

Valves.

No. 146,057.

Patented Dec. 30, 1873.

Fig 1.

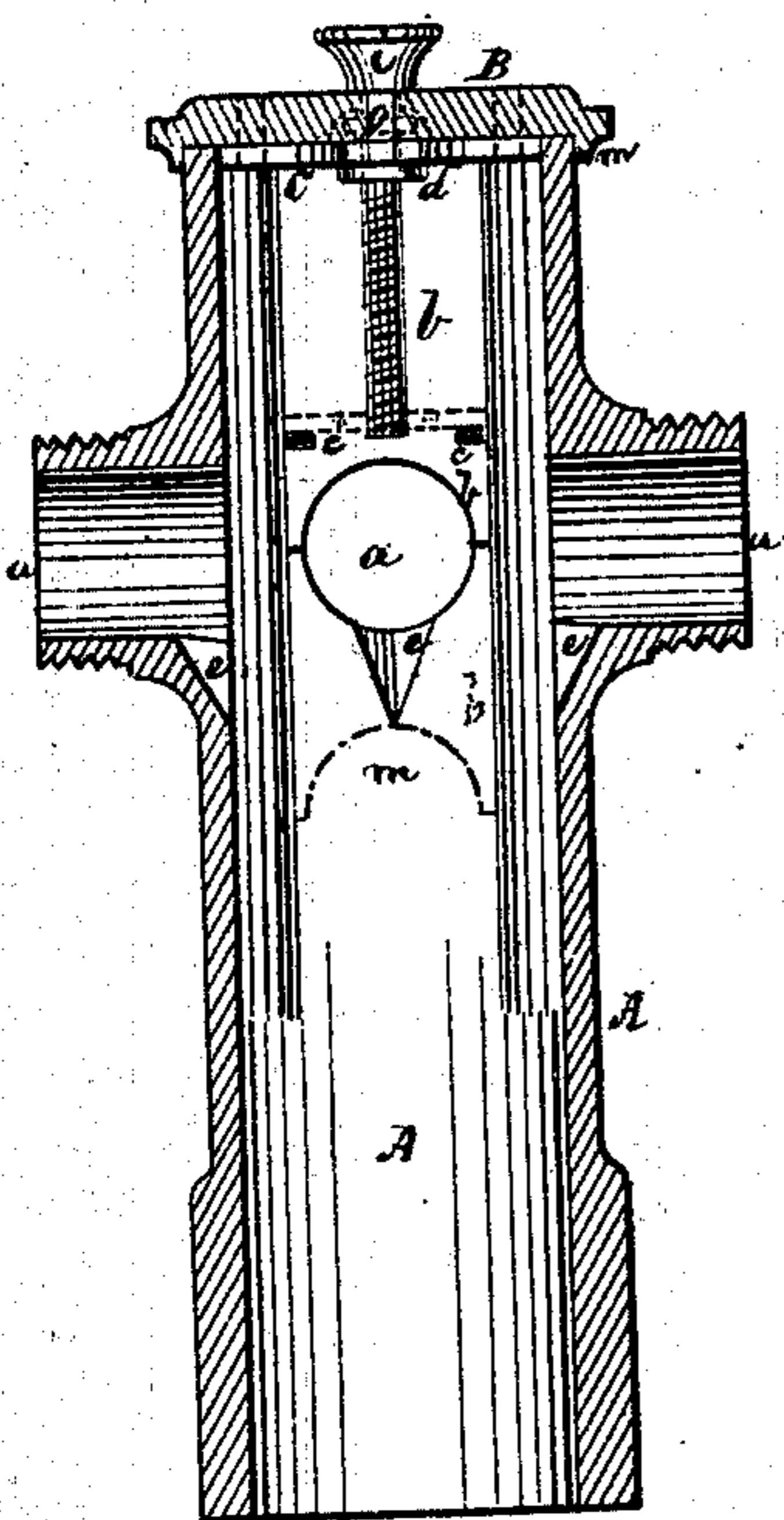


Fig 2.

