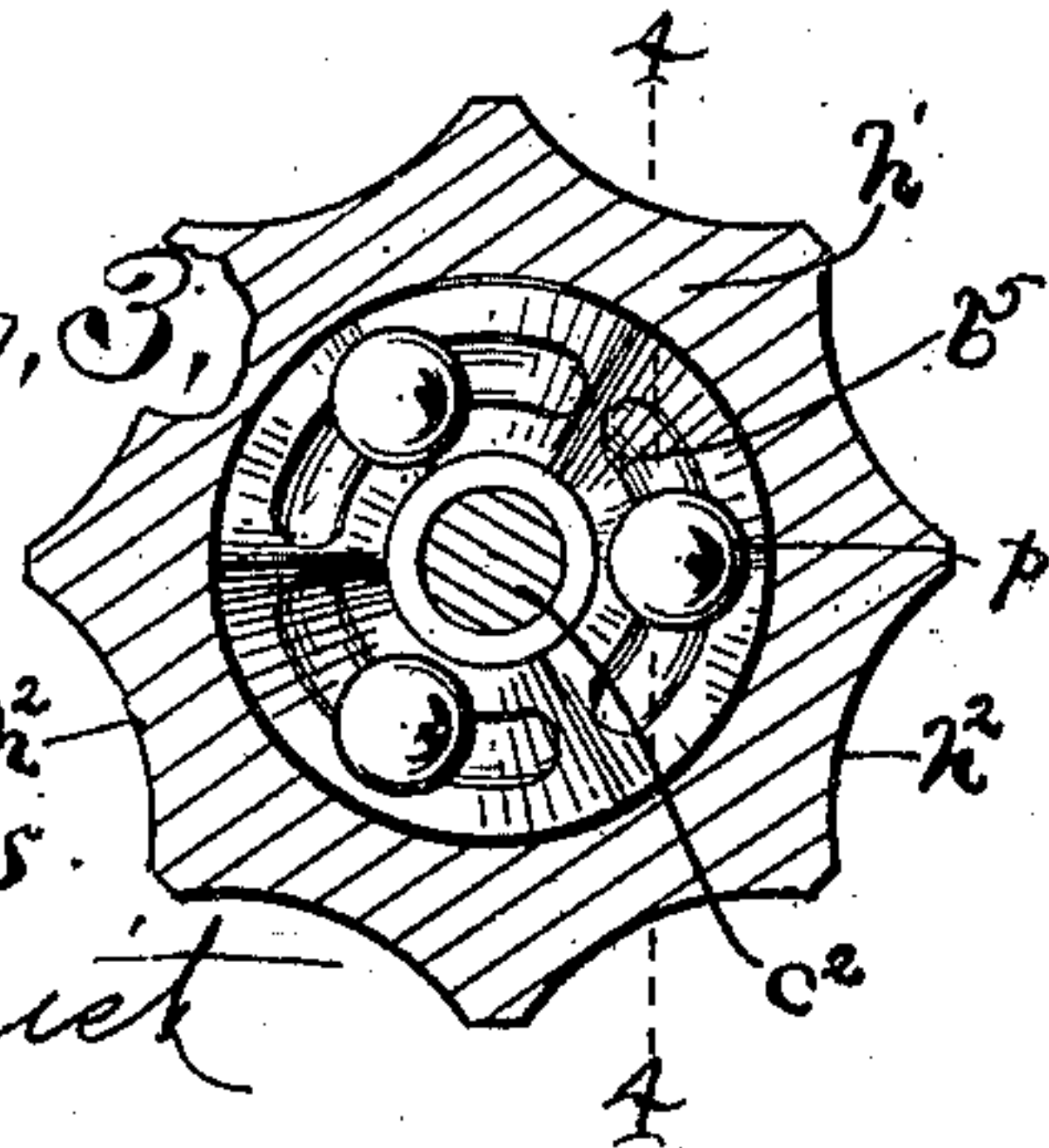


Fig. 2,

Fig. 3,



Witnesses.
E. B. Gilchrist
Daniel O. Daly.

Inventor,
William Geurink
By *Richard Dorer*
his Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM GEURINK, OF CLEVELAND, OHIO.

FAUCET.

SPECIFICATION forming part of Letters Patent No. 646,979, dated April 10, 1900.

Application filed February 8, 1900. Serial No. 4,539. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GEURINK, a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Faucets; 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 pertains to make and use the same.

This invention relates to self-closing faucets.

