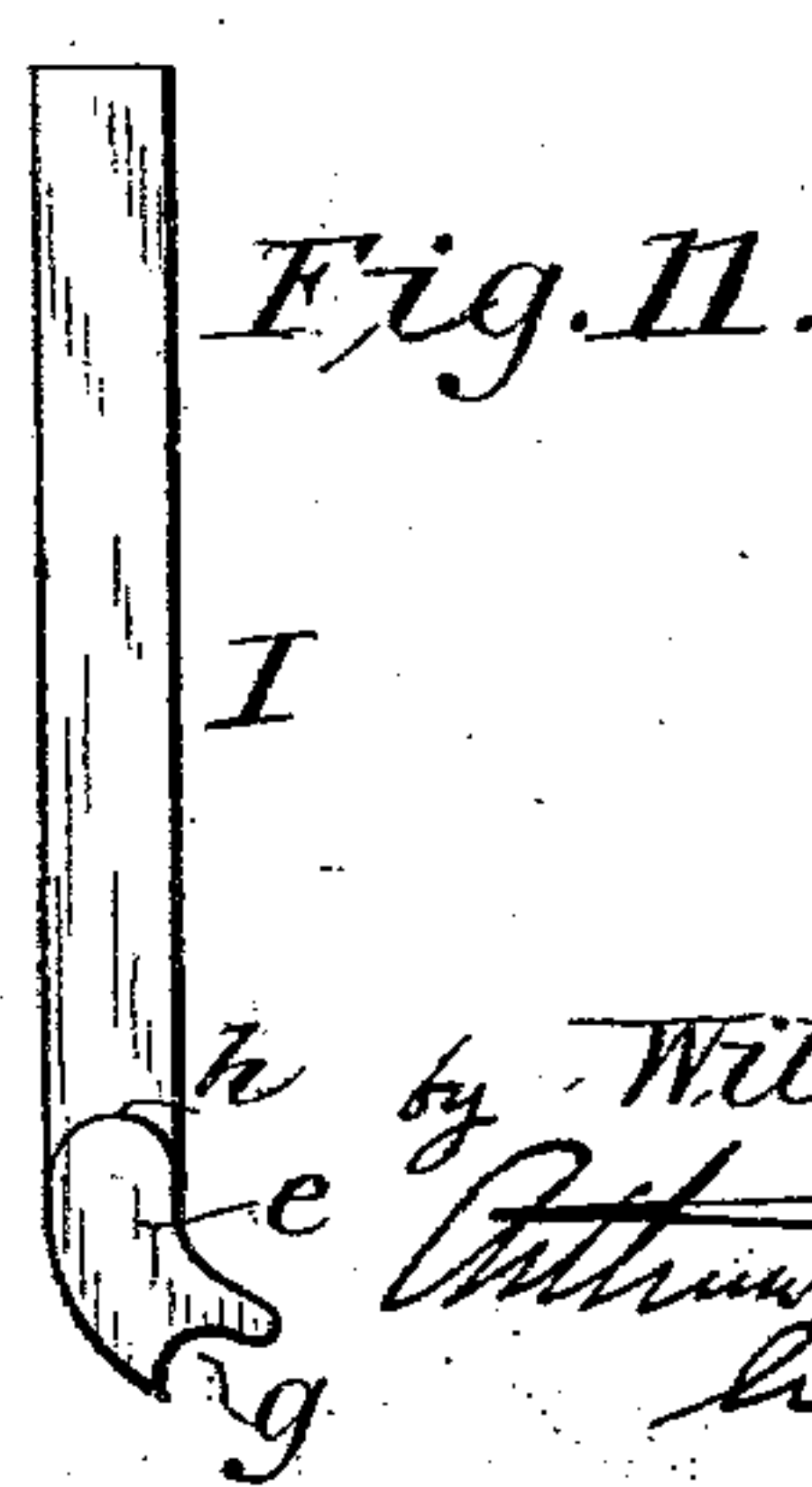
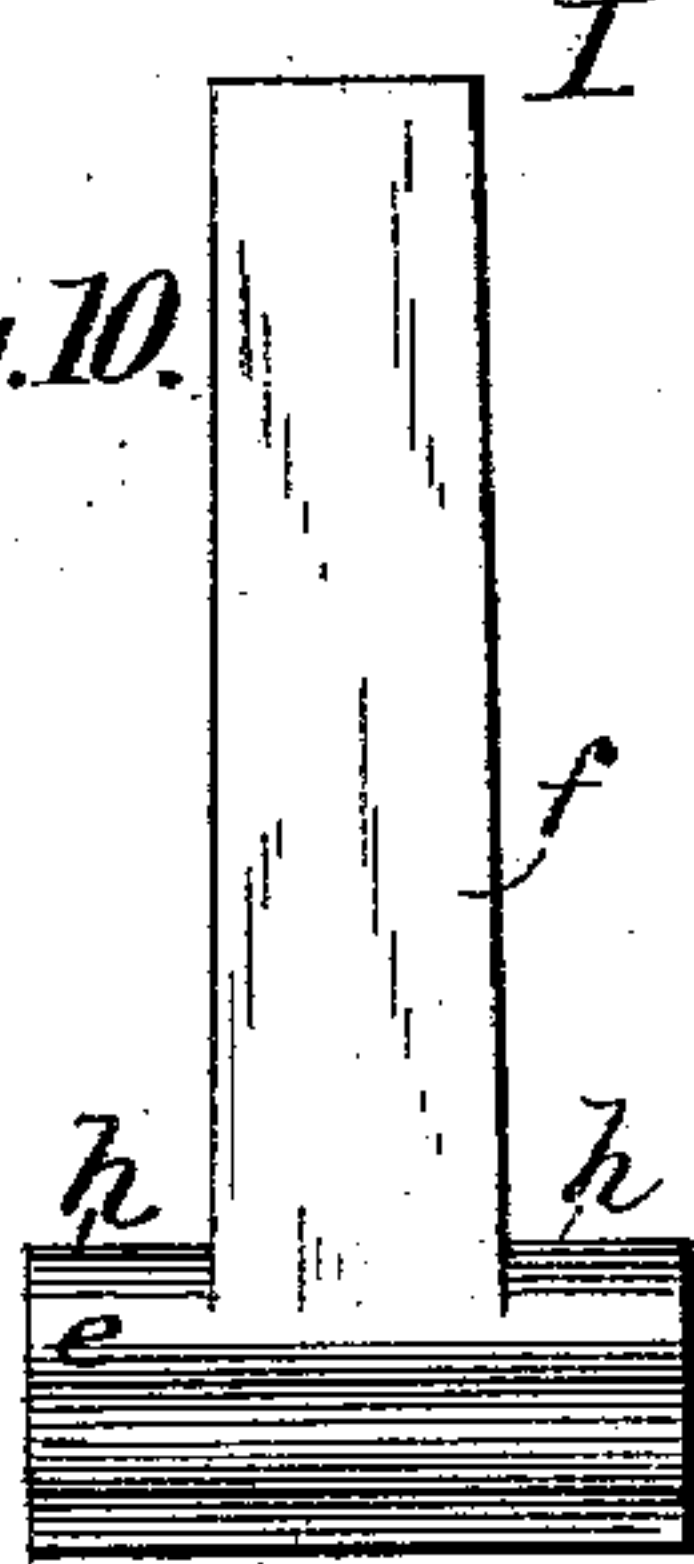