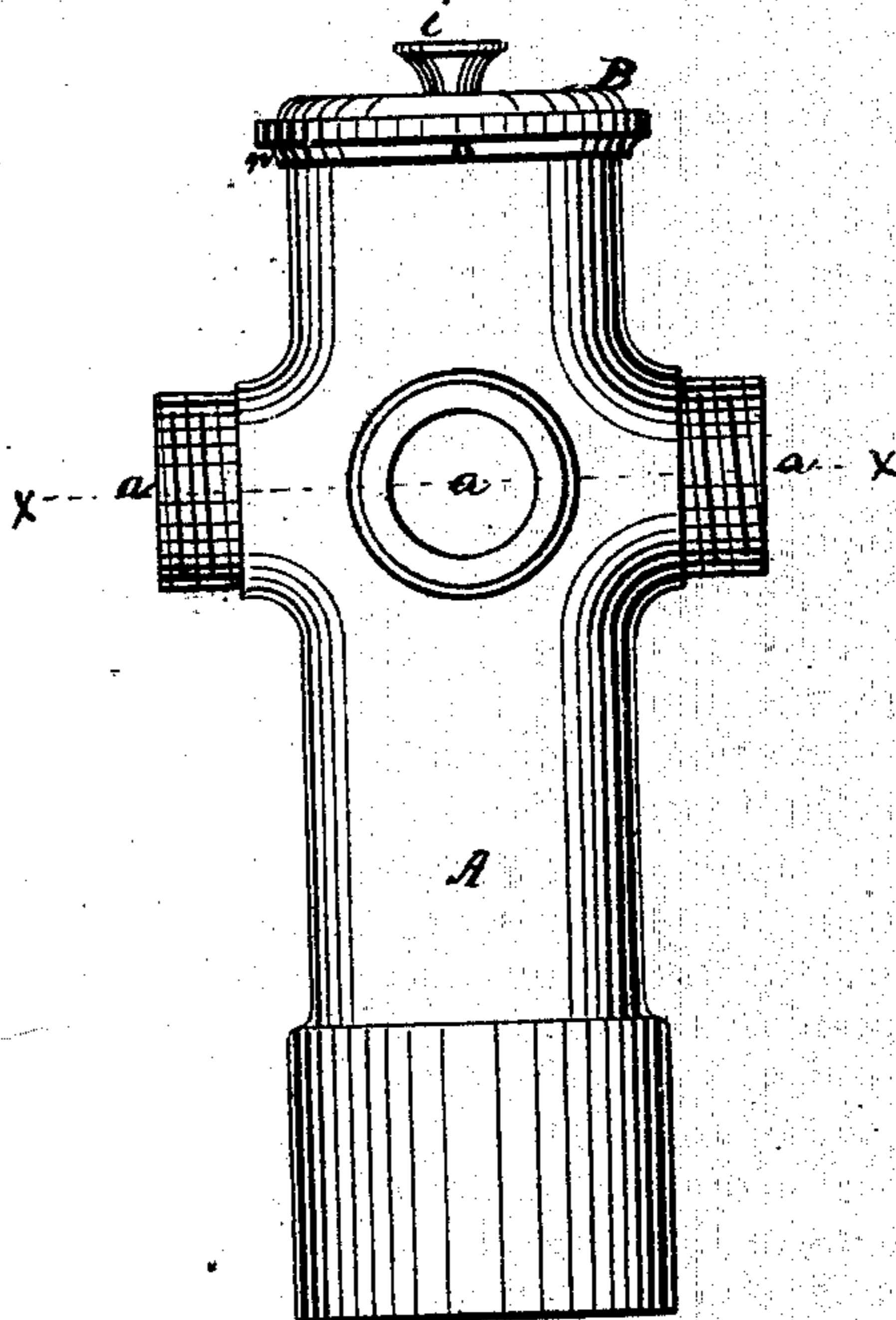


Fig 3.

