

(No Model.)

W. HESTON.  
VALVE.

No. 560,994.

Patented May 26, 1896.

Fig. 1

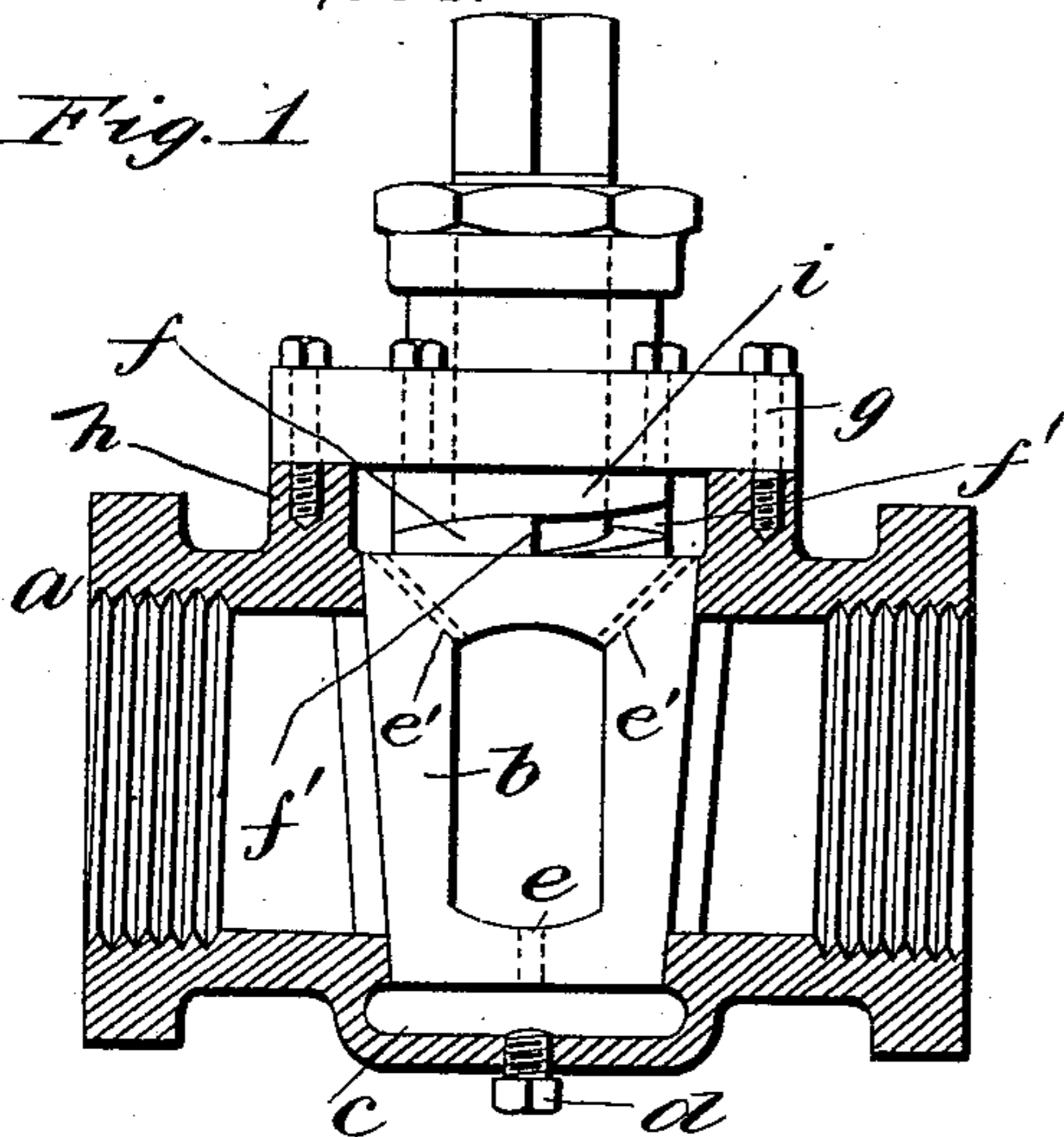


Fig. 2

