

(No Model.)

3 Sheets—Sheet 1.

F. J. FERRELL.
VALVE.

No. 501,497.

Patented July 18, 1893.

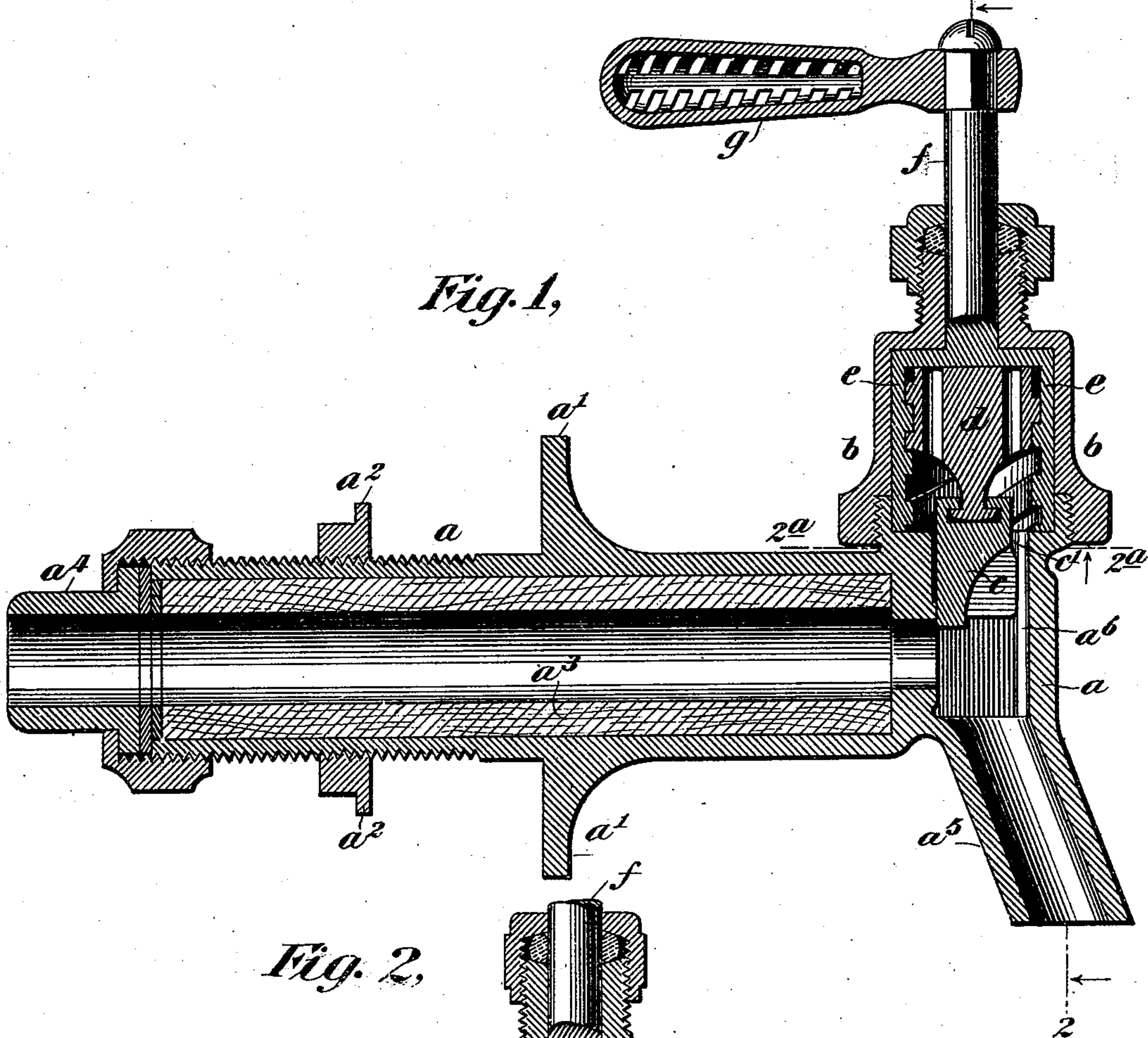


Fig. 2,