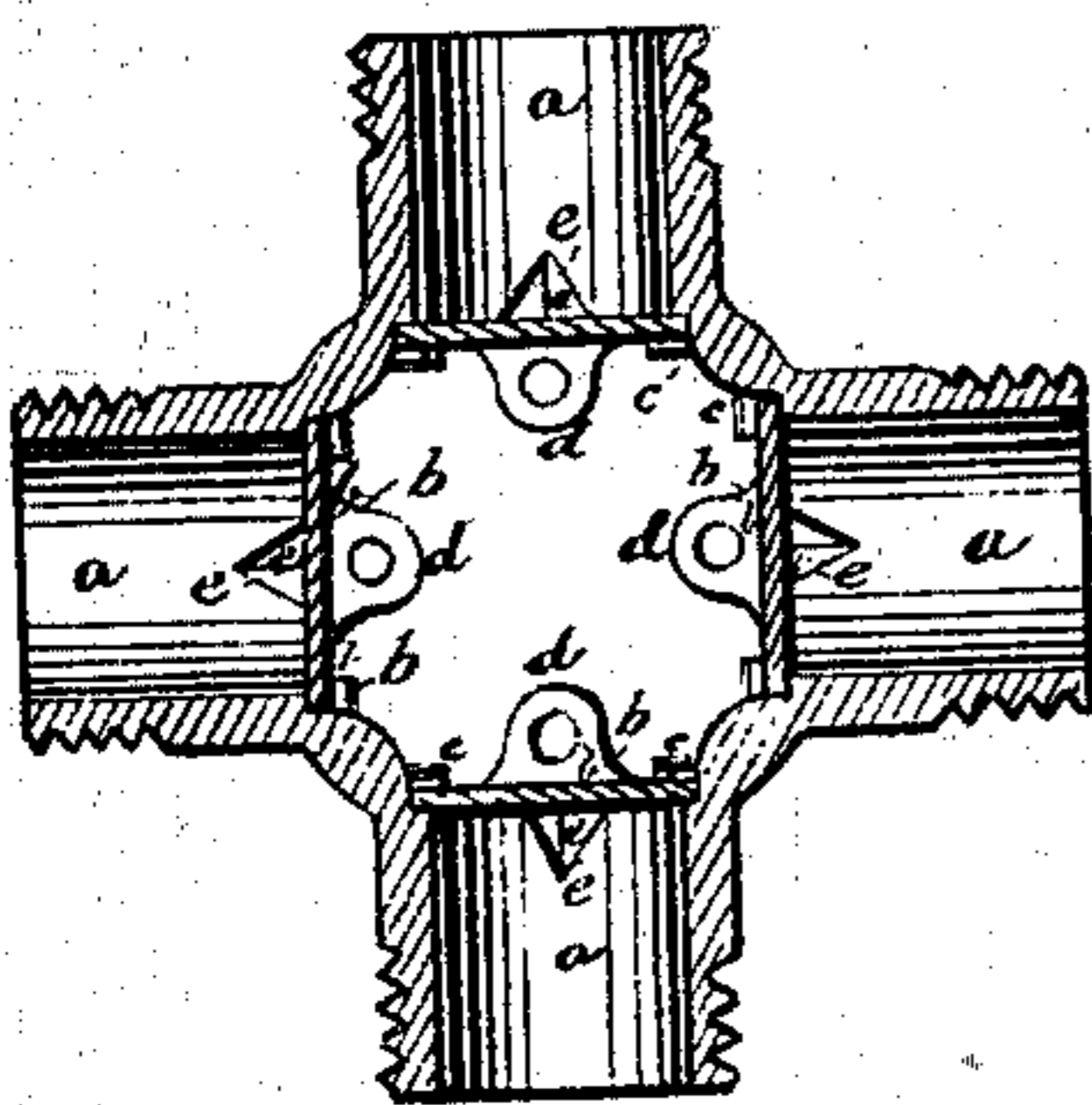


Fig 4.

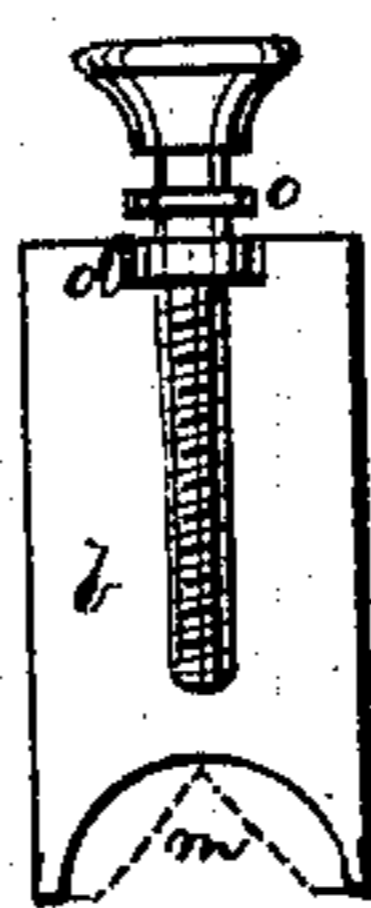


Fig 5.