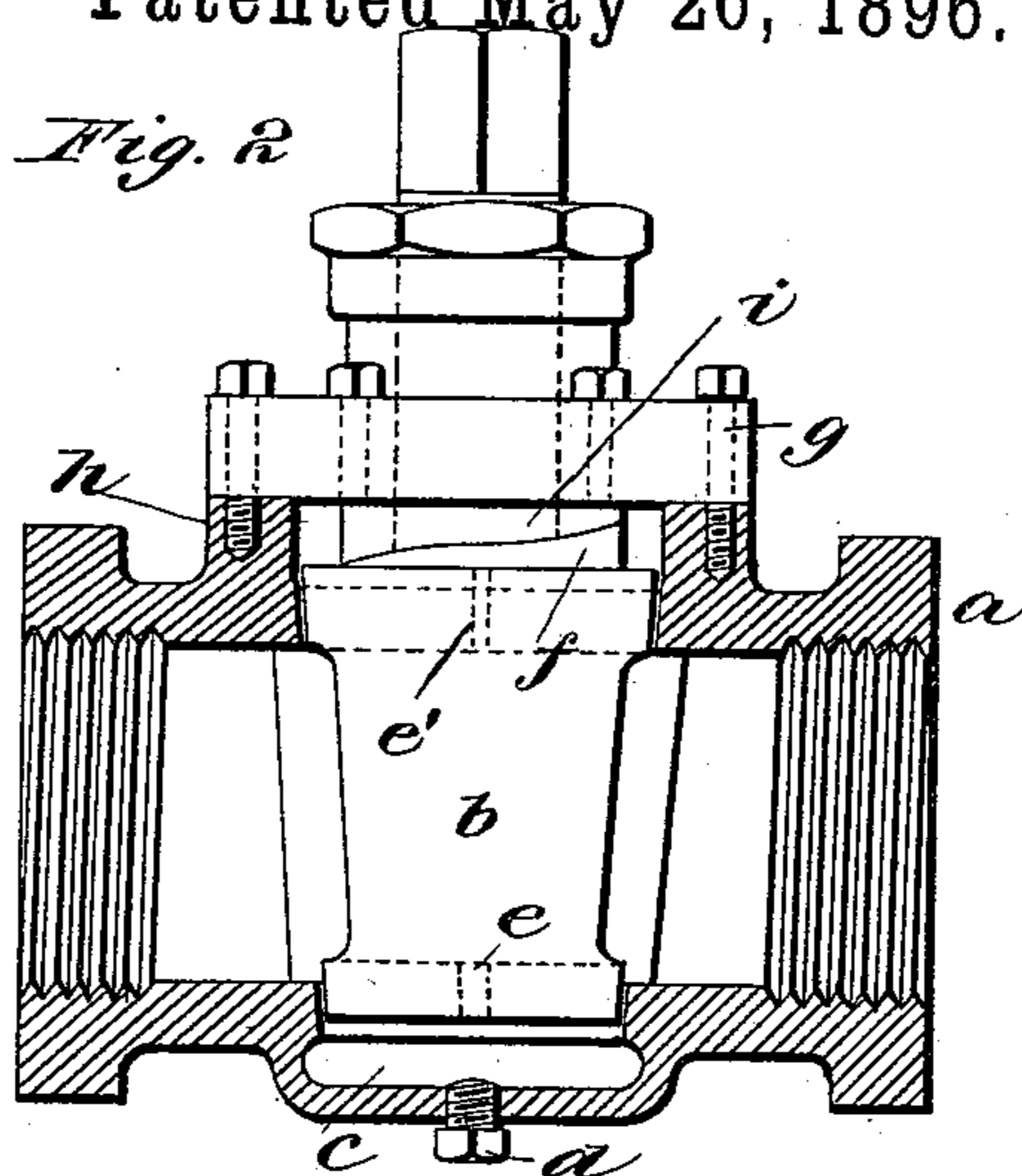


Fig. 3

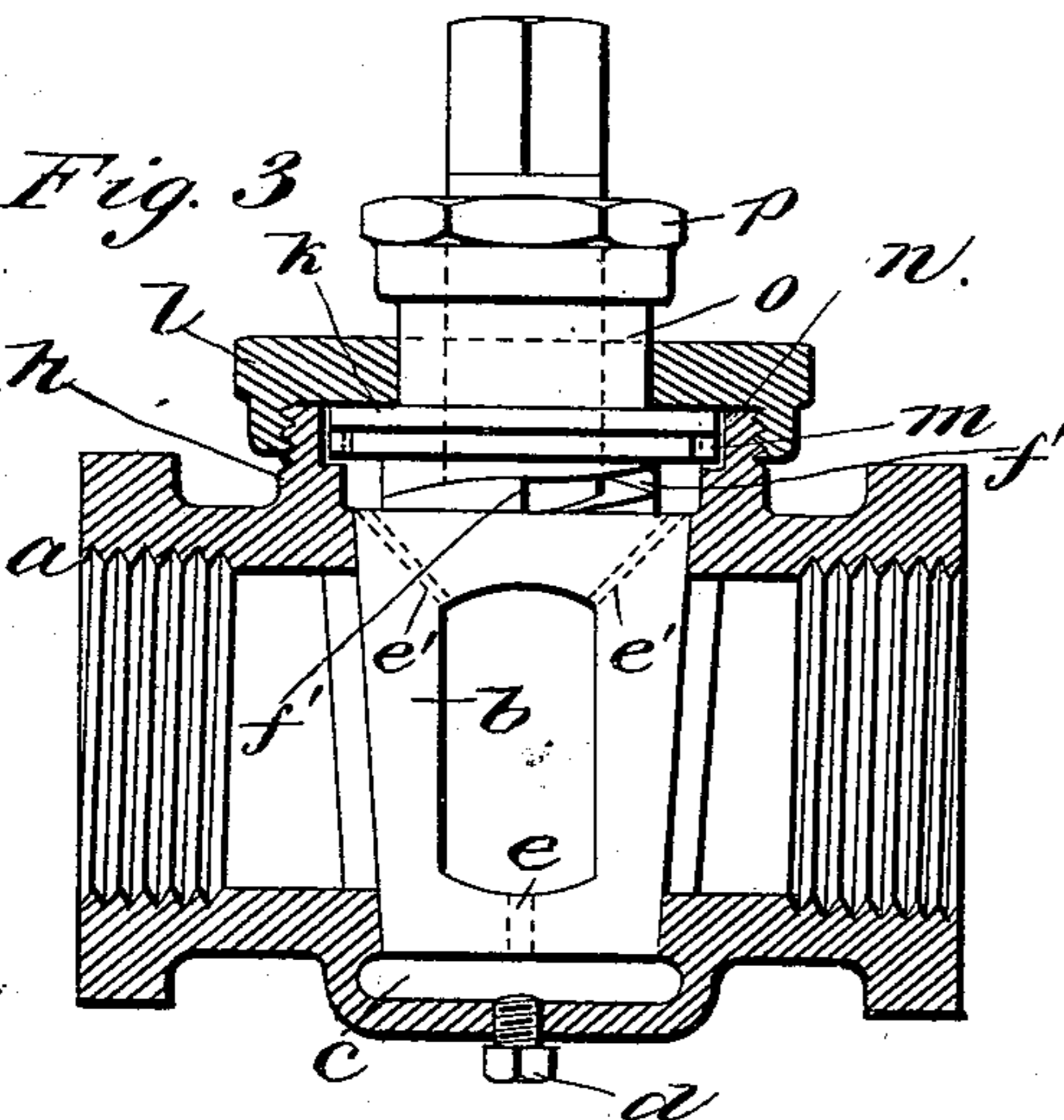


