

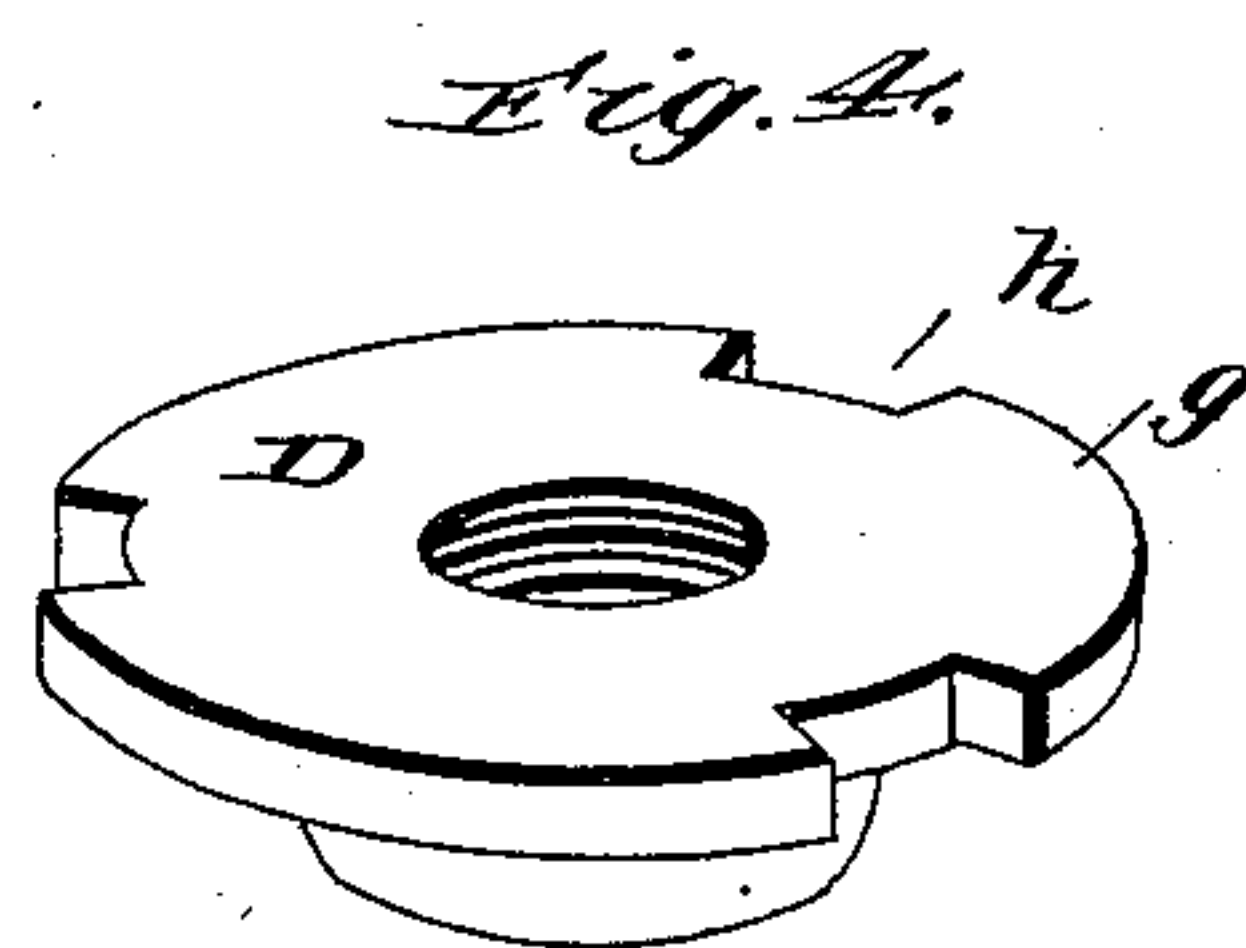