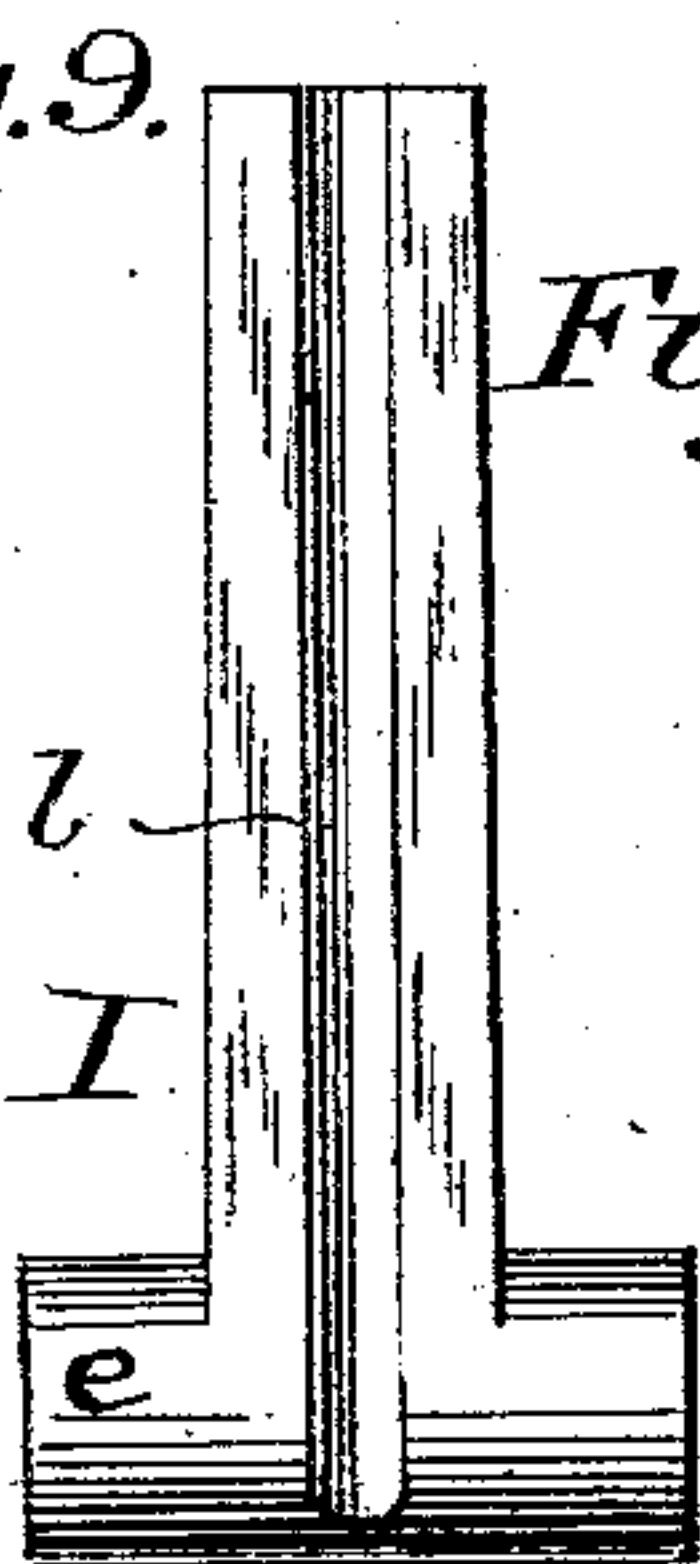
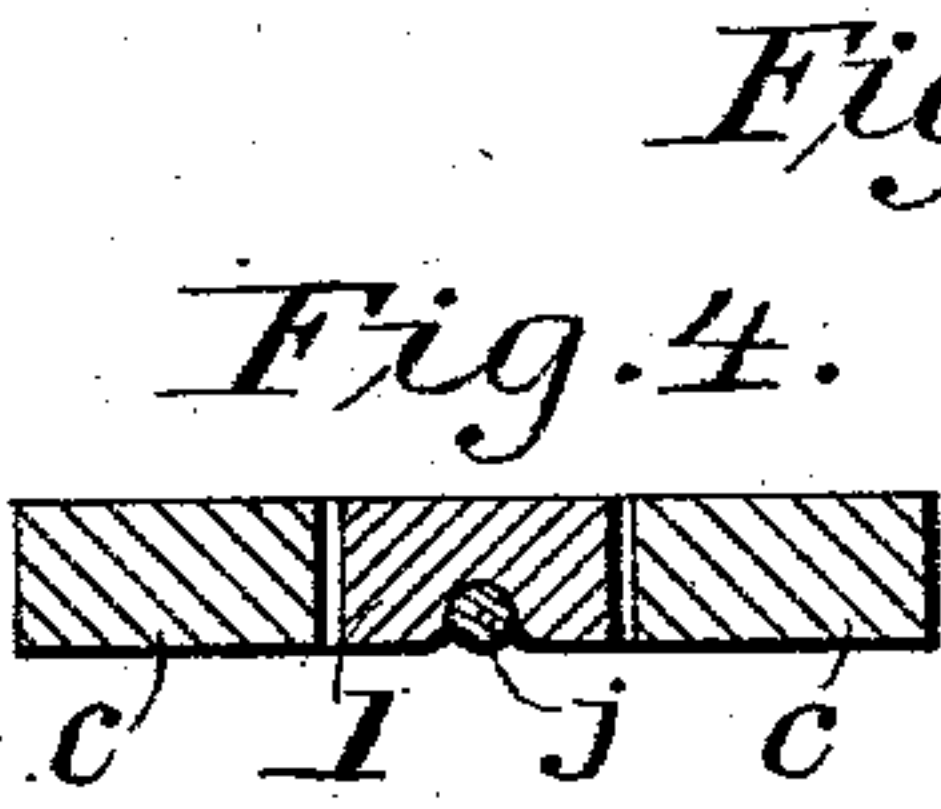