Fig. 4

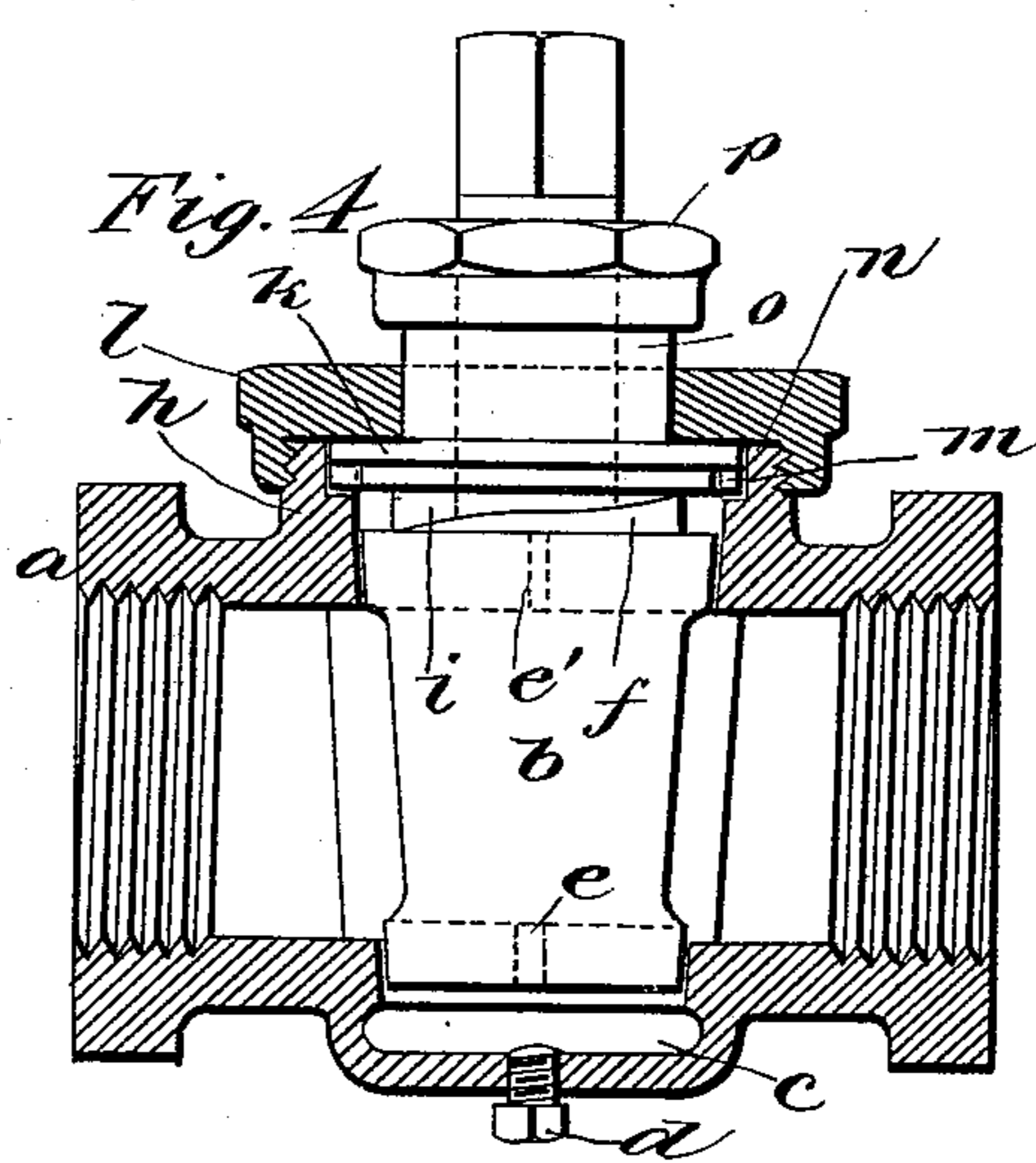


