

No. 696,434.

Patented Apr. 1, 1902.

E. G. HEDGES.
SPRING COMPRESSION COCK.

(Application filed Aug. 12, 1901.)

(No Model.)

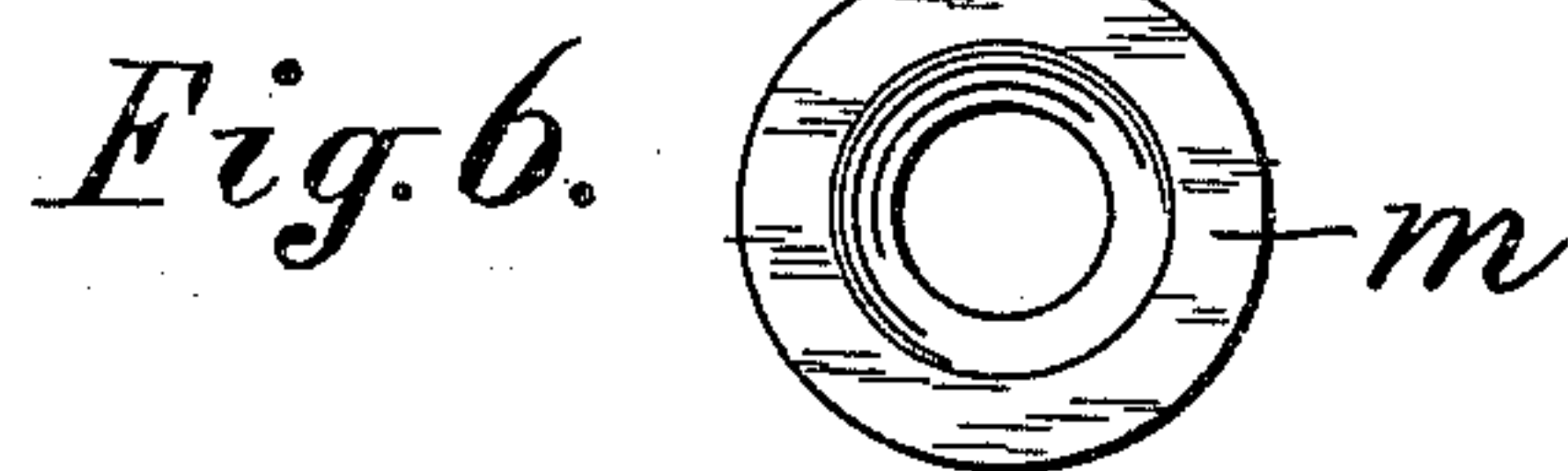