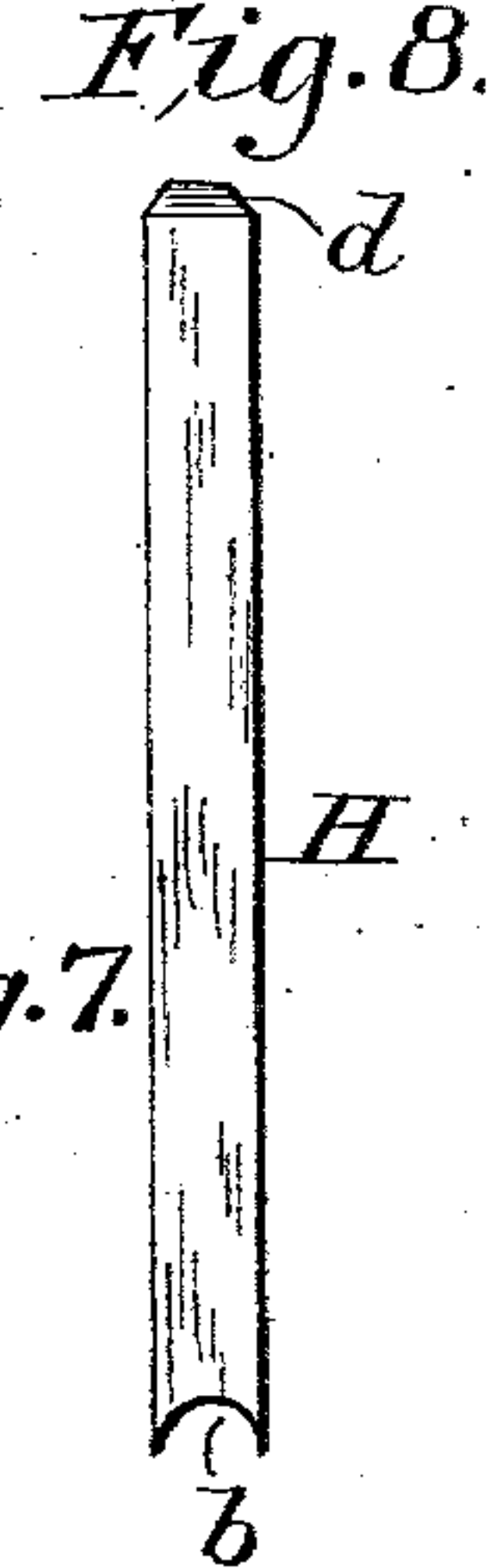
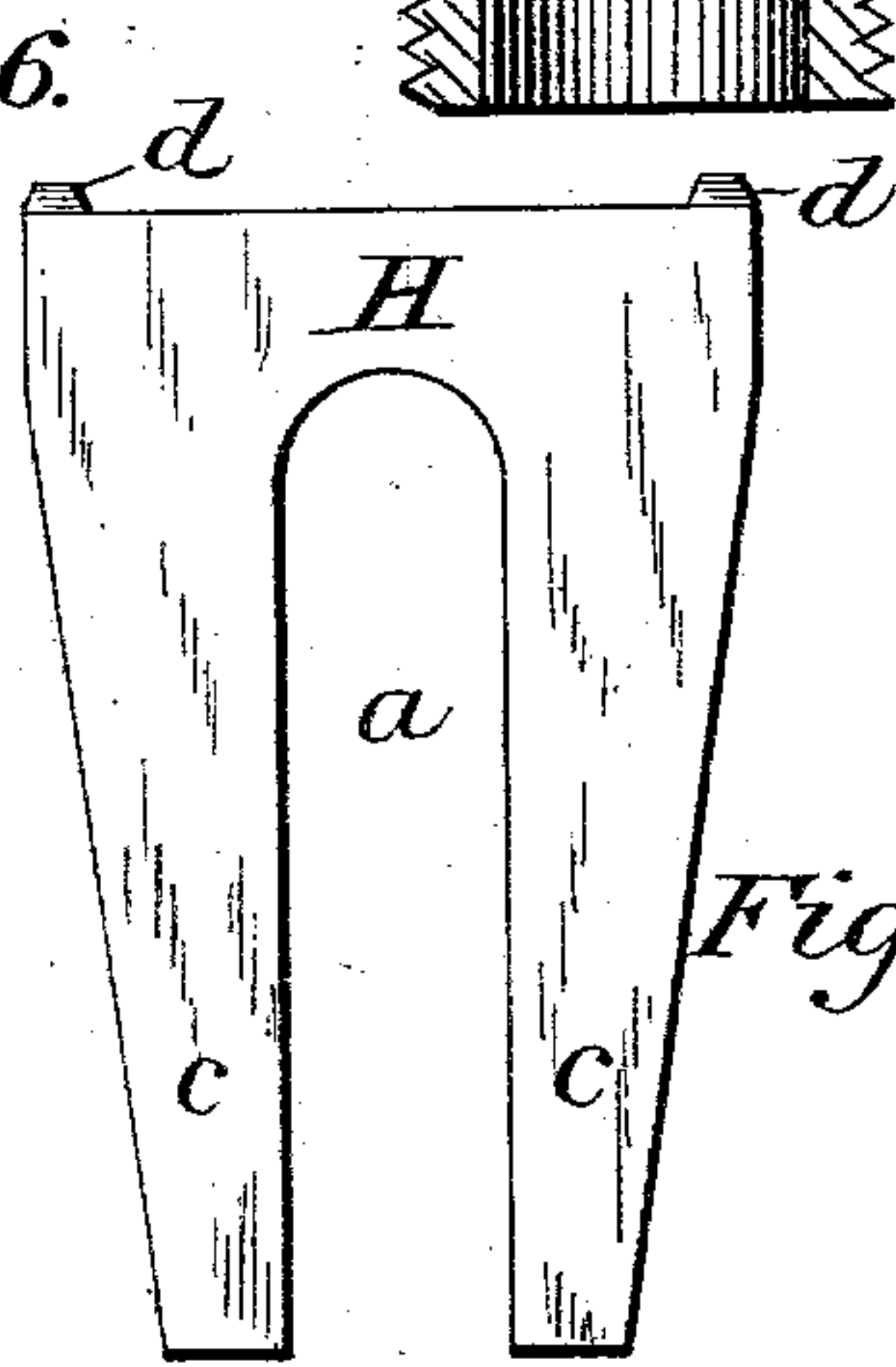
