

(No Model.)

T. F. MORRIN.

VALVE.

No. 364,842.

Patented June 14, 1887.

Fig. 1.

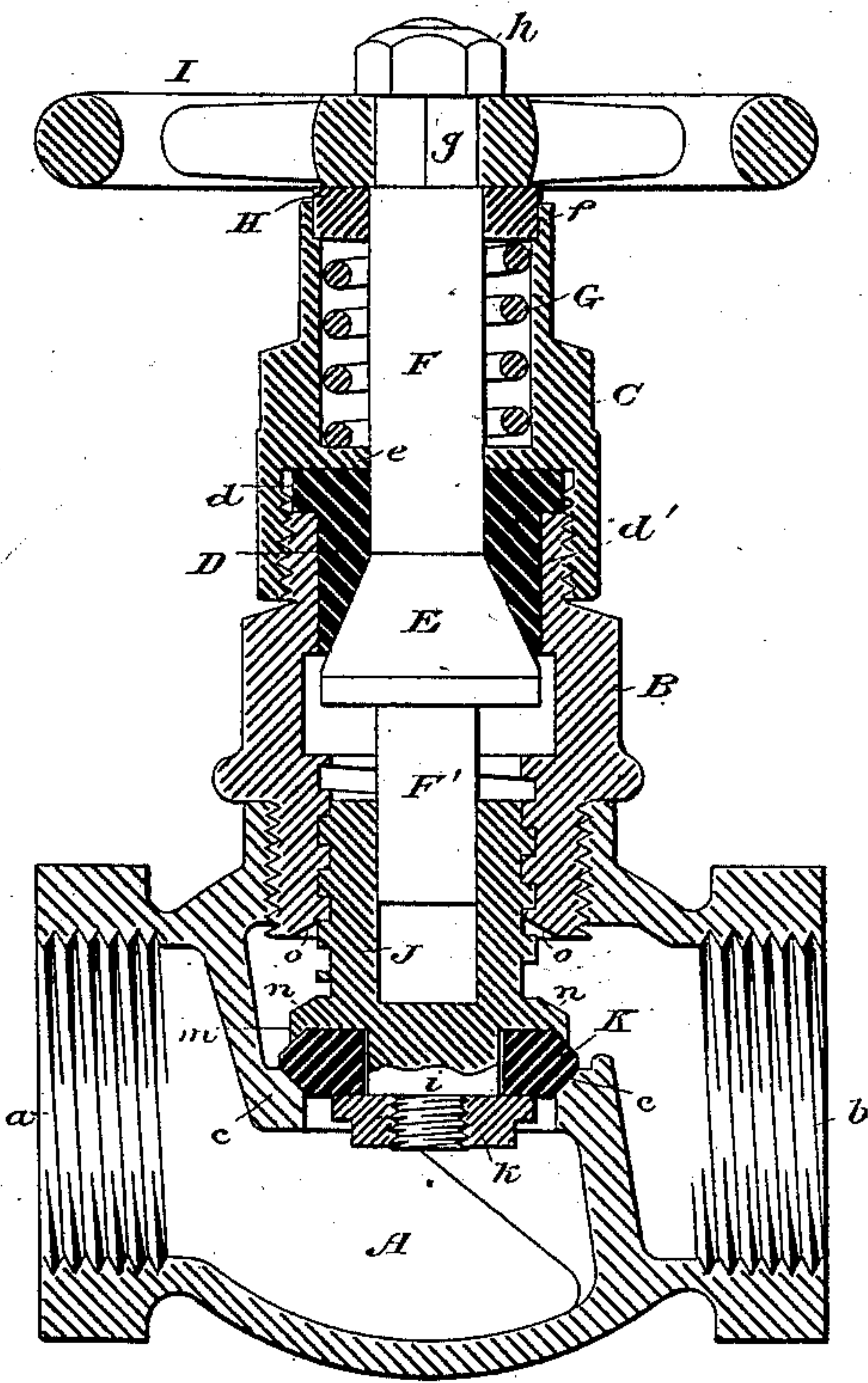
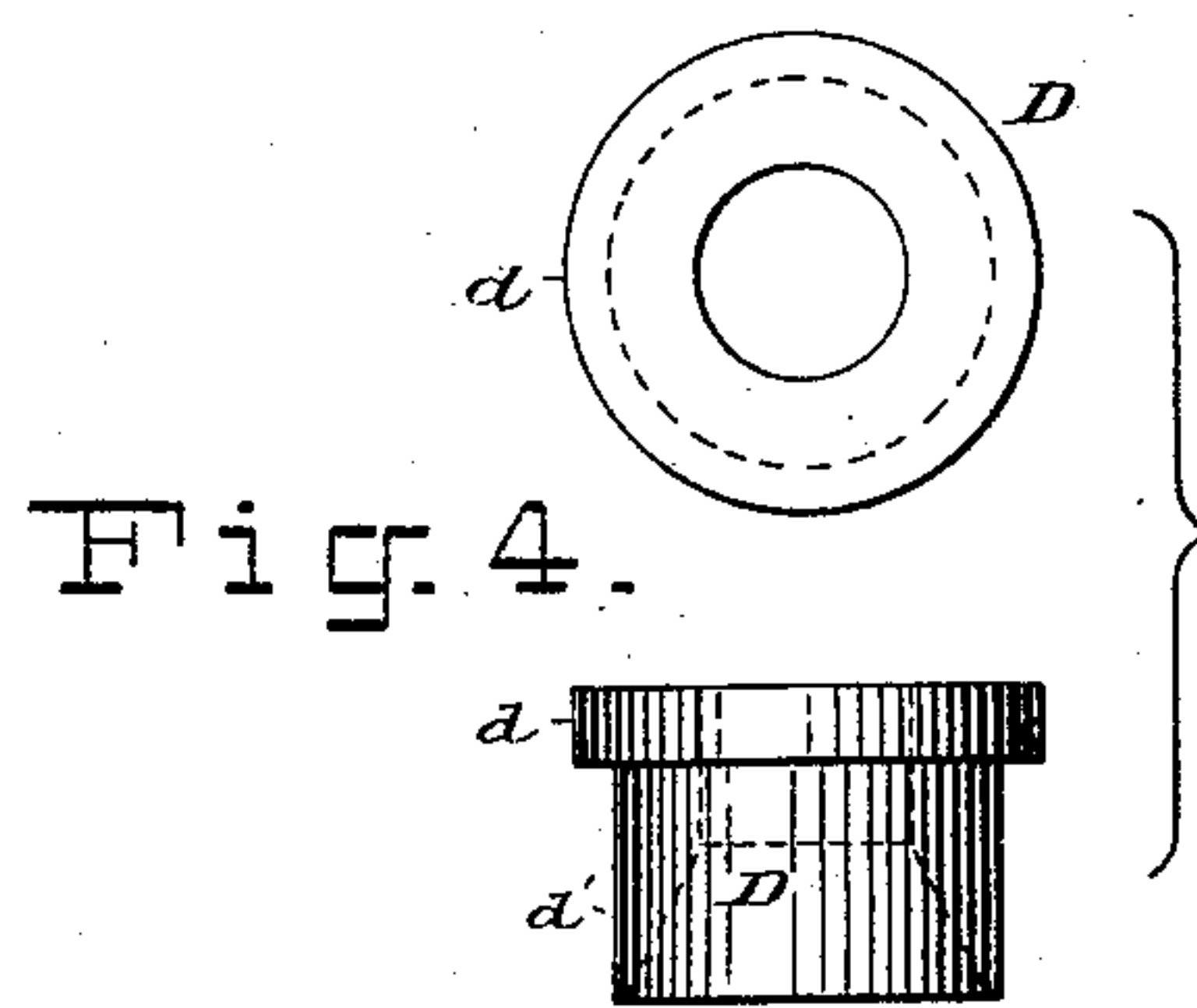