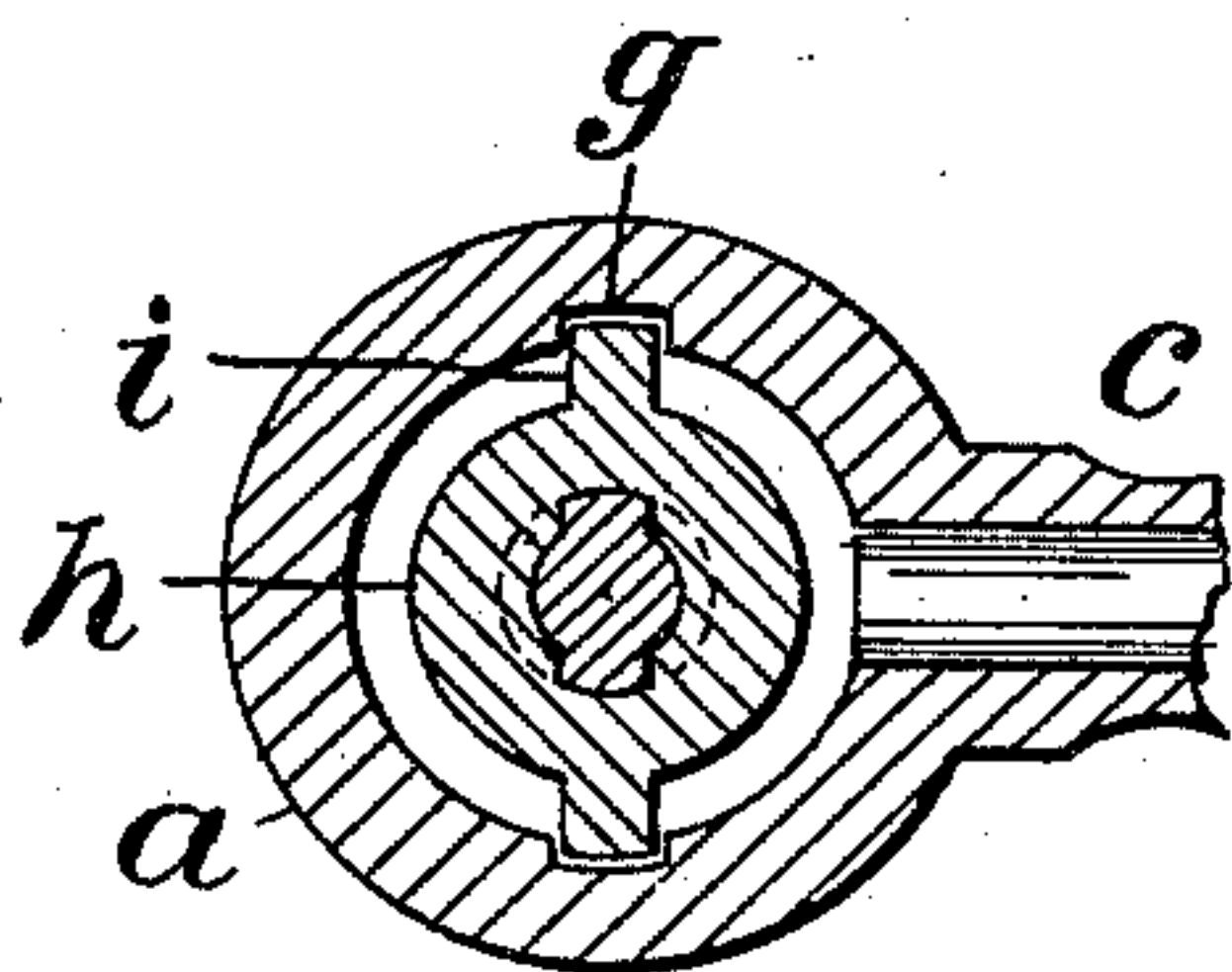