Fig. 5

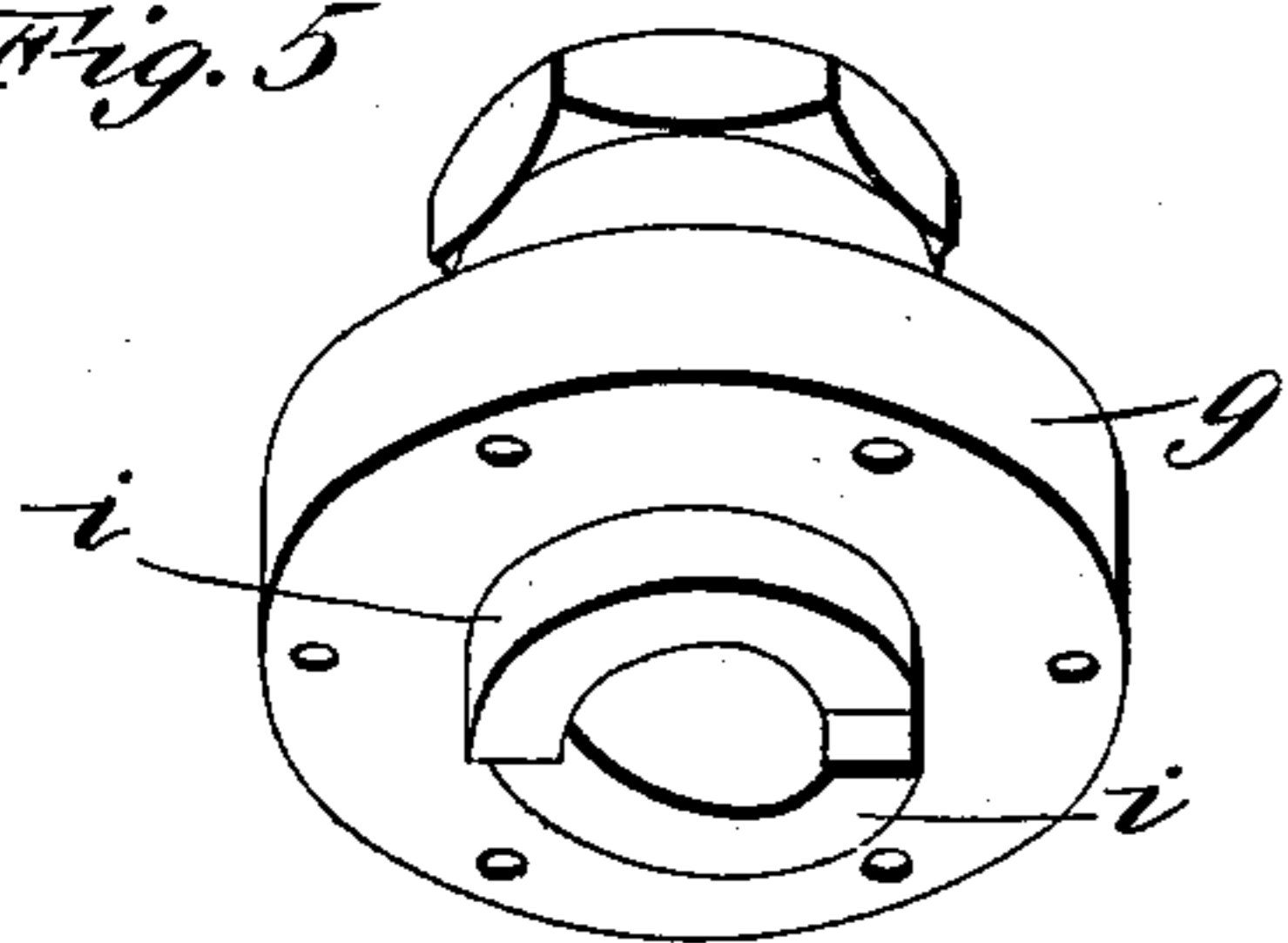


Fig. 6