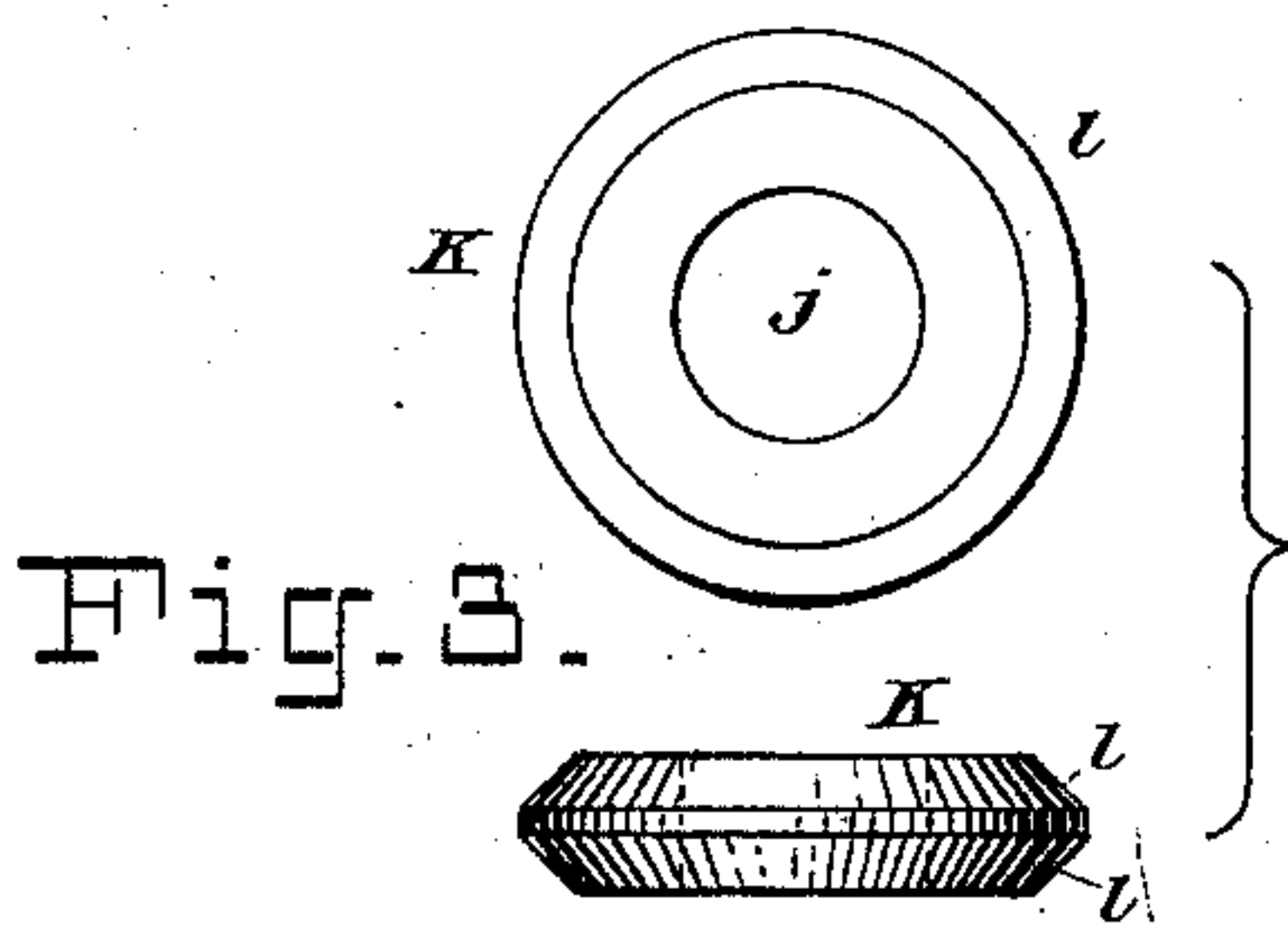
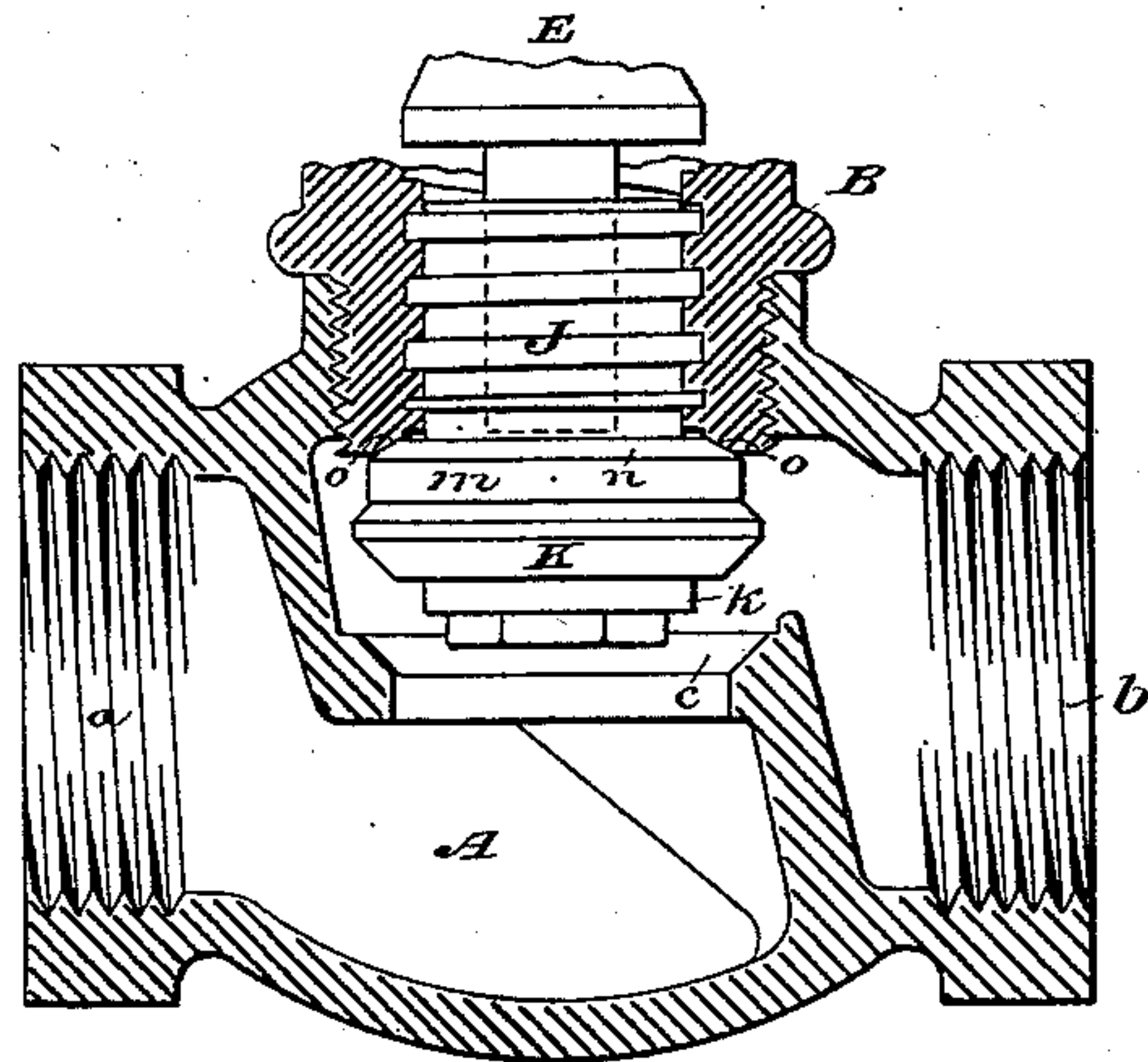