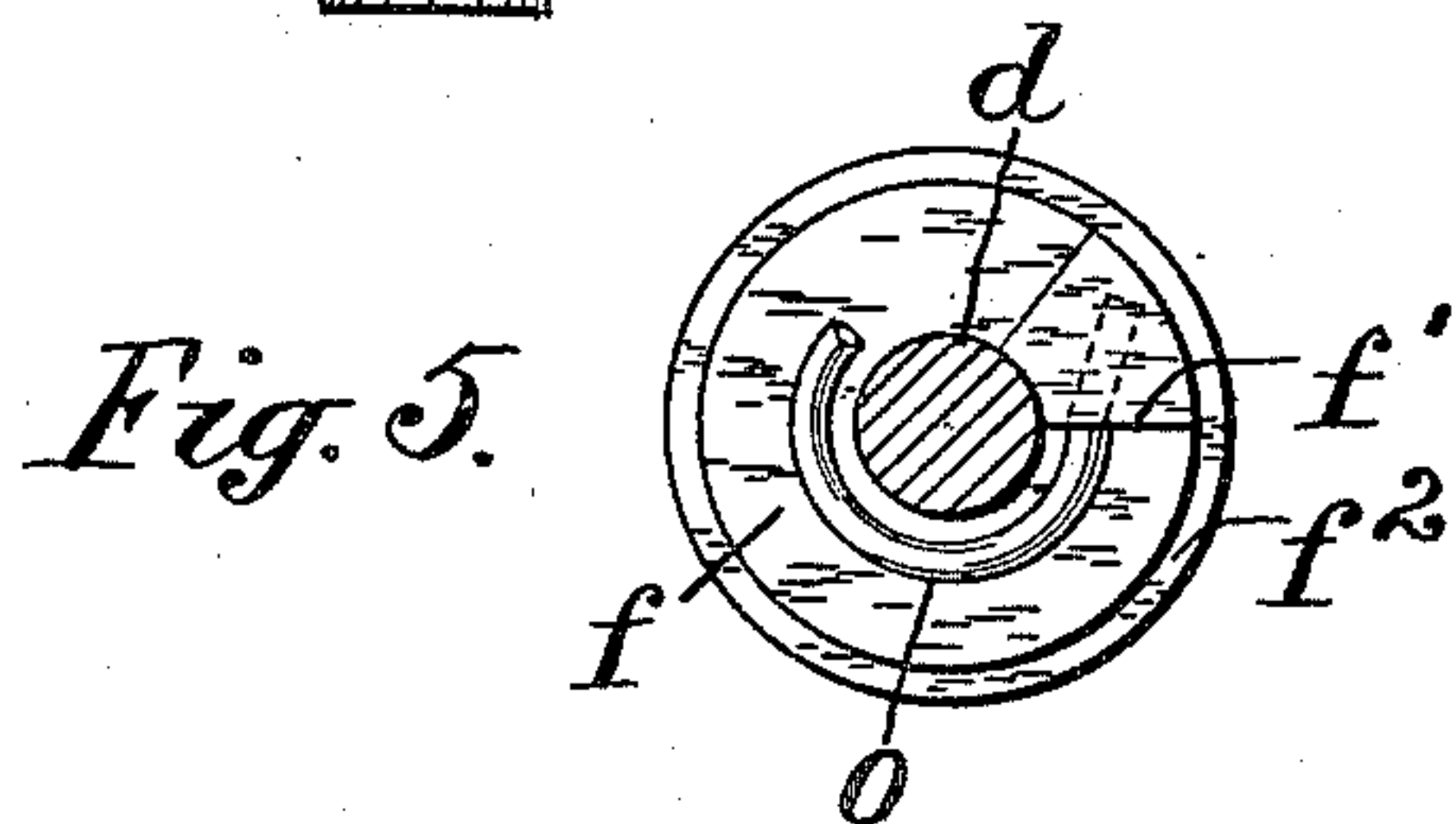
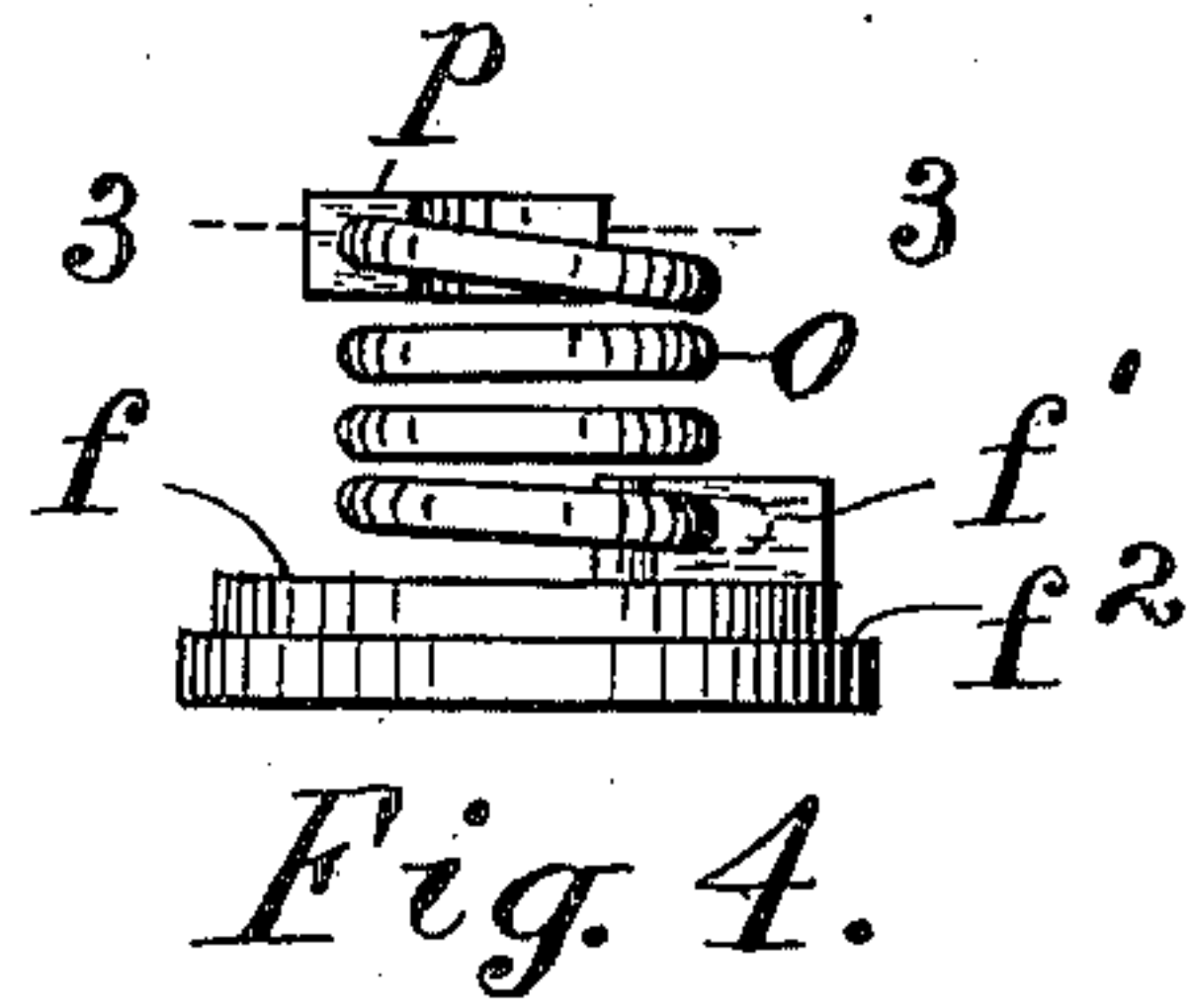