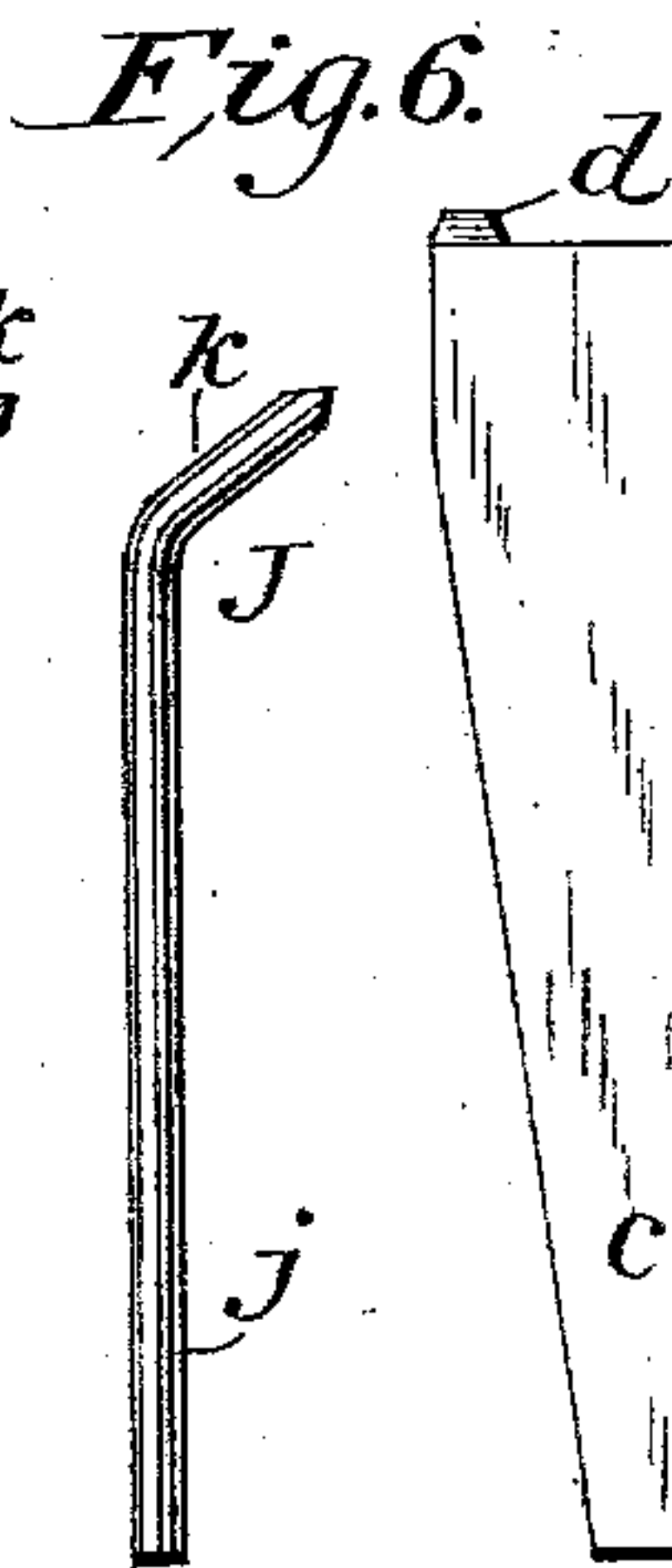