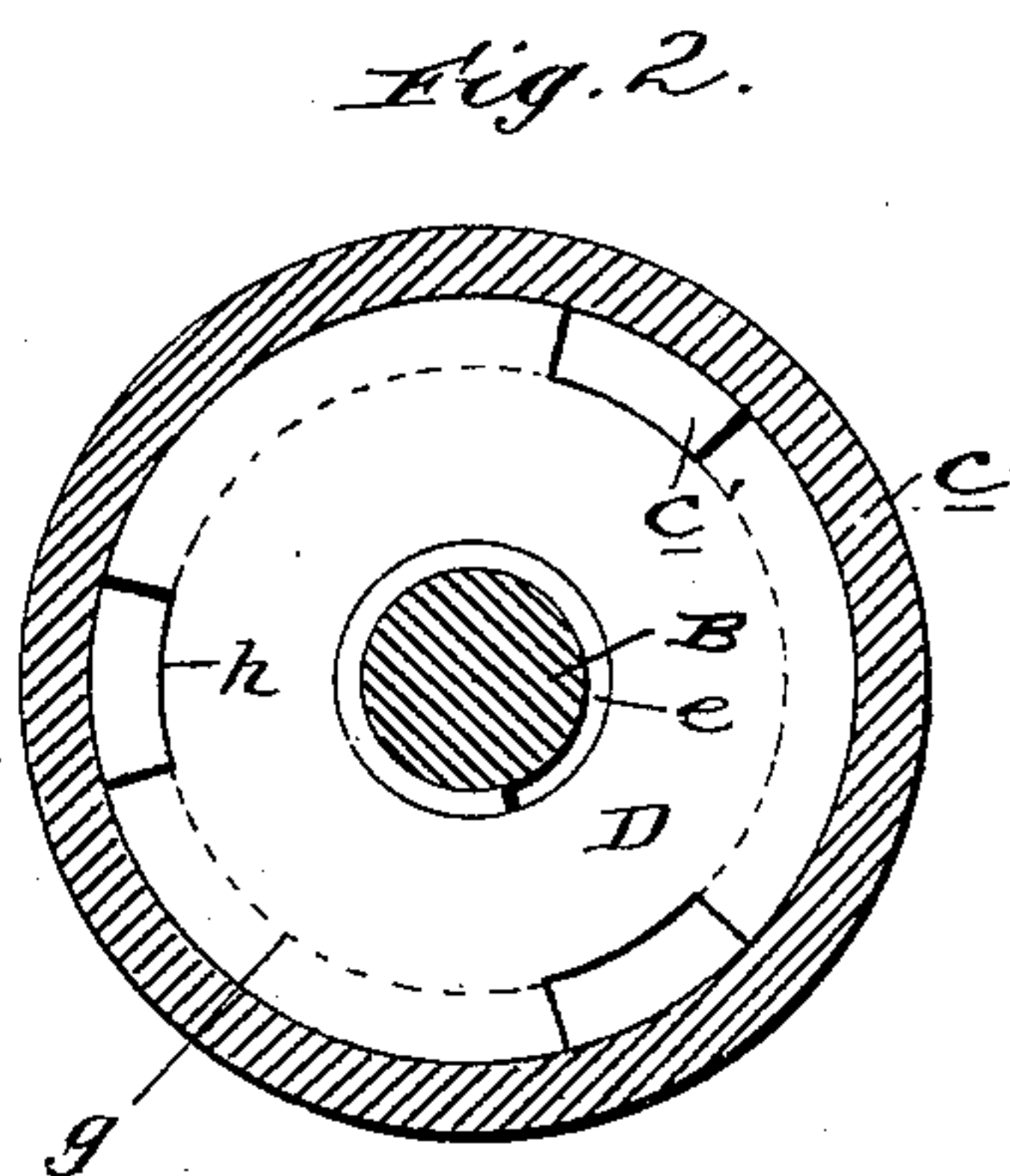