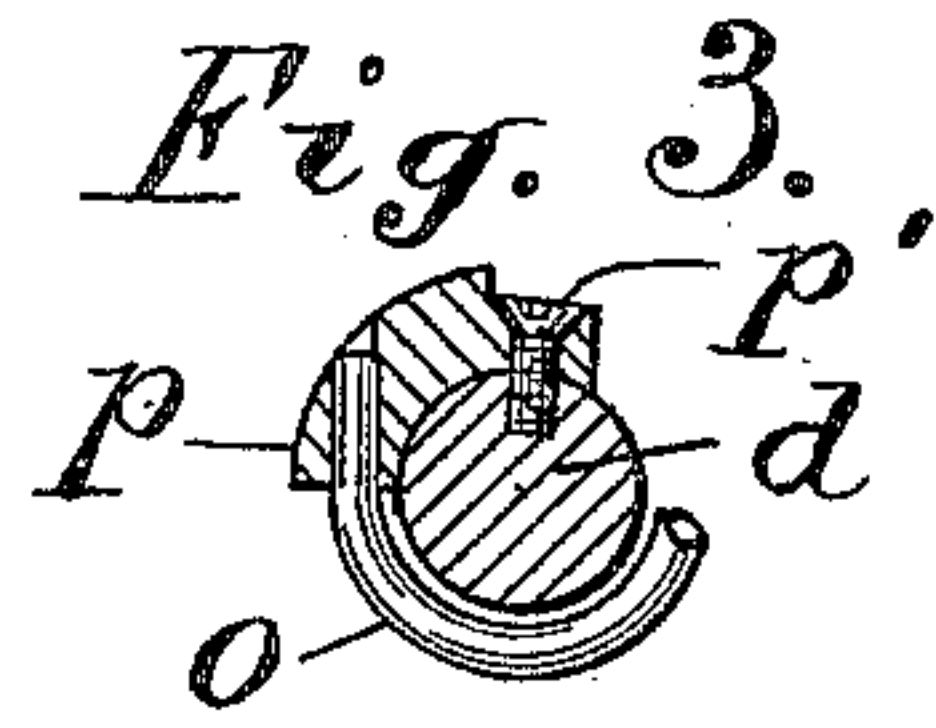
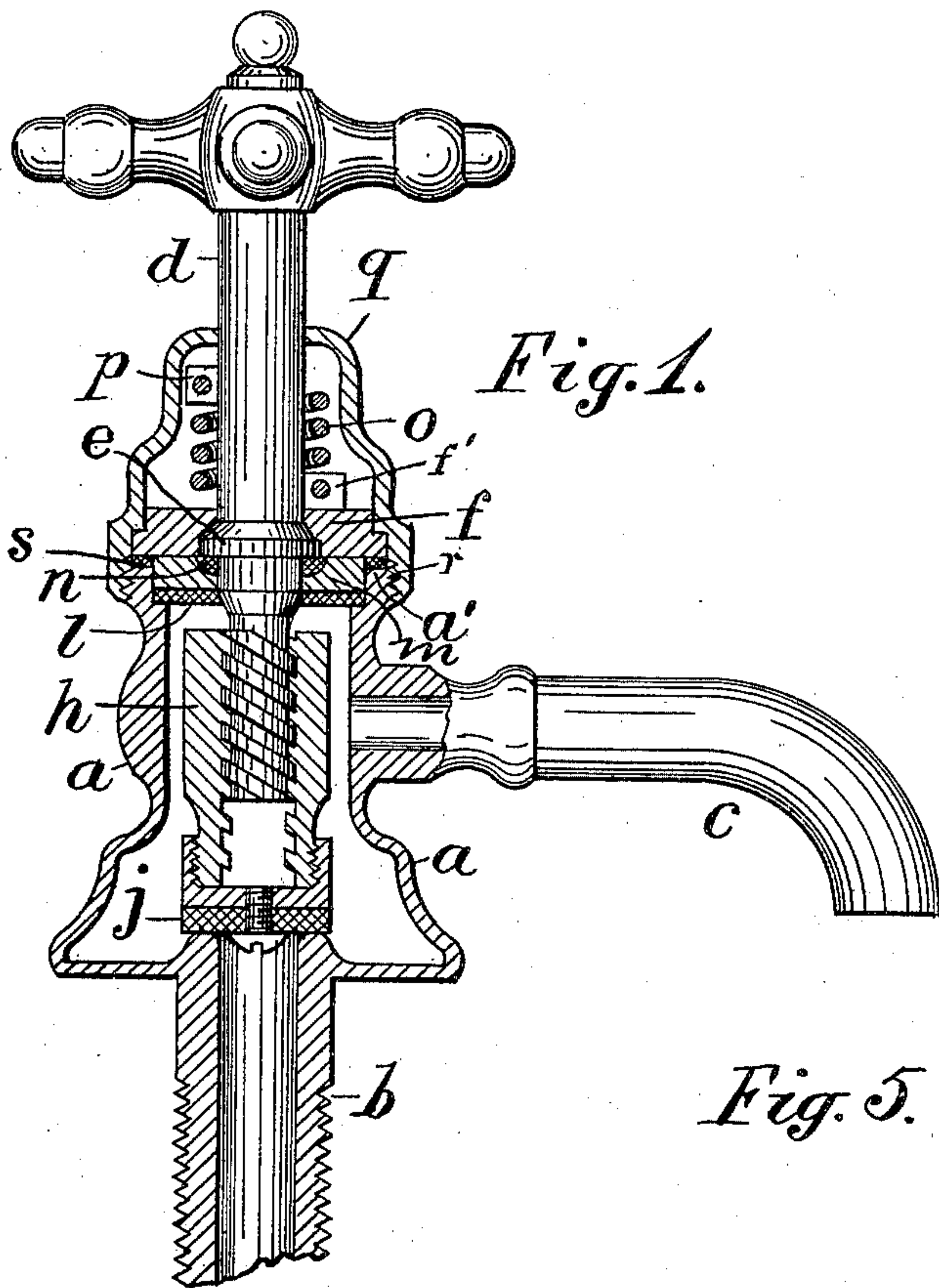