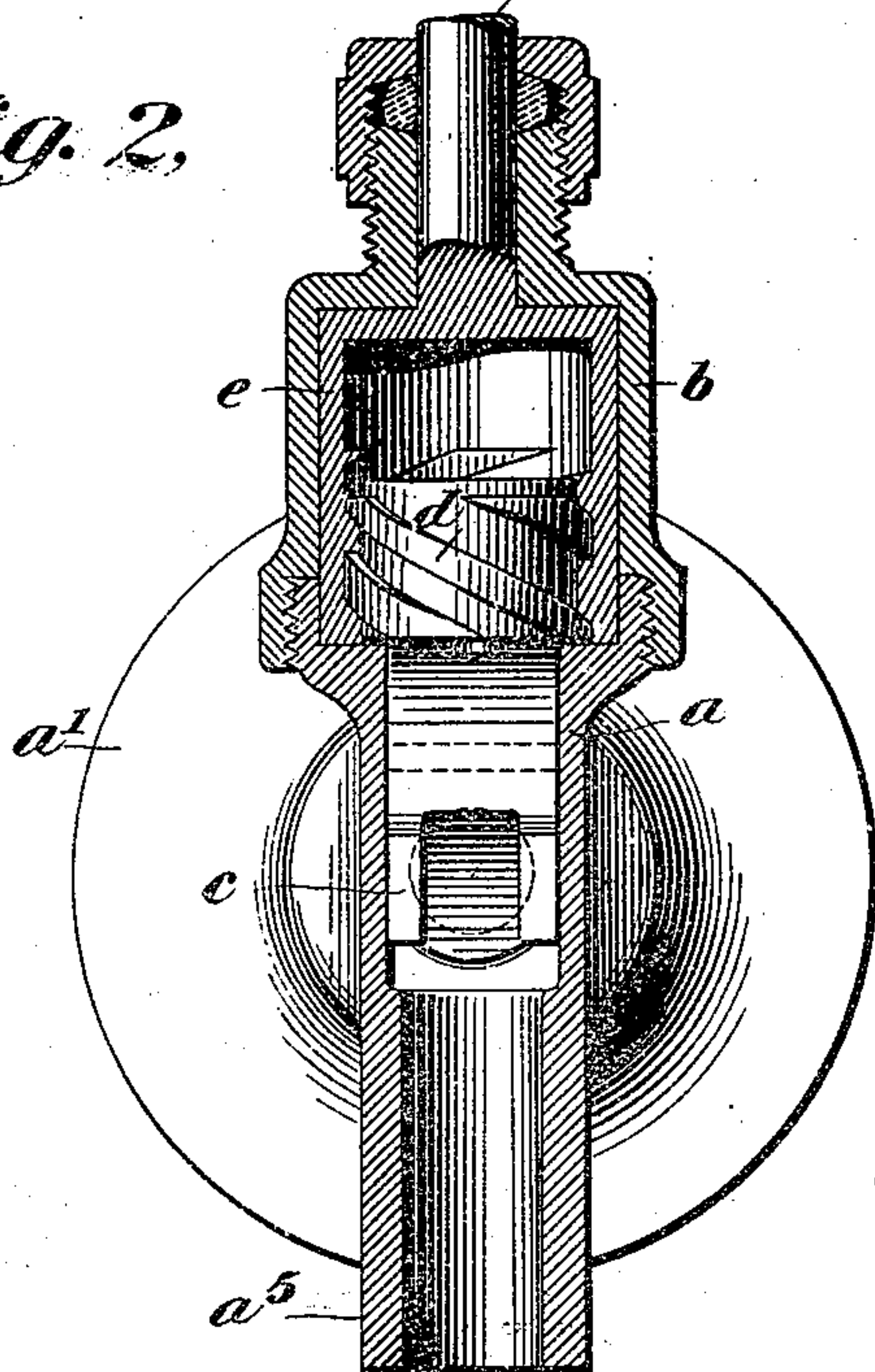
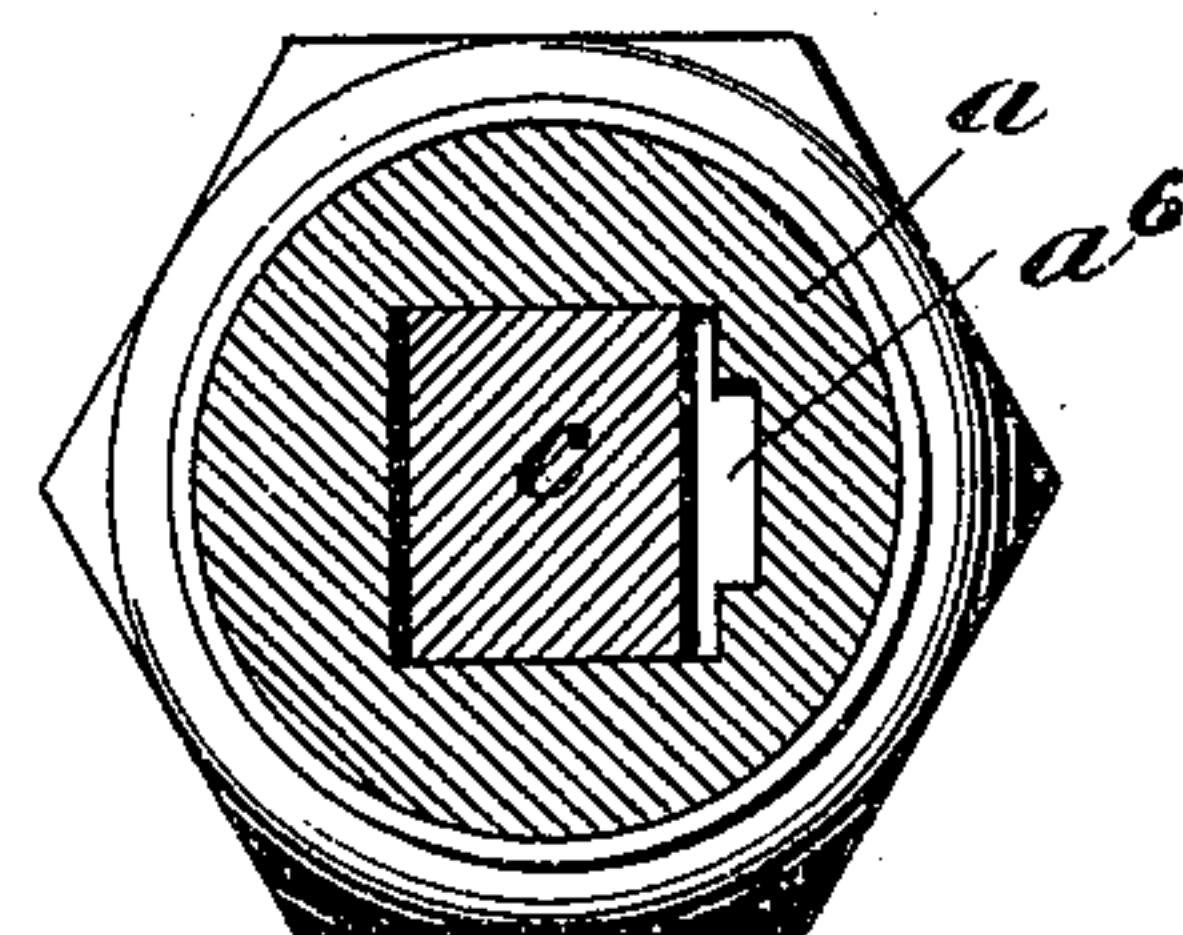