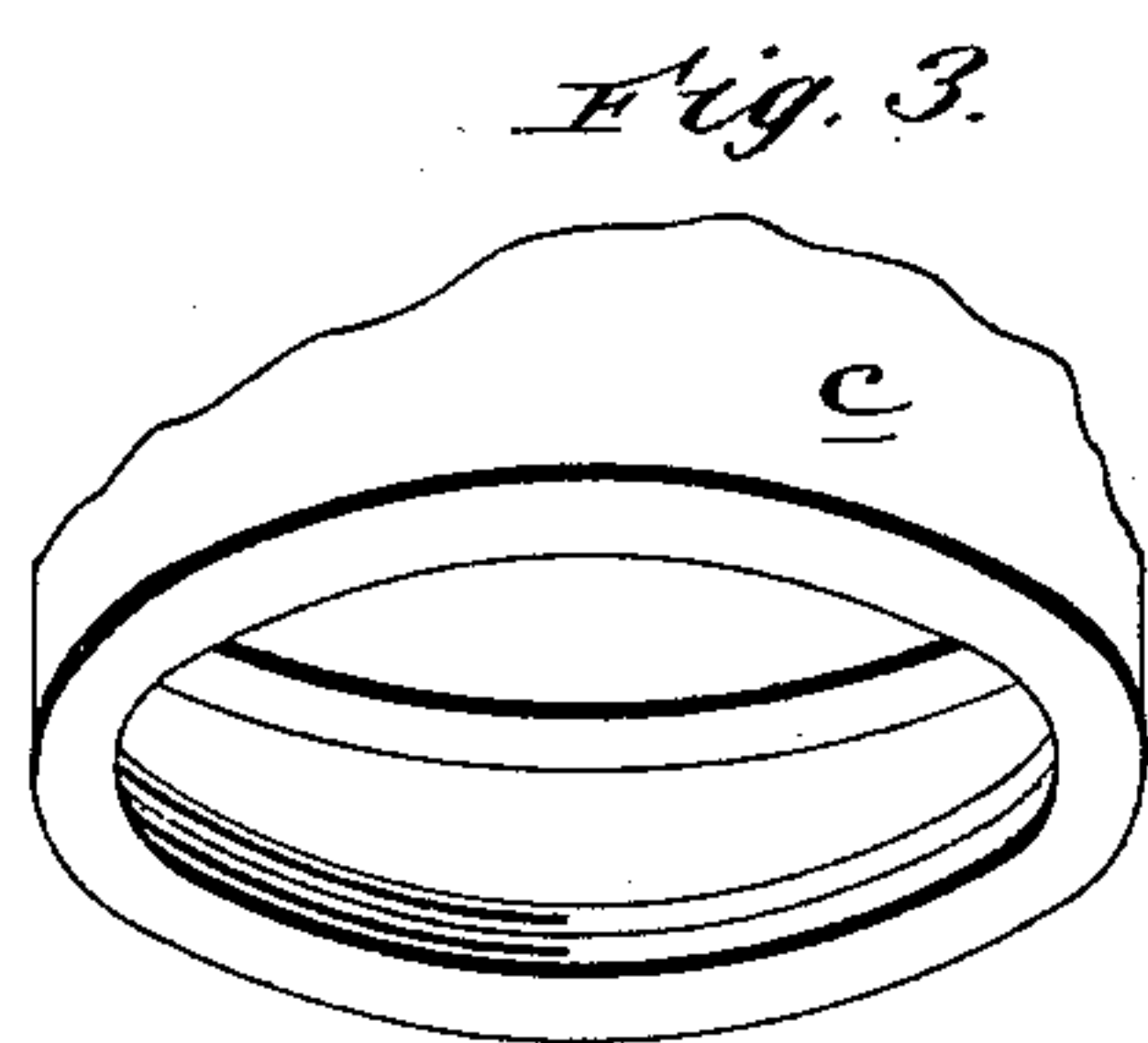