Fig. 2.



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UNITED STATES PATENT OFFICE.

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SPRING COMPRESSION-COCK.

SPECIFICATION forming part of Letters Patent No. 696,434, dated April 1, 1902.

Application filed August 12, 1901. Serial No. 71,869. (No model.)

To all whom it may concern:

Be it known that I, EDWARD G. HEDGES, a citizen of the United States, residing at 269 Belleville avenue, Newark, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Spring Compression Cocks or Bibs, fully described and represented in the following specification and the accompanying drawings, forming a part
10 of the same.

The principal object of the present invention is to furnish a compression-bib or basin-cock with a spring in such manner that the valve-spindle may be immovable lengthwise,
15 and thus provided with a more permanent packing, and the valve may be closed by the spring or by hand, so that the principal parts of the cock may be manufactured for use with or without the spring at pleasure.

Another object of the invention is to provide a means of securing the spring to the casing of the cock in such manner that the tension of the spring can be readily varied; and a third object is to protect the spring
25 from the action of the fluid passing through the cock, which is effected by forming a collar upon the spindle above the valve with a suitable packing to prevent the flow of fluid past the collar and applying the spring to
30 the spindle above such collar.

With such construction a cover is necessarily secured upon the valve-casing to inclose the spring, and I utilize such cover to clamp an adjustable circular abutment upon
35 the top of the valve-casing and secure one end of the spring to such abutment, which permits the tension of the spring to be changed by slightly turning the abutment in relation to the spindle.

My improvement will be understood by reference to the annexed drawings, in which—

Figure 1 is an elevation of a basin-cock embodying my improvements. Fig. 2 is a cross-section at the center of the nozzle *c* in Fig. 1.
45 Fig. 3 is a cross-section of the spindle just above the spring-holder on the spindle, showing also a part of the spring. Fig. 4 is a side elevation of such spring-holder, the spring, and the adjustable abutment. Fig. 5 is a
50 plan of the adjustable abutment and part of the spring. Fig. 6 is a vertical section, and

Fig. 7 a plan, of the packing-plate for the top of the valve-casing.

a designates the valve-casing, supplied with the usual threaded shank *b* for inserting
55 through a slab, as is common with basin-cocks, and with the nozzle *c* to discharge the water. The casing is formed with grooves *g*, and the valve-nut *h* is formed with ribs *i* to fit such grooves, and the nut is provided upon
60 its lower end with a seat for the valve-washer *j*, which is secured to the seat in the usual manner by the screw *k*. The valve-spindle *d* is formed at its lower end with thread to fit the nut *h* and just above such thread
65 with a collar, to the top of which the spring-abutment *f* is fitted. A shoulder *a'* is formed within the casing below the collar *e*, and a packing-disk *l* is fitted to the interior of the casing to rest upon such shoulder. A pack-
70 ing-plate *m* of the same size as the packing *l* is fitted to the top of the same and formed with a central recess to receive a packing *n*, which contacts with the under side of the spindle-collar *e*. The abutment *f* is formed
75 with a lug *f'*, having a socket adapted to receive one end of the spiral spring *o*, and the opposite end of the spring is secured to the spindle by a spring-holder *p*, which is attached to the spindle by a screw *p'*. The
80 spring-holder *p* is, like the abutment, formed with a socket to receive the end of the spring, and both ends of the spring are bent slightly outward from their natural curvature to fit
85 into their sockets, so that they have no tendency to escape from the sockets, as the tension of the spring is wholly in line with its own circular curvature. Each end of the spring is bent only in the plane of the final
90 coil, which sufficiently secures the spring without bending the ends at right angles to the coils, which would tend to strain the wire and cause its breakage. A cover *q* is fitted to the spindle to inclose the spring and the holder
95 and the abutment *f*, and the cover is fitted to a thread *r* upon the top of the casing *a*. The cover is formed internally with a shoulder *q'*, which is fitted to a circular flange *f''* upon the margin of the abutment *f*, and a packing
100 *s* is inserted between such flange and the top of the casing. The top of the packing-plate *m* is in practice made even with the top of