The object of this invention is to provide a faucet of the character indicated especially adapted for use in public buildings, offices, and the like. The arrangement of the valve-operating mechanism is such as to insure the automatic closing of the valve and prevent the same from being tied or plugged, so as to remain open.

This invention consists of certain details of construction and arrangements of parts, which will be fully set forth hereinafter in the specification, illustrated in the drawings, and pointed out in the claims.

Referring to the drawings, Figure 1 represents a central vertical section of my faucet. Fig. 2 is a view in elevation, showing the upper portion of the faucet. Fig. 3 is a vertical section on line 3 3, Fig. 1. Fig. 4 is a vertical section on line 4 4, Fig. 3.

Referring to the drawings, *a* indicates the body of my faucet. This body is provided with a valve-seat *a'* and a nozzle *a²*. The upper portion of the body is reduced to form a neck portion *a³*. This neck portion is screw-threaded interiorly. Adapted to partially screw into this neck portion is a nut *b*. This nut is provided with exterior shoulders *b'*, which abut against the rim of the neck *a³*. The nut *b* is bored centrally to permit the passage of the upper portion of the valve-stem *c*. The bore of this nut *b* is regularly reduced in diameter, so as to form shoulders *b²*, *b³*, and *b⁴* on the interior of the bore. The top surface of the nut *b* is provided with a circular track *b⁵*, consisting of three concave grooves or double inclines arranged around the bore of the nut.

The valve-stem *c* is provided with a valve *c'*. Near its upper end the valve-stem *c* is reduced in diameter to form a neck portion *c²*,

adapted to pass through the bore of the nut *b*. Shoulders *c³* are left on the valve-stem when the valve-stem is raised. These shoulders abut against the shoulders *b²*, formed in the bore of the nut *b*, and form a stop which prevents the further upward movement of the valve-stem.

Closely fitting the valve-stem *c* is a sleeved washer *f*. This washer is adapted to fit into the bore of the nut *b* and abut against the shoulders *b³*, formed therein.

Heretofore in faucets of this character the packing for the valve-stem has been placed between the under side of the retaining-nut and shoulders formed on the valve-stem. In this position the packing was rapidly disintegrated by the impact of the shoulders of the valve-stem when the faucet was operated. Moreover, when placed in this position the wearing away of the washer is especially detrimental to the operation of a faucet of this character, as the worn washer permits too much of the valve-stem to pass through the bore of the retaining-nut, widening the space between the surface of the nut and the bottom of the handle. The friction-balls are then no longer retained in their respective grooves, and the operation of the faucet is greatly impeded.

In my construction the valve-packing is sleeved on the valve-stem and adapted to fit into the bore of the retaining-nut, where it abuts against a stop formed therein. The valve-stem slides up and down through this packing, and the shoulders thereon abut against the retaining-shoulders formed in the bore of the nut. As the respective shoulders are formed of metal, the wear thereof will be inappreciable, and the handle will therefore be constantly held in its relative position to the upper surface of the nut.

Encircling the valve-stem and resting on the valve *c'* is a coiled spring *d*. Between the top coils of this spring and the valve-stem is a collar *e*. This collar is provided with a projecting annular flange *e'*. The bottom surface of this flange is inclined in the form of a spiral, so as to conform to and rest evenly upon the top coil of the spring. This flange prevents the collar from slipping down between the valve-stem *b* and the spring *d*, and as its under surface conforms to the curva-

ture of the top coil of the spiral spring the collar will be evenly supported thereby and will not tip to one side, as is the case when the under surface of the flange is flat and touches the top coil of the spring only at one point. The top of the collar presses against the packing *f*, securely holding it in place. The top surface of the flange *e'* abuts against the shoulders *b⁴*, formed in the bore of the nut *b*, thus keeping the spring *d* under a constant pressure.

The valve mechanism is operated by means of a hollow bulb-shaped handle formed in two parts *h* and *h'*, adapted to screw into each other. The surface of the top portion is made very smooth, so that dust or dirt will not settle or collect thereon. In order that the handle may be securely grasped, the surface of the lower portion is roughened, preferably by forming a series of concave indentations *h²*, and as these indentations are on the under side of the handle dust or dirt will not collect in them. The lower portion is also provided at its greatest circumference with a raised band *h³*, having a milled surface. A diaphragm *l*, formed integral with the lower portion *h'*, divides the interior into two circular cavities *n* and *n'*. This diaphragm is bored centrally, so as to allow the passage of the valve-stem. The diameter of the lower cavity is sufficient to permit the head of the nut *b* to enter therein. The sides of this cavity inclose the top of the nut and prevent dust or other foreign substances from working in between the handle and the surface of the nut. The under surface of the diaphragm is provided with a circular track composed of three concave grooves or double inclines corresponding to the grooves or inclines on the head of the nut.