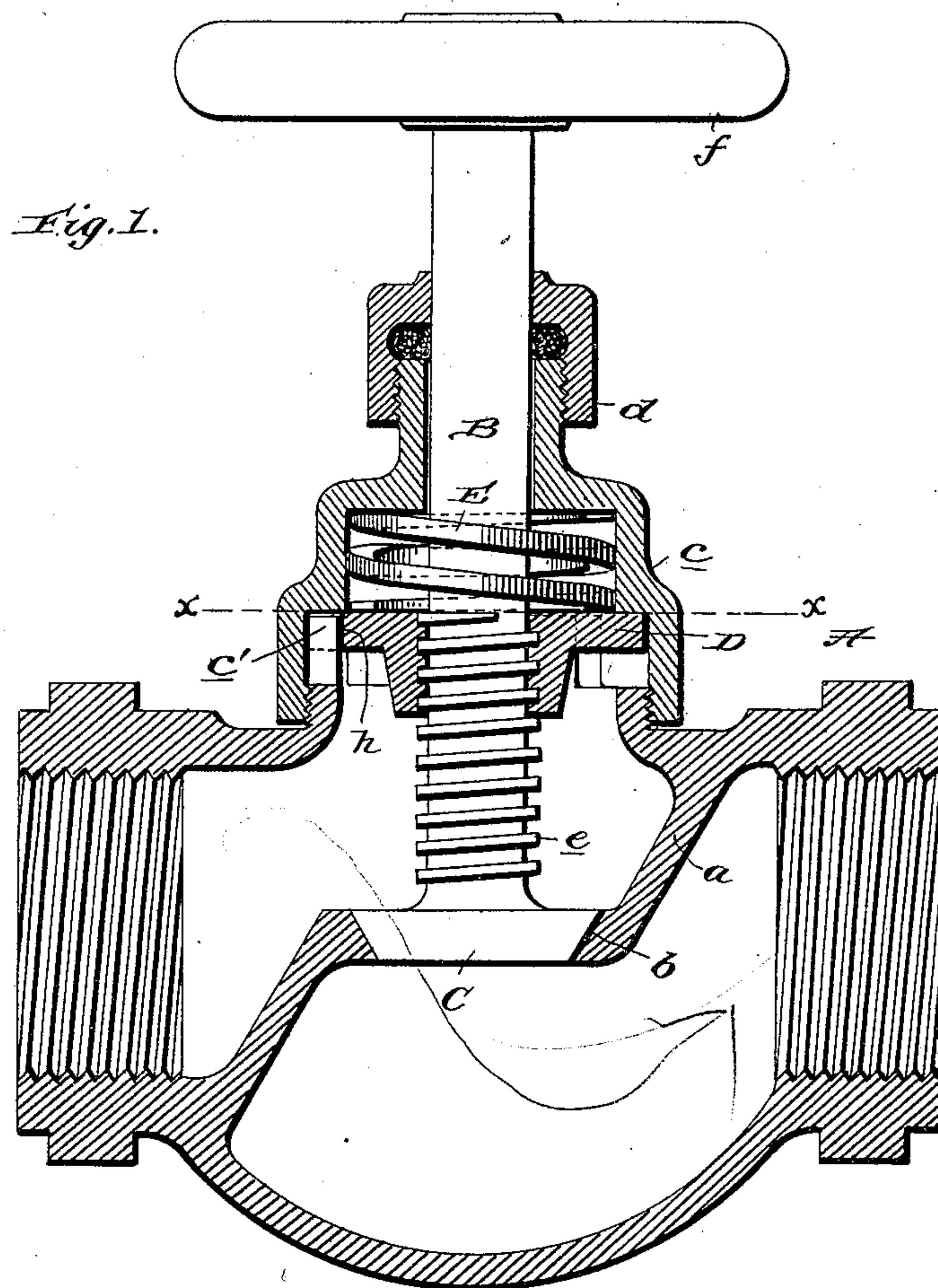
No. 616,275.