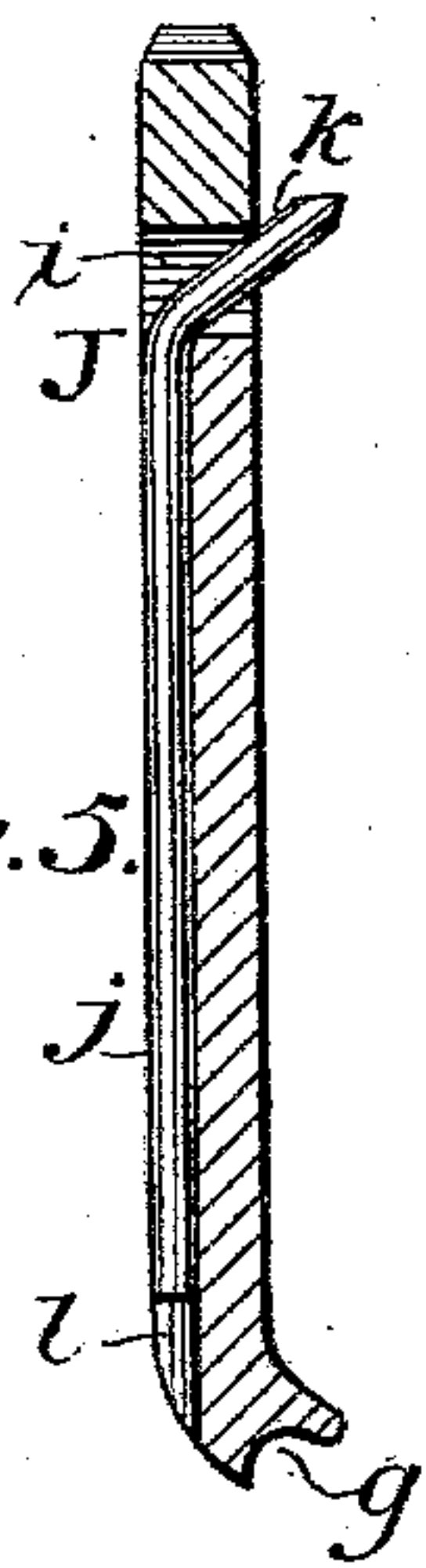
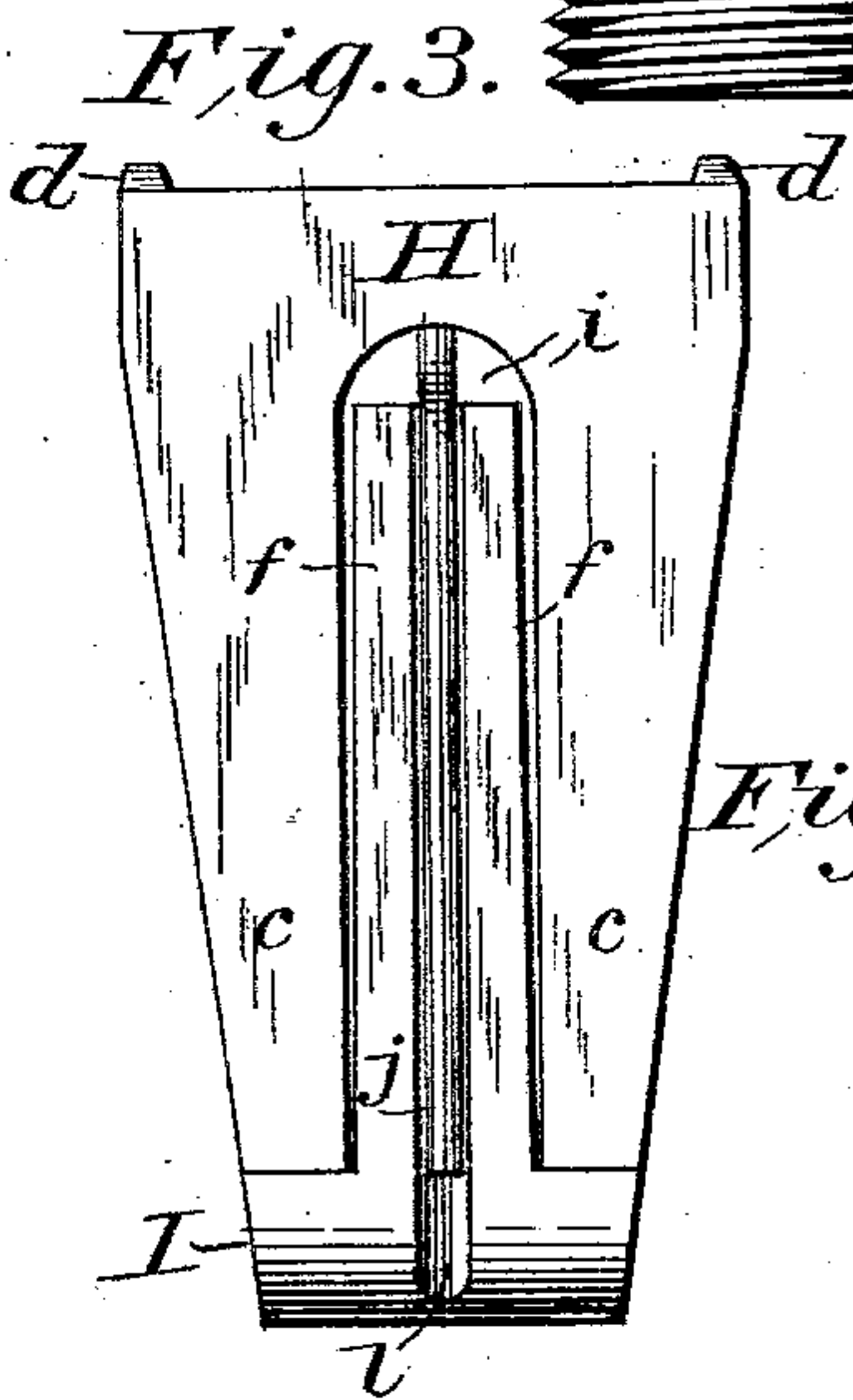