Fig. 2^a,



Witnesses
C. E. Ashley
H. W. Lloyd.

Frank J. Ferrell
Inventor

By his Attorney

Henry D. Williams

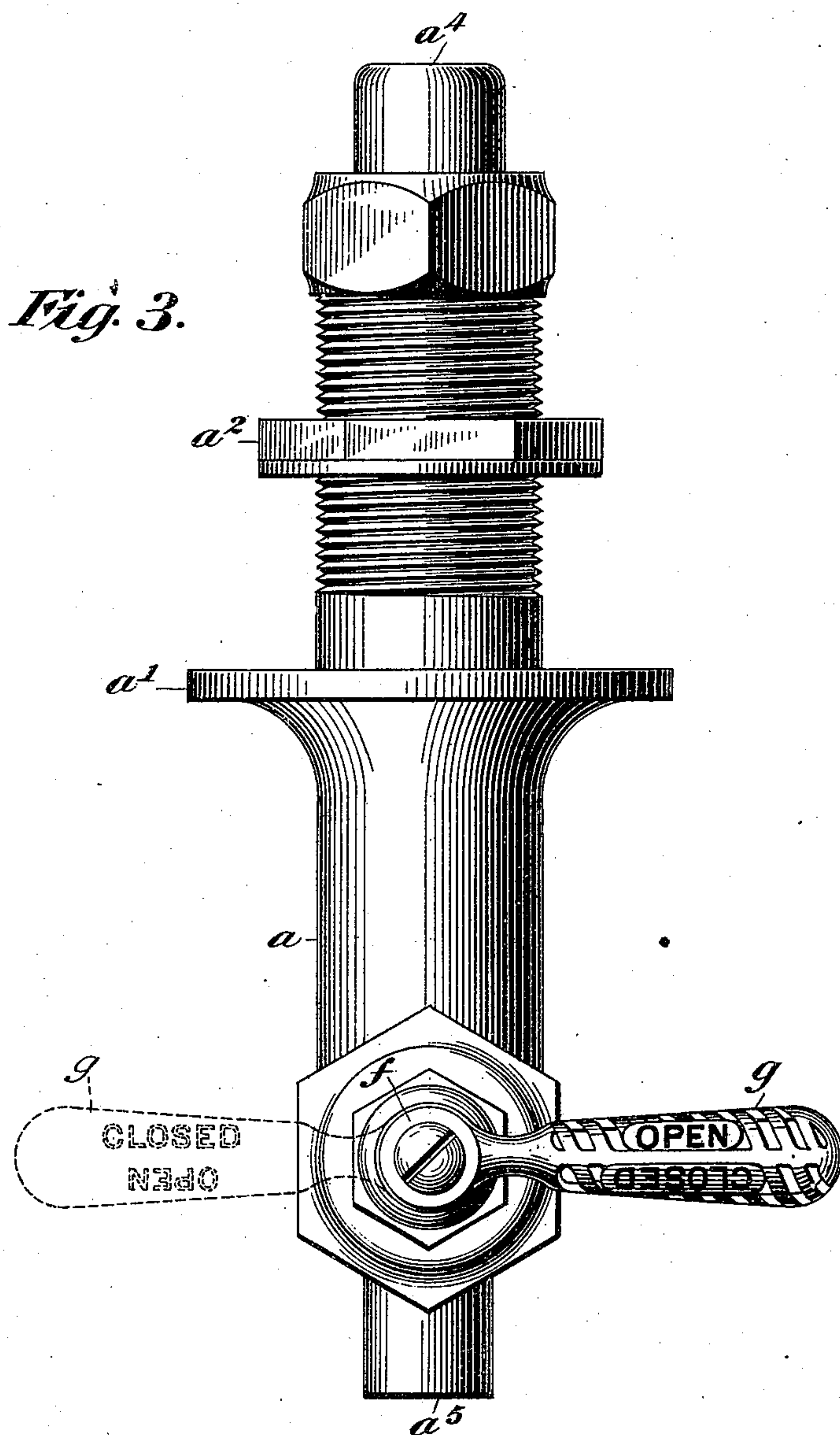
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Fig. 4,