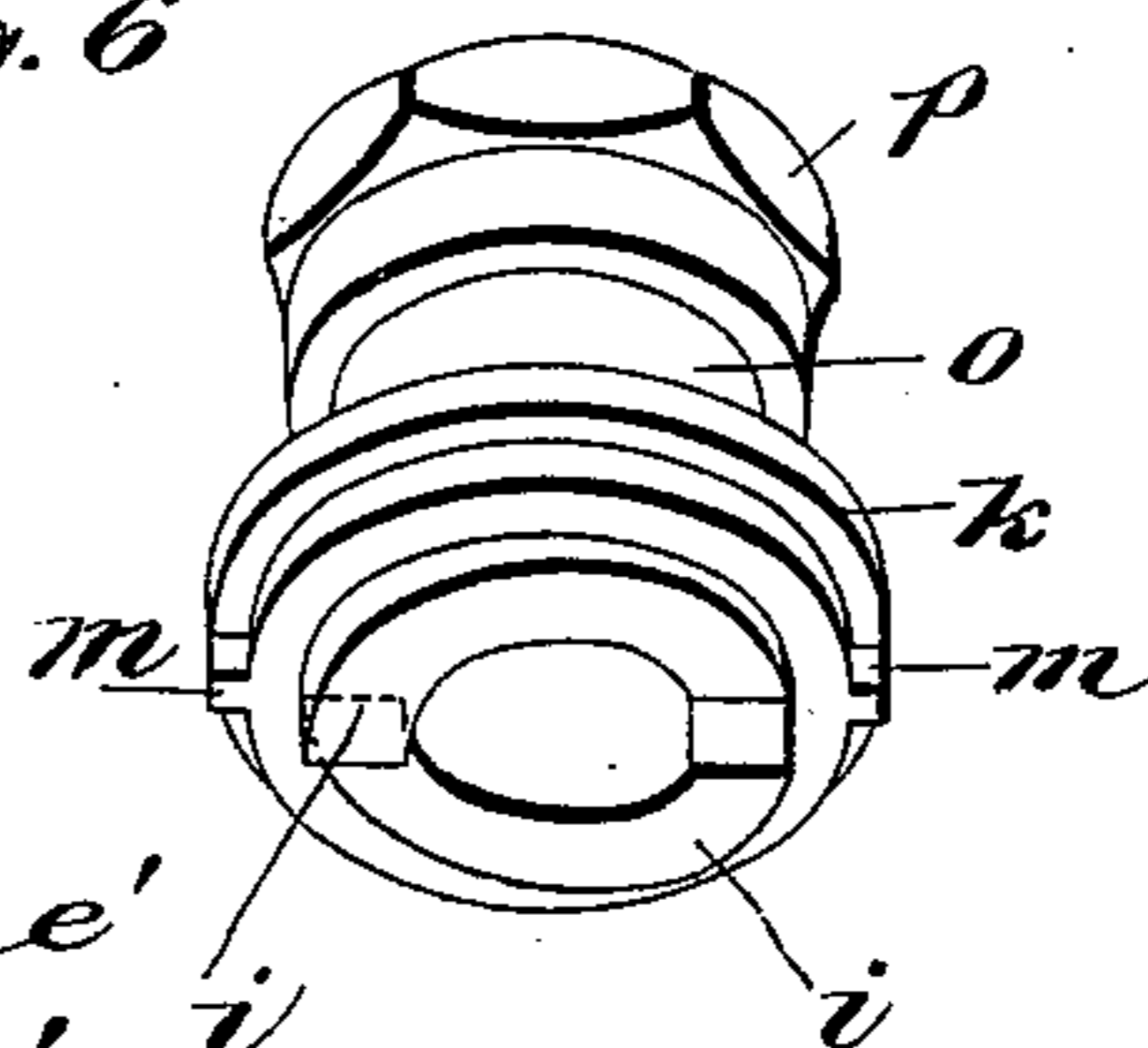
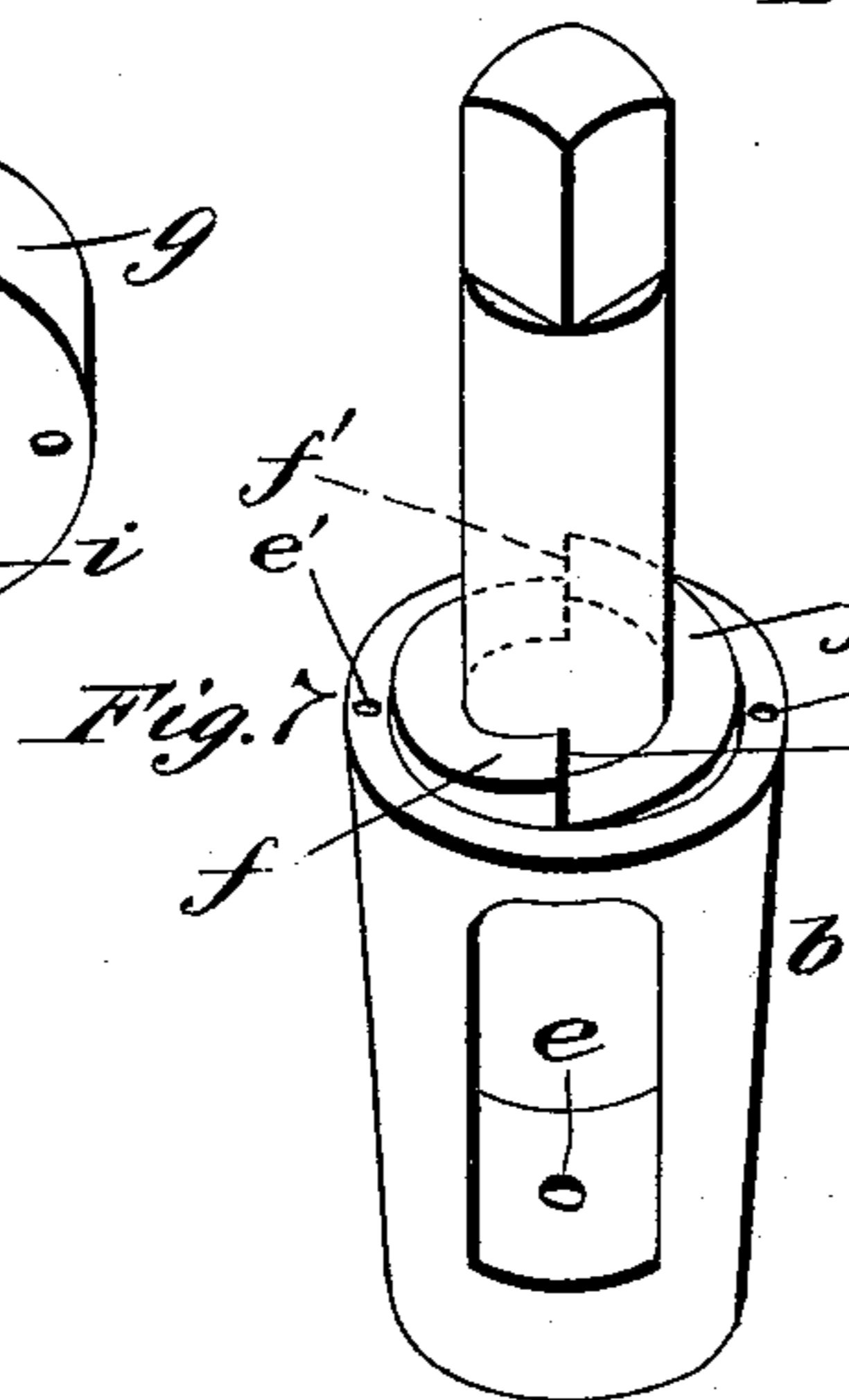