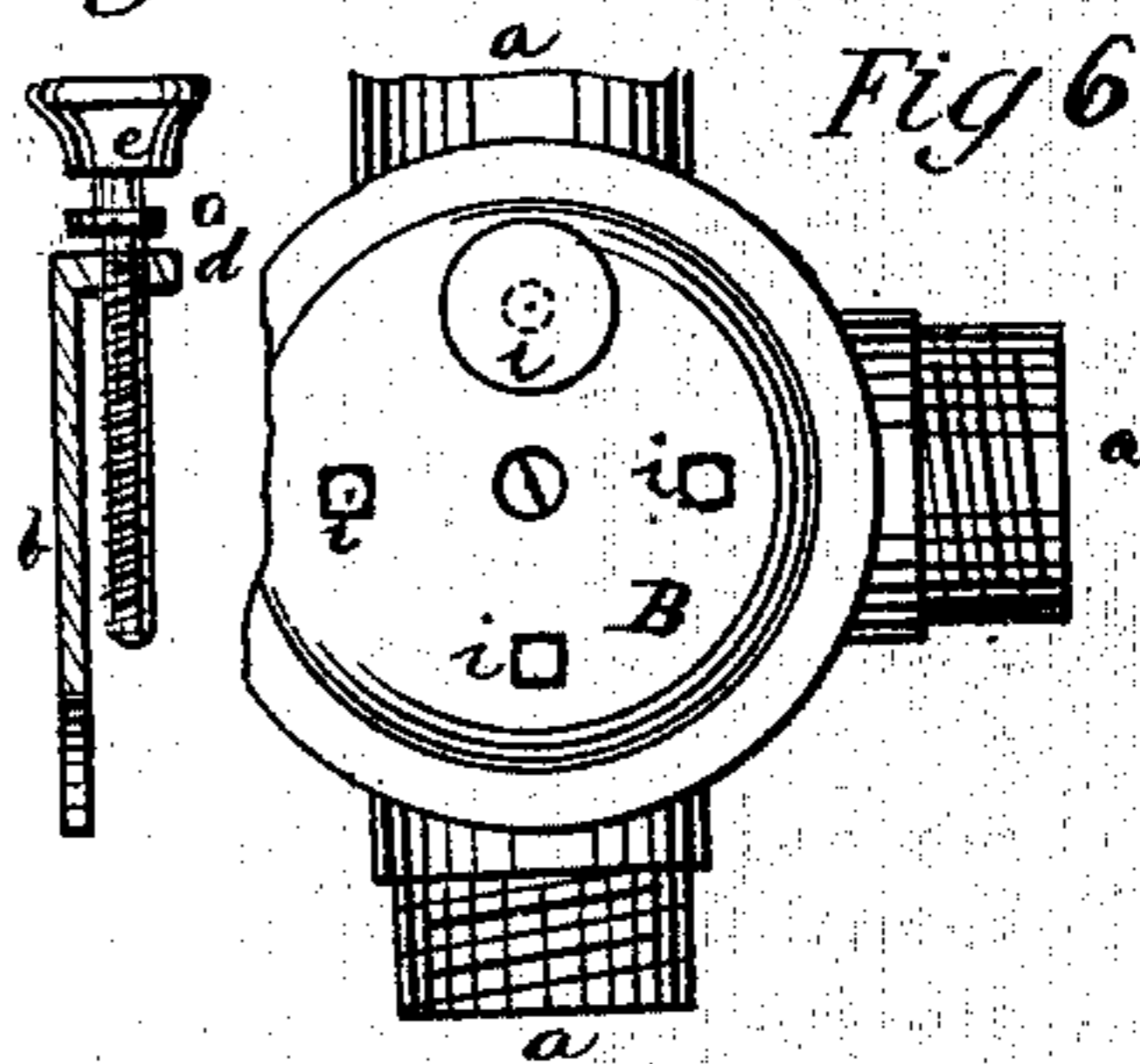


Fig 6.