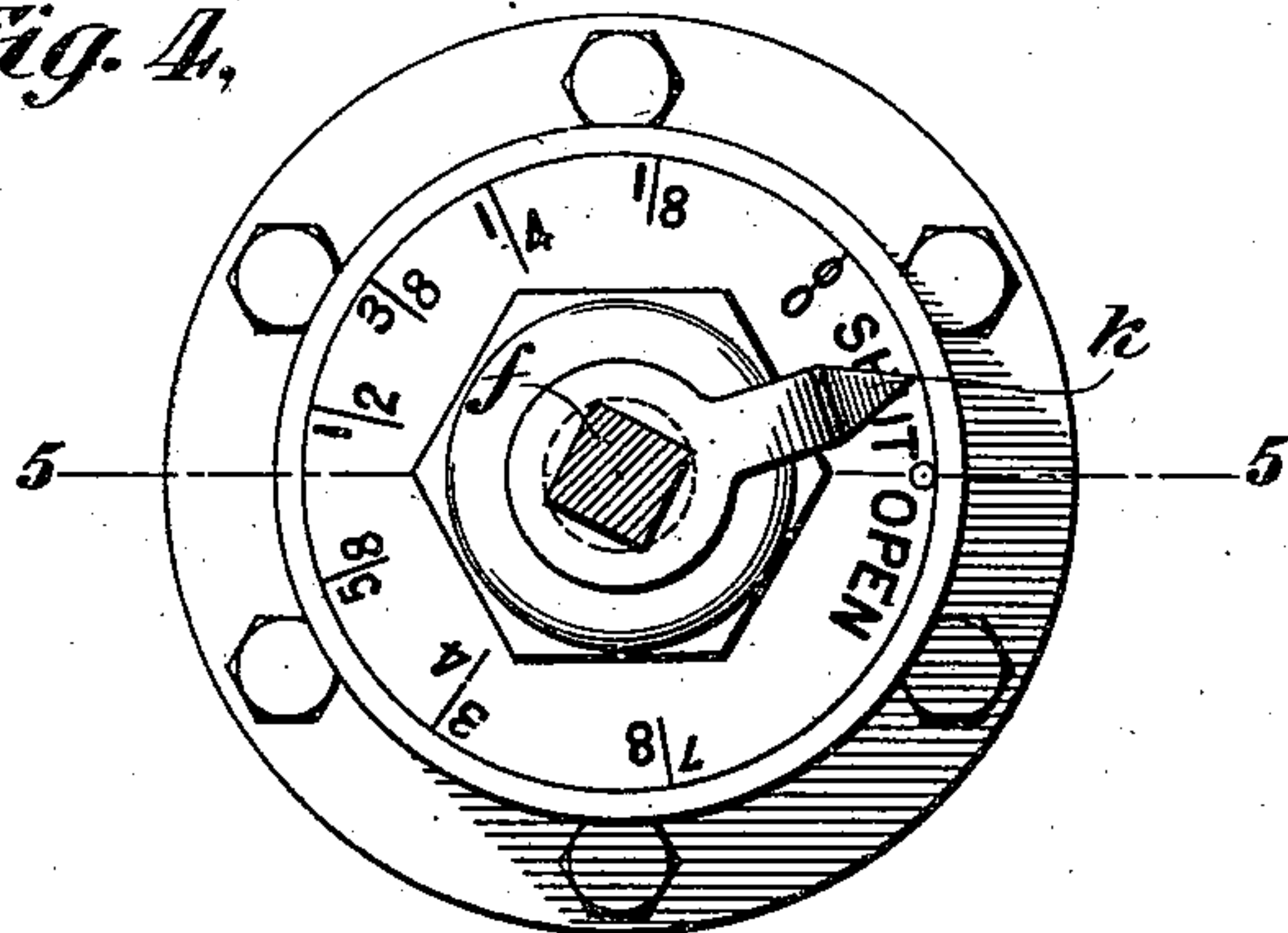


Fig. 5,