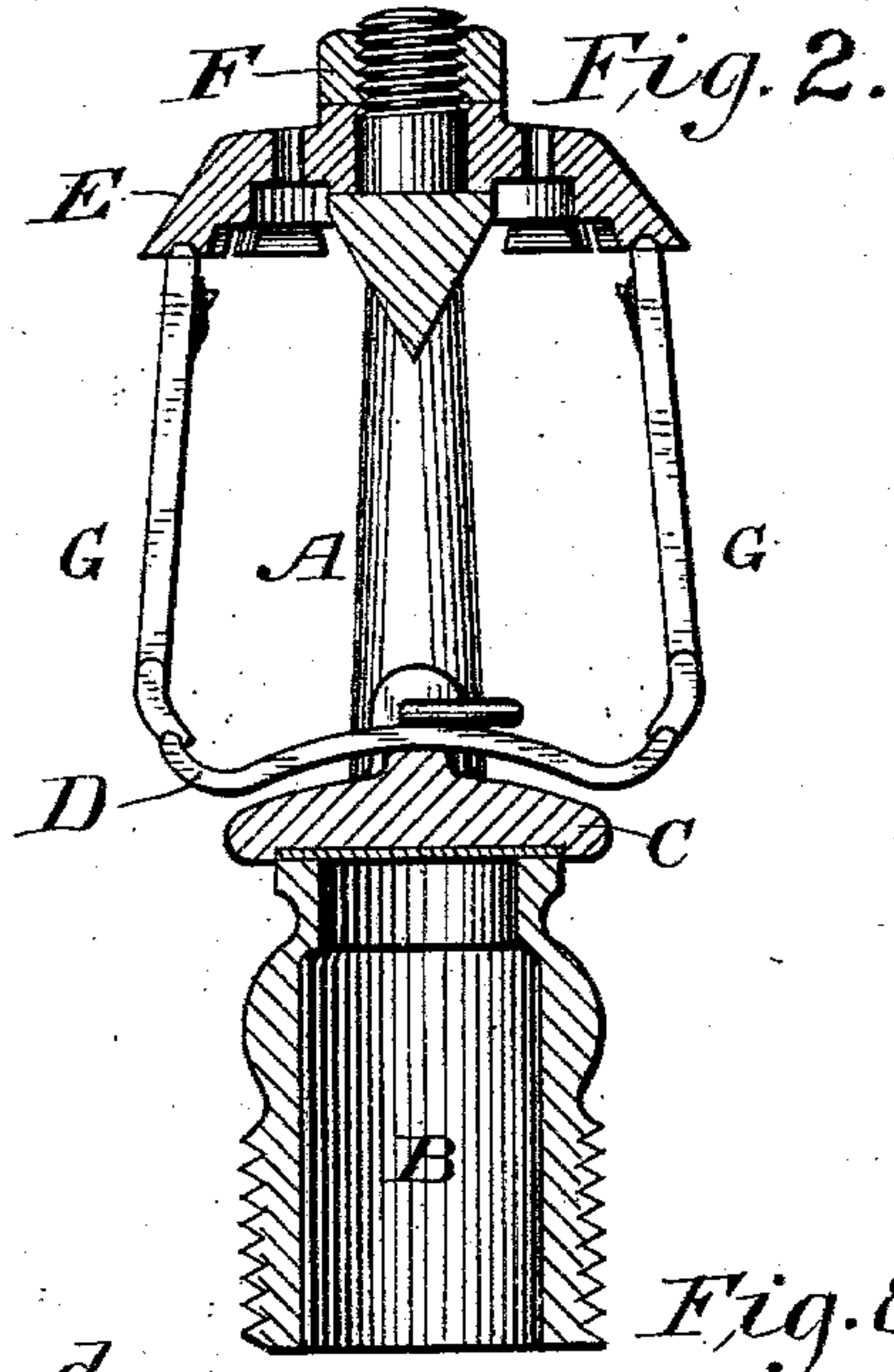
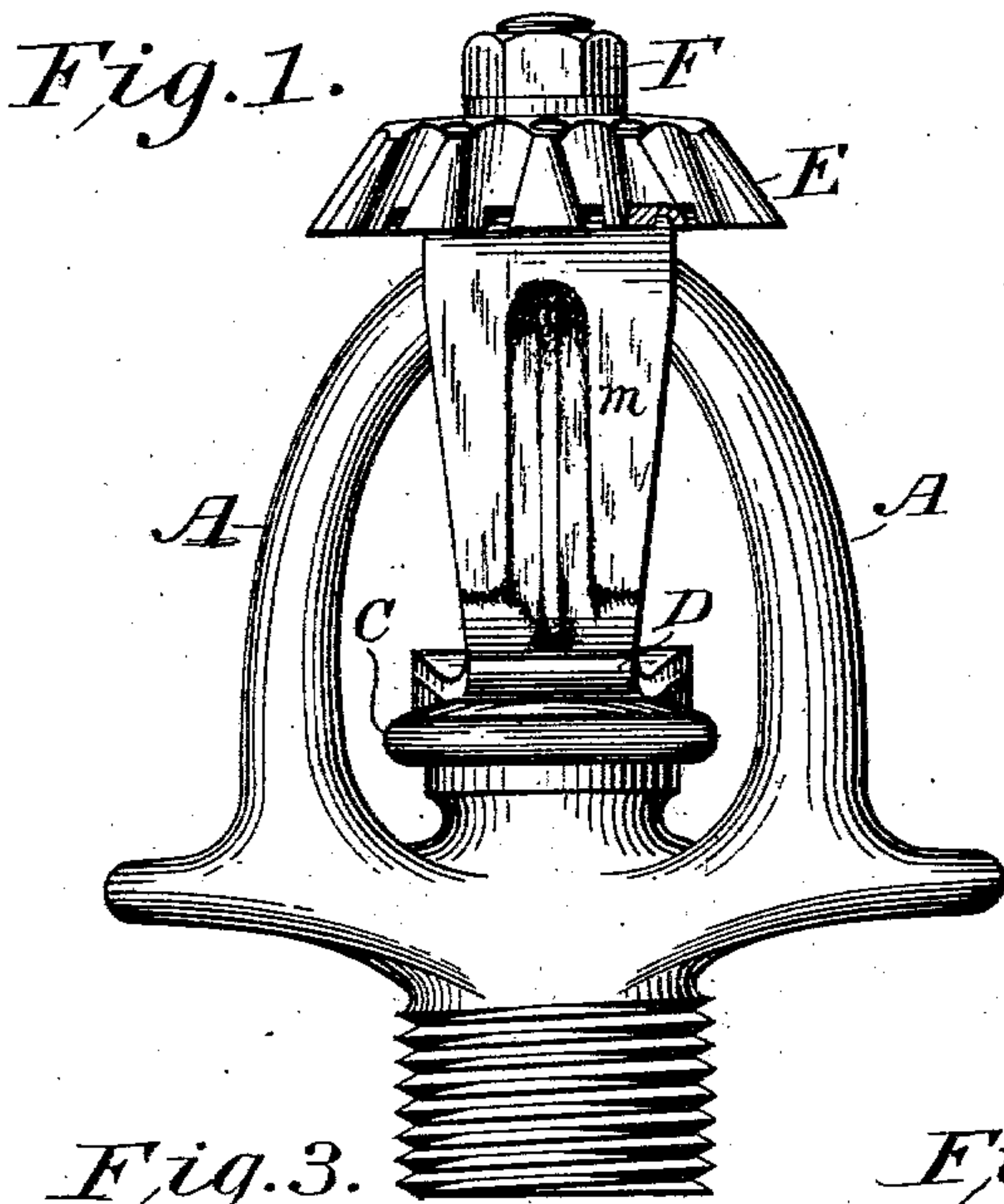