Fig. 7



Witnesses  
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att'y.

# UNITED STATES PATENT OFFICE.

WILLIAM HESTON, OF HOMESTEAD, PENNSYLVANIA, ASSIGNOR TO THE  
HOMESTEAD MANUFACTURING COMPANY, LIMITED, OF SAME PLACE.

## VALVE.

SPECIFICATION forming part of Letters Patent No. 560,994, dated May 26, 1896.

Application filed November 30, 1895. Serial No. 570,624. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HESTON, a citizen of the United States, residing at Homestead, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Valves, of which the following is a full, clear, and exact description.

This invention relates to a modification of or improvement upon the invention set forth in my application for patent filed September 16, 1895, Serial No. 562,664. In that invention a floating or loose collar or equivalent device was interposed between the cover or cap and the plug, which, in connection with a sort of clutching device, served to restrain or limit the respective movements or reciprocations of the plug. The floating or loose collar itself in that case was restrained from rotation, but had a rising and falling motion above the plug. In that invention the effective restraining element was what I have herein designated the "clutching" mechanism—that is to say, the inclines and abutments described in that application. In the present invention similar inclines or abutments—that is to say, clutching devices, stops, or detents—are arranged, respectively, upon the plug or valve proper, and a member which is not only non-rotary, as in the other case, but which also is fixed against any movement whatever, the necessary movement being obtained by giving the plug or valve proper a slight clearance in its seat.