Witnesses

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IMPROVEMENT IN VALVES.

Specification forming part of Letters Patent No. 146,057, dated December 30, 1873; application filed November 13, 1873.

To all whom it may concern:

Be it known that I, BENAI AH FITTS, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain Improvements in Valves, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a vertical section taken centrally through a hydrant having my improvement applied thereto; Fig. 2, an elevation of the same; and Fig. 3, a horizontal section through the line *x x*, Fig. 2. Fig. 4 represents an elevation of one of the valves detached from the hydrant, and Fig. 5 a side elevation of the same. Fig. 6 represents a plan of the hydrant, a portion being broken off.

The nature of my invention relates to a new and improved mode of constructing the valve-seat and valve, and of operating the latter, whereby reactionary or back strain on the supply-pipe is averted in opening and closing the valve; and it consists in forming the valve-seat with a channel or groove in such manner that when combined with a valve suitably operated and constructed the port will not be entirely closed when fairly covered by the valve, as communication will still be maintained with the former through the channel or groove, the latter being only finally closed by a further advance of the valve. For this purpose the channel or groove is so formed that as the valve advances the opening through the channel gradually diminishes in its area until it entirely vanishes before the motion of the valve ends, thereby avoiding all back strain on the induction-pipe.

To enable others skilled in the art to make, construct, and use my improvement, I will now proceed to describe its parts in detail.

The shell or case A of the hydrant proper may be made of any suitable size, shape, and material, and may also be provided with one or more openings for water-cocks or hose-couplings. In the drawing it is represented as being provided with four of these openings, *a a a a*, and each of these with a slide-valve, *b*. The inside surface of the hydrant, where the valves play, is planed flat and smooth, so as to form a valve-seat, as it were, small guide-pins *c* being arranged on each side of these

valve-seats, to keep the valves in position, and in close contact with the planed face of the seats.

If preferred, guide-grooves may be used instead of the pins; but the latter answer an excellent purpose.

The valves *b* are provided at one end with a lug or inwardly-projecting flange, *d*, through which is bored a hole, the latter being then provided with a female screw-thread, so as to act as a nut, into which the screw-rod *d* works, which operates the valve. The upper end of the screw-rod *d* is made to project through the cap-piece B of the hydrant, and is provided with a hand-lever, or pulley, or squared end, *i*, whereby to operate it by means of a key or other device. The screw-rod is formed with a shoulder or stay-nut, *o*, or other suitable device, arranged between the cap-piece B and spider C, to which the cap is secured, and serves to hold the screw-rod in place while operating the valve. The under side of the cap B is countersunk, to receive stay-nut *o*. The inner end of the openings *a* are formed on their under side with an inclined V-shaped groove or channel, *e*, the upper end of which terminates at the bottom side of the opening, while the other end inclines downward and terminates at a point below the plane of said opening *a*. This peculiar construction of the channel *e*, on the descent of the valve, prevents the latter from entirely or suddenly closing the opening *a* when its lower end has reached the horizontal plane of the under side of said opening *a*, but requires it to descend until it has covered the lower edge of the groove *e*, thereby gradually cutting off the communication between the hydrant and outlet-port *a*; or, instead of forming a groove or channel, as just described, the lower edge of the valve *b* may be formed with an angular or curved opening, *m*, as shown in Figs. 1 and 4, for the same purpose; or both—that is to say, groove *e* and valve *b* with opening *m*—may be used in connection with each other, as represented in Fig. 1; and this mode I prefer. A disk or spider, C, is fitted into the top of the hydrant, and made fast thereto in any suitable manner, and serves as a means of securing the cap B to the case A of the

hydrant, the cap itself being provided with a flange, *n*, to assist in forming a water-tight joint.

Having described my invention, what I claim is—

The slide-valve *b* and its operating screw-rod *d*, in combination with the outlet-opening

a of a hydrant, provided with an opening, *e*, formed in the manner and for the purpose set forth.

BENAIAH FITTS.

Witnesses:

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