Patented Dec. 20, 1898.

L. SWENSON.  
RECIPROCATING VALVE.

(Application filed Feb. 15, 1898.)

(No Model.)



witnesses:  
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# UNITED STATES PATENT OFFICE.

LORENS SWENSON, OF CRESCO, IOWA, ASSIGNOR OF ONE-HALF TO LEWIS BARSNESS, OF PEKIN, ILLINOIS.

## RECIPROCATING VALVE.

SPECIFICATION forming part of Letters Patent No. 616,275, dated December 20, 1898.

Application filed February 15, 1898. Serial No. 670,410. (No model.)

*To all whom it may concern:*

Be it known that I, LORENS SWENSON, a citizen of the United States, residing at Cresco, in the county of Howard and State of Iowa, have invented new and useful Improvements in Valves, of which the following is a specification.

My invention relates to valves, and more particularly to that class which are designed for use in steam-fittings and similar connections; and it contemplates the provision of a self-grinding valve which while simple in construction is highly efficient in operation under all conditions and is adapted to be opened quite as quickly and easily as ordinary valves.

The invention and its advantages will be fully understood from the following description and claim when taken in conjunction with the annexed drawings, in which—

Figure 1 is a vertical section of a globe-valve embodying my invention. Fig. 2 is a detail section taken in the plane indicated by the line *xx* of Fig. 1. Fig. 3 is a detail perspective view of the interior of the lower portion of the bonnet, and Fig. 4 is a perspective view of the adjustable nut.

Referring by letter to the said drawings, A designates the casing of a globe-valve, which has the usual partition *a* and valve-seat *b* and also has a detachable interiorly-threaded bonnet *c* and interior guide-lugs *c'* within the same (see Figs. 2 and 3) and is surmounted by a packing-gland *d*, as shown, and B designates the valve-stem, which is threaded, as indicated by *e*, and is provided at its lower end with an enlargement C, forming an integral valve-body, and at its upper end with a suitable handle *f*, as shown.

D designates a nut which is mounted upon the threaded portion *e* of the stem B and has a flange *g*, provided with peripheral notches *h*, receiving the interior lugs *c'* of the casing, and E designates a helical spring which surrounds the stem B within the bonnet *c* and is interposed between the nut D and the top of said bonnet, as shown. The pressure exerted by the said spring may be readily regulated to suit different conditions by removing the bonnet *c* from the body of the casing, and

after moving the valve-stem in an endwise direction to disengage the nut D from the lugs *c'* turning the said nut D in one direction or the other, according as to whether the pressure is to be increased or diminished. When, however, the nut D is replaced in the bonnet and in engagement with the lugs *c'* thereof and the bonnet is secured on the body of the casing, the nut is held against turning on the stem, but is free to move up and down on the said lugs *c'* for a purpose presently described.

The bonnet *c* is interiorly threaded to engage the threaded flange *c<sup>2</sup>* of the body portion of the casing and is interiorly shouldered, as indicated by *c<sup>3</sup>*, to form a stop for the nut D on the upward movement thereof, the upper end of the flange *c<sup>2</sup>* forming a stop for the nut on the downward movement thereof, as will be readily appreciated by reference to Fig. 1.

In Fig. 1 of the drawings, the valve-body C is shown as pressed tightly against its seat *b* and the spring E as contracted. It follows from this that when the stem B is turned to open the valve the valve-body C will remain in engagement with and turn against the seat *b* until the spring E is expanded, and in consequence the said seat will be ground. It also follows that when the valve is open and the spring E is in an expanded condition the subsequent rotation of the valve-stem necessary to close the valve will result in the valve-body being carried against the seat *b*, while the spring E is still expanded and ground against said seat until the spring is contracted. This grinding action incident to each opening and closing of the valve is highly advantageous, for the reason that it will effectually prevent the accumulation of scale, sand, rust, and other foreign particles upon the valve body and seat. As the deposit of such foreign particles on the valve body and seat is the cause of pitting and other deterioration of the same, it will be appreciated that my improvements are calculated to prevent leakage and to materially prolong the usefulness of valves in which they are embodied.

In virtue of the spring E being interposed



between the nut on the stem and the top of the bonnet, as described, a steady grinding action of the valve-body against the seat *b* during both the opening and closing of the valve is secured, which is an important advantage.

I prefer to form the valve-body *C* integral with the stem *B*, as shown and described. I do not desire, however, to be understood as confining myself to such construction, as the valve-body may be formed separately and connected with the stem in any approved manner.

Having thus described my invention, what I claim is—

The herein-described valve consisting essentially of the casing comprising the body portion containing a valve-seat and having the exteriorly-threaded flange *c*<sup>2</sup> and the detachable bonnet having the interior threads engaging the threaded flange and also having

the interior shoulder *c*<sup>3</sup> and the interior lugs *c'*, the threaded valve-stem loosely arranged in the bonnet of the casing and having a valve-body at its inner end and a handle at its outer end, the nut arranged on the threaded portion of the stem within the bonnet and having the peripheral flange interposed between the flange *c*<sup>2</sup> of the casing-body and the interior shoulder *c*<sup>3</sup> of the bonnet and also having notches in said peripheral flange receiving the lugs *c'* of the bonnet, and the helical spring surrounding the stem and interposed between the nut and the top of the bonnet, substantially as specified.

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

LORENS SWENSON.

Witnesses:

C. W. SAWYER,

C. A. L. LOOMIS.