Fig. 2.



WITNESSES:

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VALVE.

SPECIFICATION forming part of Letters Patent No. 364,842, dated June 14, 1887.

Application filed October 6, 1886. Serial No. 215,433. (No model.)

To all whom it may concern:

Be it known that I, THOMAS F. MORRIN, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Valves, of which the following is a specification.

My invention relates to that class of valves usually employed to control the flow of steam and water through pipes, and which employ an auxiliary valve held up to its seat by a spring in lieu of a stuffing-box for preventing the escape of the fluid around the valve stem. An example of this form or kind of valve will be found in my Patent No. 347,727, dated August 17, 1886.

The object of my present invention is in part to provide a main valve and its accessory parts constructed in an improved manner, whereby the main valve may be reversed or inverted when worn, and whereby the housing in which the valve rests may serve as an upward seating valve, as will be explained, and in part to provide an improved auxiliary valve-seat for the stem, the advantages of which will also be set forth.

My invention will be hereinafter fully described, and its novel features carefully defined in the claims.

In the drawings, which serve to illustrate my invention, Figure 1 is a vertical axial sectional elevation of my improved valve, the valve-stem alone being in elevation. Fig. 2 is a view of the lower part of the valve, showing the main valve raised from its seat and in elevation. Fig. 3 shows the main valve detached in plan and edge elevation. Fig. 4 shows the auxiliary valve-seat detached and in plan and edge elevation.

I have herein shown my improvements as applied to a globe-valve, but the form of the casing is not important. My improvements may as well be applied to a casing of the form shown in my patent before referred to, for example.