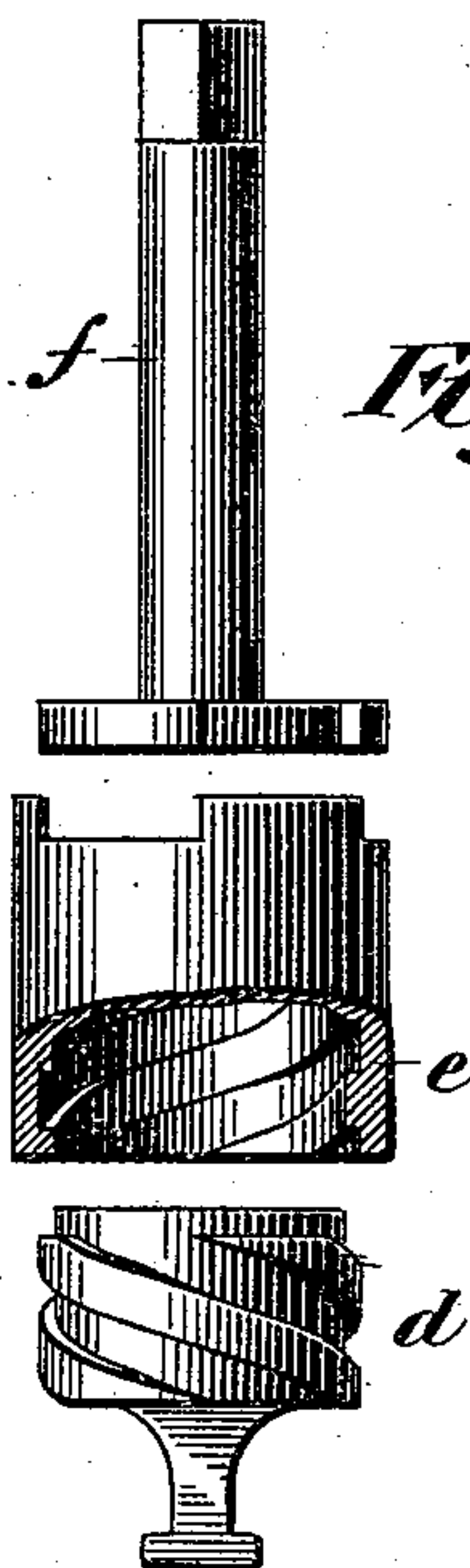
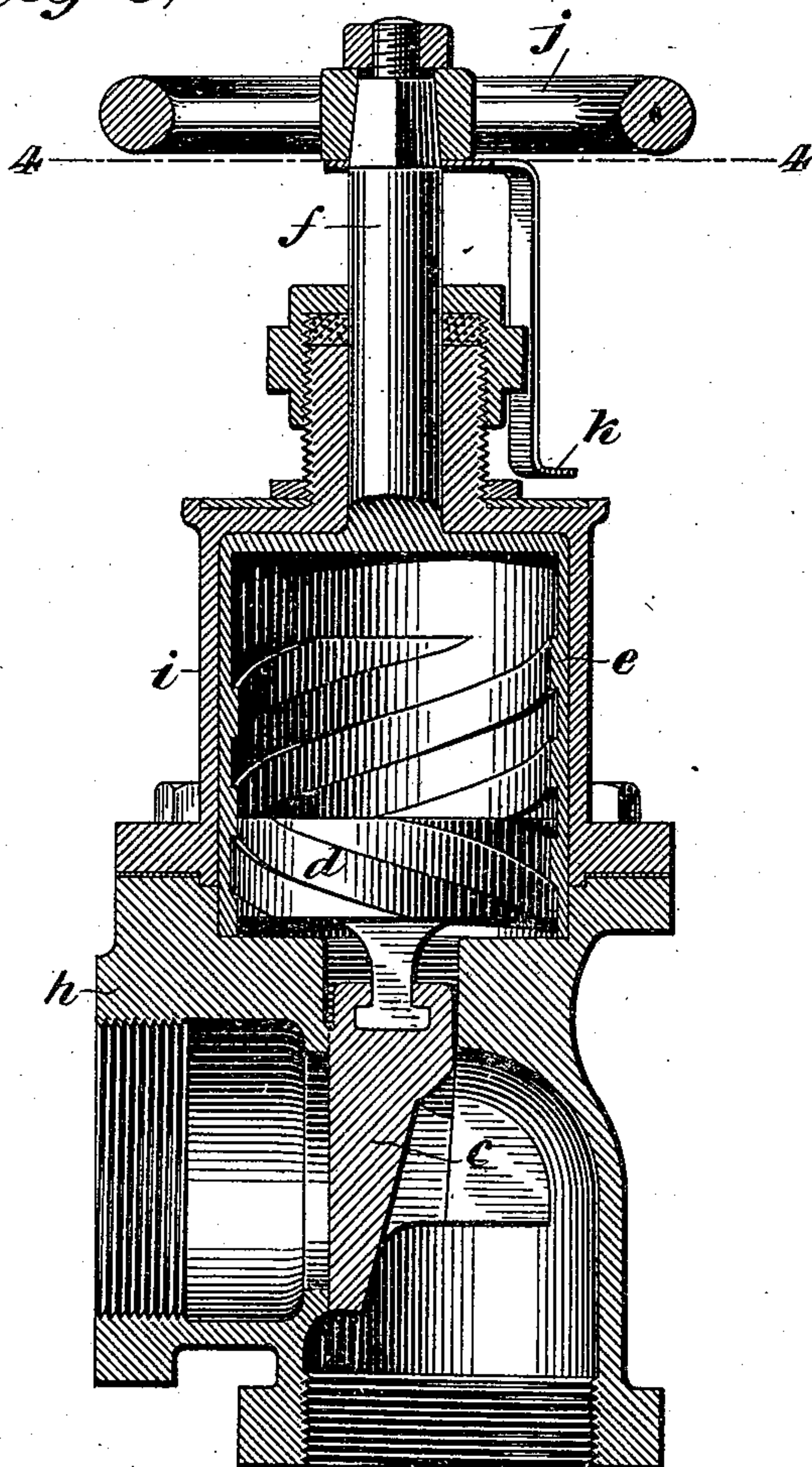