Having thus described the principle of my invention, I will proceed now to describe the best mode in which I have contemplated applying that principle, and then will particularly point out and finally claim the part, improvement, or combination which I claim as my invention.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a vertical section of the casing of a turning plug or plug-cock, with the plug and its locking mechanism in elevation, the parts being shown closed. Fig. 2 is a similar view of the parts in open position. Fig. 3 is a similar view of a modification, valve closed. Fig. 4

is a similar view of the said modification, valve open. Fig. 5 is a perspective view of the cap of Figs. 1 and 2. Fig. 6 is a perspective view of part of the detaining or locking device of the modification shown in Figs. 3 and 4, and Fig. 7 is a perspective view of a plug which may be used in either form of my invention.

The casing *a* may be of any approved construction to receive the desired form of valve. Without thereby limiting my invention I will proceed to describe my said invention as applied to a turning plug or plug-cock. A tapering straightway plug *b* is seated in a complementary seat in the casing, and beneath this plug is the drip-pocket *c*, provided with a removable screw *d* for effecting the draining of the valve, a duct *e* being made in the bottom of the plug and opening into said pocket *c* and ducts *e' e'*, leading from the port of the valve to the space above it, so that with the several ducts the valve and its casing may be not only drained, but the valve is pressure-balanced. The top of the plug is provided with inclines *f*, which terminate in the squared shoulders *f'*.

As shown in Figs. 1, 2, and 5, a cap *g* is rigidly fixed to the flange *h* of the induct for the plug, and this cap *g* has the complementary shouldered inclines *i*. As shown in Figs. 3, 4, and 6, instead of making the complementary shouldered inclines upon a cap and bolting or screwing on the cap I may make these inclines upon a separate plate *k* and secure it within the flange *h* of the casing by means of a screw-cap *l*. In such case in order to restrain the plate *k* from rotation I provide it with a number of lugs *m*, which are adapted to rest in corresponding recesses *n* in the flange *h*. The plate *k* may be and is herein shown as provided with a sleeve *o*, through which the stem of the plug projects, and which receives a gland *p* to make a fluid-tight joint around the said stem. Now in order to provide for the rotation or turning of the plug or valve it is necessary that there should be some clearance, and since the upper member of the clutching or detaining device is absolutely rigid and without movement such clearance may be provided between the plug

or valve and its seat. This clearance is shown, but in a greatly exaggerated manner, in Figs. 2 and 4, and since only a quarter-turn is necessary in order to effect the opening and closing of the valve it is obvious that only a very slight looseness of the plug in its seat is necessary to this end. It will be understood, now, that if the valve and its restraining device be assembled with the shoulders of the inclines in contact the parts will be as close together as they can be brought, and if the parts so assembled be inserted in the valve-casing, valve open, as in Figs. 2 and 4, the plug will be loose in its seat—that is to say, there will be a certain but very small proportion of clearance, and hence when the plug is turned to close the valve such plug is free to descend into its seat under the action of the inclines by their tendency to separate, as indicated in Figs. 1 and 3, and the valve will be forced home hard and tight, thus insuring not only the seating of the valve, but the seating thereof in a fluid-tight manner. Moreover, by these operations—namely, the coming together or interlocking of the shoulders of the inclines when the valve is open and the forcing of the plug to its seat when it is closed—the opera-

tion of the valve is rendered certain as well as easy.

What I claim is—

A valve-casing, a seat therein, a plug or valve arranged to turn in said seat and provided upon its head with a suitable number of inclines terminating in square shoulders, a device rigidly and immovably fixed to or forming part of the valve-casing and supplied with complementary shouldered inclines, the inclines of which cooperate with the inclines on the plug or valve to ease off the plug from its seat and the shoulders interlocking positively to restrain the undue movement of the plug or valve in the act of opening, the inclines themselves serving further to force the plug or valve to its seat and restrain undue movement thereof in closing, substantially as described.

In testimony whereof I have hereunto set my hand this 29th day of November, A. D. 1895.

WILLIAM HESTON.

Witnesses:

REID KENNEDY,

FREDERICK SCHUCHMAN.