When the lower portion of the handle is placed on the nut *b*, the end of the valve-stem projects upwardly through the bore in the diaphragm *l*. This end is screw-threaded to receive lock-nuts *o* and *o'*, which secure the valve-stem in the handle.

A metallic washer *o³* is placed around the valve-stem between the diaphragm *l* and the nut *o*. As the greatest amount of friction will be between this nut and the diaphragm, it is necessary that these parts be well lubricated. I therefore form on the upper surface of the diaphragm *l* an annular flange *m* integral with the said diaphragm. This flange forms a cup for retaining grease or other suitable lubricant where it will feed to the parts as required.

Before securing the valve-stem to the handle friction-balls *p* are inserted between the bottom of the diaphragm and the nut *b*. When the faucet is closed, each ball occupies a central position in each of the respective grooves or inclines, which allows the handle to be turned to the right or to the left when it is desired to open the faucet.

When the faucet has been assembled, the top portion *h* of the handle is screwed into

the bottom portion *h'*, protecting the working part from dust and preventing tampering with or accidental displacement of the nuts securing the valve-stem in the handle.

What I claim is—

1. The combination with the body of the faucet, the valve mechanism therein, and a retaining-nut having a grooved track on its upper surface, of a bulb-shaped handle or key comprising a hollow body portion and a cover portion adapted to screw on said body portion, the bottom of said body portion being bored centrally and provided, on its under side, with a track corresponding to the track formed on the surface of the nut, and on its upper side with an annular flange surrounding the said bore, substantially as described, for the purpose set forth.

2. In a self-closing faucet, the combination of a valve-stem, a key for operating the same, said key comprising a hollow body portion and a cover portion adapted to screw into the said body portion, said body portion having a central bore in its bottom to allow the end of the valve-stem to pass into the interior of the said body portion, a grease-cup located in the interior of said body portion around the end of the valve-stem, lock-nuts arranged on said valve-stem in the interior of said body portion for holding the said valve-stem in the said body portion of the handle, and a metallic washer surrounding the end of the said valve-stem between the lock-nuts and the bottom of the said body portion of the handle, substantially as described, for the purpose set forth.

3. In a self-closing faucet, the combination with the body portion of the faucet, of a nut adapted to screw into said body portion, said nut having a central bore, said bore being decreased in diameter at predetermined portions thereof leaving three shoulders or stops on the interior of said bore, substantially as described, for the purpose set forth.

4. In a self-closing faucet, the combination with the body of the faucet, a valve, a valve-stem, a spiral spring surrounding said stem and resting on said valve, and a retaining-nut fitting into the top of said body of the faucet, of a collar freely movable on said valve-stem, said collar being provided with an annular projecting flange, the bottom surface of said flange being spirally inclined so as to conform to and rest evenly on the top coil of the said spiral spring, substantially as described, for the purpose set forth.

5. In a faucet of the character described, a valve-stem and valve arranged to move axially in said faucet-body, a hollow bulb-shaped handle or key for operating said valve-stem, said handle having a central bore to permit the end of the valve-stem to pass into the interior thereof, and means for connecting said valve-stem with said handle located wholly within the interior of said handle or key, substantially as shown and described.

6. In a faucet of the character described an

axially-movable valve-stem, a hollow bulb-shaped handle for operating said valve-stem, said hollow handle having a removable cover or cap, a central bore to permit the passage 5 of the valve-stem into the interior of the said handle, and means for operatively connecting said valve-stem with said handle, said means being located wholly within the interior of the said handle, substantially as 10 shown and described.

7. In a self-closing faucet, the combination with a body portion *a*, a nut *b* having a central bore with shoulders *b*², *b*³ and *b*⁴ formed therein, a valve *c*', a valve-stem *c* provided

with shoulders *c*³ adapted to abut against the 15 shoulders *b*², formed in the bore of said nut, a sleeved washer *f* surrounding the said valve-stem and fitting into the bore of the said nut, a collar *e*, substantially as described, and means for operating the said valve, substan- 20 tially as described.

Signed by me at Cleveland, Ohio, this 24th day of January, 1900.

WILLIAM GEURINK.

Witnesses:

VICTOR C. LYNCH,
A. H. PARRATT.