Fig. 6,

Witnesses
C. E. Ashley
H. W. Lloyd.

Frank J. Ferrell.
Inventor

By his Attorney
Henry D. Williams

UNITED STATES PATENT OFFICE.

FRANK J. FERRELL, OF NEW YORK, N. Y.

VALVE.

SPECIFICATION forming part of Letters Patent No. 501,497, dated July 18, 1893.

Application filed June 16, 1892. Serial No. 436,951. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. FERRELL, a citizen of the United States, and a resident of New York city, State of New York, have invented certain new and useful Improvements in Valves, of which the following is a specification, reference being had to the accompanying drawings, forming part hereof.

My invention relates to valves for controlling the passage of liquids, and is in part especially adapted for valves or faucets for malt liquors.

It consists of certain improvements herein-after particularly described in the construction of such valves, whereby strength, simplicity and compactness of structure are attained.

In the accompanying drawings Figure 1 is a vertical central section of a faucet or valve such as is used for drawing malt liquors from kegs or barrels, showing my improvements applied thereto. Fig. 2 is a vertical section on the line 2—2, Fig. 1; and Fig. 2^a is a horizontal section on the line 2^a—2^a, Fig. 1. Fig. 3 is an elevation showing such a faucet arranged vertically. Fig. 4 is a plan view in section on the line 4—4, Fig. 5, showing a blow-off valve with part of my invention applied thereto; and Fig. 5 is a vertical section of the same on the line 5—5, Fig. 4. Fig. 6 shows in elevation and part section detached views of the several parts of a modified construction of the valve-actuating mechanism.

The faucet shown in Figs. 1, 2 and 2^a is composed of a body *a*, containing and including the valve port and fluid passages, of devices for connecting the faucet with the keg and supporting frame or cabinet, an upper part or bonnet *b* incasing the operating mechanism, and of the valve and its operating mechanism. The body *a* is provided with a flange *a'* and is partly screw threaded exteriorly and provided with a nut *a²* whereby it is clamped in the cabinet or supporting frame of the keg. It is also provided with an interior wooden bushing *a³*. An end piece *a⁴* is secured at its inner end to hold a coupling fastened to the keg. The exit opening or mouth-piece *a⁵* of the faucet is in one piece with the body *a*. The parts, *a'*, *a²*, *a³*, *a⁴* and *a⁵* just described are of ordinary construction and will be varied as is customary to suit different requirements. In Fig. 3, for instance,

where the faucet extends vertically downward throughout its length, the mouth-piece *a⁵* is in line with the other parts instead of being inclined downward therefrom as in Figs. 1, 2 and 2^a.