A represents the globular valve-casing provided with an inlet-pipe connection, *a*, and an outlet-pipe connection, *b*. In the diaphragm of the casing is formed the usual coned valve-seat, *c*, and at its upper part is an opening provided with internal screw-threads, into which is screwed an auxiliary valve-casing, B, which,

for convenience, I will call the "upper" casing. On the reduced upper portion of the upper casing, B, is screwed the bonnet C, and between the bonnet and the upper casing is clamped a flange, *d*, formed on the auxiliary valve-seat D. The form of this valve-seat is clearly shown in Figs. 1 and 4. Its body *d'* is cylindrical exteriorly and fits snugly in the cylindrical bore in the upper part of the casing B, its projecting flange *d* resting on the upper margin of said casing. Interiorly this valve-seat D is coned out at its lower part to receive and fit the coned auxiliary valve E, formed on the valve-stem F, while at its upper part it has a cylindrical bore which snugly fits said cylindrical stem. The bonnet C has an internal flange, *e*, which fits around the valve stem F, and is faced off on its under side, where it rests on the top of the auxiliary valve-seat D. In the hollow of the bonnet C, and embracing the valve-stem, is arranged a spiral spring, G, which is seated on the bottom flange, *e*, of the bonnet and abuts at its upper end against a washer, H, mounted loosely on the valve-stem F and arranged to play in a recess, *f*, in the upper part of the bonnet. The upper part of the valve-stem F has a square, *g*, on which is fitted the operating hand-wheel I, the nut *h* securing said wheel in place. It will be seen that the spring G tends at all times to keep the auxiliary coned valve E drawn up to the coned valve-seat D, while the play of the washer H in the recess *f* in bonnet C permits of any expansion or contraction of the valve-stem longitudinally without disturbance of the valve E. The clamping of the flange *d* of the soft-metal valve-seat D between the faced surfaces of the casing B and bonnet C also prevents any leakage around said seat. The lower end, F', of the valve-stem is squared and fits somewhat loosely in the screw-threaded shank J of the main valve, the screw-threads on said shank engaging an internal or female screw in the upper casing, B, in a well-known way. Rotation of the valve-stem F causes the shank J to move up or down (as the case may be) precisely as shown in my former patent, and as may be seen in other well-known valves. On the lower end of shank J is formed a stud, *i*, which passes through a hole, *j*, in Fig. 3, in the main reversible valve K, the said valve being held in

place on stud *i* by a nut, *k*, which screws on the end of same up to a shoulder. The valve K is beveled or coned at *ll* in Fig. 3 on both of its faces, these cones being made to fit that of valve-seat *c*. On the shank J is formed a housing, *m*, beveled on its lower face to take over and fit the upper bevel or cone, *l*, on the valve. I usually mount the valve somewhat loosely on the stud *i*, so that it may the better adapt or adjust itself to the valve-seat *c*. On the upper margin of the housing *m*, I form a bevel, *n*, which gives to the said housing the character of a coned valve, and on the lower projecting end of the upper casing, B, I form a correspondingly coned valve-seat, *o*. When the main valve K is raised to its fullest extent, as seen in Fig. 2, this valve *n* seats itself on seat *o* and prevents any passage of the steam or other fluid from casing A to casing B. When the parts are in this position, namely, as seen in Fig. 2, the bonnet, spring, valve-stem, and auxiliary valve-seat D may be removed for inspection while the steam is on. It will be observed here that the valve seat D being readily removable, the valve-stem may also be removed without disturbing the casing B. This cannot be done when the valve is constructed as shown in my former patent.

I do not herein broadly claim providing the stem with a coned valve held up to its seat by a spring, for this is not new in valves; nor do I claim, broadly, a removable valve-seat for the valve on the stem; nor the main valve K, constructed with two coned faces; nor, broadly, the seating of the valve upwardly, so as to

cut off the access of steam from the main-valve chamber to the bonnet. All of these features have been before proposed in some form; but my construction and arrangement differ materially from these.

Having thus described my invention, I claim—

1. The combination, with the valve-casing provided with a coned valve-seat, *o*, and the shank J, provided with a housing, *m*, beveled or coned on its upper side to form a valve, *n*, and on its lower side to fit the cone *l* of the main valve, and with a stud, *i*, and nut *k*, and the main valve K, coned on both faces, substantially as set forth.

2. The combination, with the upper casing, B, provided with a female screw to receive shank J, and a coned valve-seat, *o*, at its lower end, the said shank J provided with a coned valve, *m*, to seat on seat *o*, and a socket to receive the valve-stem, the valve-stem F, provided with a square, F', and a coned valve, E, the removable valve-seat D, to receive the valve E, the removable bonnet, and the spring G, all arranged substantially as set forth, whereby when valve *m* is seated the valve-stem, seat D, spring, and bonnet may be removed.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

THOMAS F. MORRIN.

Witnesses:

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