No. 744,057.

PATENTED NOV. 17, 1903.

W. ESTY.
AUTOMATIC STATIONARY FIRE EXTINGUISHER.
APPLICATION FILED DEC. 9, 1902.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM ESTY, OF LACONIA, NEW HAMPSHIRE.

AUTOMATIC STATIONARY FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 744,057, dated November 17, 1903.

Application filed December 9, 1902. Serial No. 134,439. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ESTY, of Laconia, in the county of Belknap and State of New Hampshire, have invented certain new and useful Improvements in Automatic Stationary Fire-Extinguishers, of which the following is a specification.

This invention relates to an automatic releasing device for the automatic sprinklers of stationary fire-extinguishing apparatus; and it consists in a releasing device of the "strut" type—that is to say, the releasing device is composed of a plurality of parts united together by fusible solder to constitute a strut which holds a valve closed, and when the strut is disintegrated as a result of the fusing of the solder the parts of which the strut are composed become separated and fall entirely away from the nozzle, from which the extinguishing fluid then pours.

For the purpose of illustrating and explaining the improved strut I have shown it in the accompanying drawings as used in connection with a frame, valve, and distributor of the kind set forth in my pending application for Letter Patent of the United States, filed February 15, 1902, Serial No. 94,199; but it will be understood that the improved strut can be used in other constructions of sprinklers.

In the drawings, Figure 1 is a side view, partly in section, of a sprinkler equipped with the improved strut. Fig. 2 is a vertical section of the sprinkler, the struts, however, being shown in elevation. Fig. 3 is a side view of the improved strut as the same appears before the parts are united by fusible solder. Fig. 4 is a cross-section of the strut. Fig. 5 is a longitudinal section of the strut. Fig. 6 is a detail view of a bent wire constituting one of the parts of the strut. Fig. 7 is a side view of the body member of the strut. Fig. 8 is an edge view of the body member of the strut. Fig. 9 is a front side view of the lever member of the strut. Fig. 10 is a rear side view of the lever member of the strut. Fig. 11 is an edge view of the lever member of the strut. All the figures are drawn to a scale, and Figs. 3 to 11 are drawn to a scale twice as large as that to which Figs. 1 and 2 are drawn, Figs. 3 to 11 being drawn to an en-

larged scale for the purpose of more clearly illustrating the construction of the strut.