The valve *c* slides vertically in guides formed in the main part *a*. The valve stem *d* is joined to the valve by an ordinary T connection and is exteriorly threaded to mesh within the interiorly threaded cup-shaped extension *e* of the operating stem *f*. The operating stem *f* is fitted to rotate only in bearings in the upper part or bonnet *a'* of the casing, is located centrally in line with the valve, extends outward through a packed stuffing box, and is provided at its upper end with an operating handle *g*. The cup shaped extension *e* fits snugly within the bonnet *a'* and may be of comparatively thin metal, as shown, since it is reinforced by the walls of said bonnet. The threaded inner periphery of the cup-shaped extension *e* is of large diameter, considerably larger than the diameter of the valve operating stem, *f*, and is internally of larger diameter than the width of the valve, so that the valve when lifted, may enter within the said cup-shaped extension *e*.

The threads formed on the valve stem and operating stem are of large pitch, so that the valve is moved through its full stroke by a one-half revolution of the operating handle *g*. The large diameter of the threaded parts permits this to be done with an easy working angle for the threads. The valve stem is short and in upper position is telescoped within the cup-shaped extension *e* of the operating stem and lifts the upper portion of the valve partly within said extension *e* of the valve stem. This is especially evident in Fig. 5, where the lower end of the extension *e* of the operating stem is but a short distance from the valve port, and the valve when opened is lifted within the extension *e*.

The screw threads of the valve stem and operating stem in Figs. 1 and 2 are shown differentially sized to insure that they shall be so put together that the handle will be in proper position. This feature of construction is not claimed herein, being covered by my Patent No. 462,762, dated November 10, 1891. The handle *g* may be provided with suitable lettering to indicate open and closed posi-

tions, as shown in Fig. 3, in which figure the full lines showing the handle indicate the open position of the valve, and the dotted lines indicate the closed position of the valve.

5 In valves or faucets used for malt liquors it is essential that the liquid shall not remain for any considerable length of time in contact with the metallic parts, as such contact with the metallic parts would tend to cause corrosion of the metal by the acids of the fluid. This
10 is the object of the ordinary wooden bushing a^3 . To insure that the liquid shall not foam or rise up into the operating mechanism of the valve I make this portion of the valve act as
15 an air chamber, and provide an air inlet to this chamber at a point some distance from the valve port by forming the channel or groove c' in the valve and the channel or groove a^6 in the casing. These channels also
20 assure a ventilation of these parts, so that the liquid will not in any event accumulate about the operating mechanism.

In Figs. 4 and 5 a straight-way angle valve is shown embodying my improvements in the
25 operating mechanism. In the valve here shown the threads on the extension e of the operating stem f and in the valve stem d are of uniform size, but there may be one larger thread than the others, if desired, to insure
30 the meshing of these parts in only one position. The valve casing is composed of two parts, the body part a containing the valve port and the upper part i containing the operating mechanism. An operating hand-wheel
35 j and index k are secured to the operating stem f , and suitable indicating marks are formed on the upper part i , or in a plate secured to the upper part i , of the casing. The

threads of this valve are arranged to impart the full movement to the valve with one revolution of the operating stem f . 40

Fig. 6 shows a modified construction in which the extension e of the operating stem f is a separate cylindrical piece which fits over a notched disk at the end of the operating
45 stem.

Having now described my invention, what I claim is—

1. The combination with a valve, of the valve operating stem f , provided with the cup-shaped extension e , located centrally in line
50 with the valve and of larger internal diameter than the width of the valve, so that the valve may enter therein, and of larger diameter than the valve operating stem f , and having
55 its inner periphery threaded, the short valve stem d connected to the valve and exteriorly threaded to fit and mesh within the threaded inner portion of the extension e , and
60 a casing for the valve having a bonnet provided with bearings for said valve operating stem and for the cup-shaped extension thereof, substantially as set forth.

2. The combination of the valve body a , the valve port and fluid passages and the channel
65 a^6 therein, the upper part b , the valve c having channel c' therein, the valve stem d , connected to the valve and exteriorly threaded, the operating stem f and the interiorly threaded extension e thereof meshing with
70 the valve stem, substantially as shown and described.

FRANK J. FERRELL.

Witnesses:

HENRY D. WILLIAMS,
SIDNEY MANN.