the packing *s*, so that when the cover is screwed down upon the abutment *f* it operates to compress the packing *s*, and by compressing the packing-plate *m* it also operates to compress the packing *l* upon the shoulder *a'*. The packing *n* being previously inserted in the recess of the packing-plate is also compressed at the same time, and a tight joint is thus made at the middle and periphery of the packing-plate, so that no fluid can pass above the same. The pressure of the cover upon the abutment *f* holds the same from turning, and the rotation of the spindle to which the spring-holder *p* is secured thereon operates to place the spring under tension and secures the reaction of the spindle when released from the hand-pressure. To make the spindle close the valve under the proper tension, the cover is screwed down sufficiently to hold all the parts in their operative position, but permit the slipping of the flange *f*², which permits the abutment to turn when the spindle is rotated to force the valve-washer *j* against its seat in the casing. When the valve is thus properly closed, the cover *q* is tightened still further to secure the abutment *f* from further rotation, and the spring is thus automatically engaged and held under the proper tension to close the valve with the same degree of force that was first exerted by hand. The packings *s* and *n* prevent the passage of fluid above the packing-plate, and it is obvious that the cock may be constructed for use without the spring *o* whenever desired and used merely as a compression-cock operated by hand. The construction is such that the spindle requires no longitudinal movement to compress the spring; but as the spindle does not move endwise it subjects the spring solely to a torsional movement.

The packing *l* is not necessary to prevent leakage past the spindle into the cover *q*, as the packings *s* and *n* form tight joints at the center and periphery of the packing-plate *m*; but the packing *l* serves to hold the packing-plate elastically upward against the collar *e* when the abutment *f* is depressed by the yielding of the packing *s*. The packing *l* is also useful to arrest the upward movement of the valve-nut *h* and serves as an elastic cushion when the valve is drawn upward by the turning of the valve-stem.

The pitch of the screw-thread in the valve-nut is such that the turning of the valve-stem is sufficient to hold the valve-washer *j* pressed upon the valve-seat without the assistance of the spring *o*, and the valve is thus operative in case the spring is broken or disabled at any time.

It will be understood that the ends of the spring are not fastened permanently in the abutment and in the spring-holder *p*, and if the spring is worn or broken its ends can therefore be withdrawn after detaching the

spring-holder from the spindle (by removing the screw *p'*) and a new spring substituted.

The whole construction is cheap and efficient to produce a compression-cock in which the valve may at pleasure be provided with a spring to close it automatically.

Having thus set forth the nature of the invention, what is claimed herein is—

1. A compression-cock having the casing *a* with guides *g* for a valve-nut, the nut *h* movable therein and carrying the valve-washer *j* and having the tongues *i* fitted to the guides *g*, the valve-stem *d* having a thread fitted to the valve-nut, and having the collar *e* above such thread, the packing-plate *m* fitted to the top of the casing with packing *n* fitted to the under side of the collar, a spring-abutment *f* fitted around the collar, the cover *q* clamping the abutment upon the top of the casing, and the torsional spiral spring *o* wound about the spindle above the abutment, and having its ends secured respectively to the abutment and to the spindle to normally force the valve-washer upon the seat by the tension of the spring.

2. A compression-cock having a casing with guides for a valve-nut, a valve-nut movable therein and carrying the valve-washer *j*, a valve-stem having a thread fitted to the valve-nut and a collar above such thread, a shoulder in the casing below such collar with a packing-disk and a packing-plate thereon, a recess in the packing-plate with packing fitted to the under side of the collar, a spring-abutment fitted above the collar and provided with marginal flange *f*², the cover *q* screwed upon the top of the casing and adapted to clamp the abutment and packing devices, and the spring attached to the abutment and having spring-holder attached to the spindle, whereby the abutment may be adjusted in relation to the spindle and clamped by the cover, substantially as herein set forth.

3. A compression-cock having a casing with guides for a valve-nut, a valve-nut movable therein and carrying the valve-washer *j*, a valve-stem having a thread fitted to the valve-nut and a collar above such thread, a packing-plate fitted to the top of the casing with packing fitted to the collar, an adjustable circular abutment fitted to the top of the collar and a spring-holder secured upon the spindle above the same with a spiral spring having its ends each bent in the plane of the final coil and fitted respectively to sockets in the abutment and in the spring-holder, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDWARD G. HEDGES.

Witnesses:

J. IRVING CAMPFIELD,
THOMAS S. CRANE.