As shown in Figs. 1 and 2, the sprinkler comprises a frame A, having a water-discharge nozzle B; valve C, closing the nozzle; spring D, united to the valve outside of the nozzle; a distributor E; a nut F, securing the distributor in place, and two struts G G, interposed between the distributor and the ends of the spring D, the struts maintaining the spring under tension and keeping the valve closed. When the struts (or either of them) are disintegrated by heat, the spring reacts, tearing the valve away from the nozzle, and thereupon the struts, the spring, and the valve all fall away from the frame, leaving an unobstructed passage for the outflow of water through the nozzle.

In all of the respects thus far mentioned the sprinkler is similar to the sprinkler set forth in the aforesaid application, Serial No. 94,199, to which reference may be had for fuller description.

In the particular sprinkler illustrated there are two struts G G employed; but it will be understood that a single strut may be employed and with other types of sprinkler.

The present improvements relate to the construction of the strut, and the details thereof are illustrated in Figs. 3 to 11, inclusive, of the drawings.

The strut is composed of three members—namely, a body member H, a lever member I, and a bent wire J. The wire is not essential to the broader aspects of the strut, but is preferably employed, and the strut when equipped with the wire possesses distinct advantages. The body member H has a central vertical slot *a* open at one end. This member at one end has one portion of a joint *b*, which, as shown, is formed by a semicircular groove milled across the ends of the two legs *c c*, between which the slot *a* lies. At the opposite end to the joint *b* the body member of the strut has, preferably, projections *d* similar to corresponding projections of the struts illustrated in the aforesaid application—that is to say, these projections fit in recesses in the distributor E and prevent any accidental displacement of the strut when the sprinkler is installed.

The lever member I of the strut has a foot *e* and a central tongue *f*. The foot is recessed at one edge, as shown at *g*, in order to fit the end of the spring D, and thus prevent the accidental displacement of the strut when the sprinkler is installed. Provisions similar to the projections *d* and the groove *g* can be employed to keep the strut in place whatever may be the construction of the sprinkler in other respects. The foot *e* of the lever member has alongside the central tongue *f* rounded faces *h*, which are adapted to fit within the recesses *b* at the ends of the legs *c* of the body member H, these projections and recesses constituting a hinged joint between the body and lever members of the strut. The central tongue *f* of the lever member fits within the central slot *a* of the body member, and normally the outer planes of said central tongue are substantially flush with the outer planes of the body member. Preferably the central tongue *f* of the lever member slightly tapers from its base to its free end, thus providing gradually-enlarging spaces between the outer edges of said tongue and the inner edges of the legs of the body member, as indicated in Fig. 3, these spaces being adapted to be filled with the fusible solder. When the body and lever members are brought together, as shown in Fig. 3, a gap *i* is left between the free end of tongue *f* and the inner margin of the slot *a*, which also is adapted to receive the fusible solder.

Preferably the multiplying-lever J is also employed, this being a bent wire comprising a long shank *j* and a bent finger *k*. The shank *j* lies within a groove *l* in the outer face of the lever member, so that said shank does not project beyond the general outer face of the strut. The finger *k* extends through the opening *i* at the upper end of the slot *a* and projects slightly beyond the inner face of the strut, as shown in Fig. 5, the said finger bearing against the body member at this point.

When the body member, lever member, and multiplying-lever of the strut have been assembled, as shown in Fig. 3, 4, and 5, they are united by the fusible solder, which fills the open spaces between the tongue *f* and the legs *c* and which also usually flows into the groove *l*, surrounding the shank *j*. Of course the solder when applied is not always uniform in appearance; but its general appearance is indicated in Fig. 1, as shown at *m*. The outer face of the strut, however, after being soldered together is substantially flush, and the inner face is also substantially flush except for the slight projection of the finger *k* and such portion of the solder as may flow around the same. The supporting end of one of the members (as shown the lever member) is bent on one side, as best shown in Figs. 5 and 11, so that the line of strain is at one side of the joint between the lever and body members. Consequently when the fusible solder melts the body and lever mem-

bers act as a toggle to swing the said two members on their joint, thus removing the tongue *f* from the slot *a* quickly and fully, so that there is no possibility of the parts of the strut sticking together by the freezing of the solder, whereby the certainty of action of the sprinkler is insured. This lever action is compounded by the multiplying-lever J. The strut as a whole thus comprises a double lever, which enables a very powerful leverage to be employed with a low-test solder, which is a great advantage, since such low-test solder—that is, a solder which melts at a low degree of heat—has very little strength to hold the parts of the strut together against the normal pressure thereon.

Owing to the circumstance that the lever member fits within the slot of the body member, the strut as a whole is very much thinner than struts having two members lying upon each other face to face, and consequently the strut is rendered very sensitive. This result is further helped by reason of the circumstance that the solder is always exposed to the direct action of the heat and does not require the heat to pass through the material of the strut, as is necessary where the solder lies between opposing faces of strut members. As the working joints are all flush and smooth there are no projecting parts that the corrosive action of acids and gases can get at, and these joints are lubricated by the solder when it melts. This is true not only of the joint on which the body and lever members rock, into the edges of which a portion of the solder flows, but is also true of the spaces between the finger *f* and the legs *c c* and is likewise true of the spaces surrounding the multiplying-lever J.

I claim as my invention—

1. A releasing device, composed of a body member, a lever member, and a multiplying-lever, the body member and lever member being jointed together, the body member having a slot, the lever member having a tongue entering said slot and a groove on one side, and the multiplying-lever having a shank fitting said groove and a finger extending through the space between the free end of the finger of the lever member and the adjacent margin of the slot of the body member, said finger also bearing upon the body member, said several parts being united by fusible solder.

2. A releasing device having, in combination, a body member, a lever member, and a multiplying-lever, the body member and lever member being jointed together, the body member having a slot, the lever member having a tongue entering said slot, and a multiplying-lever having a shank extending along one side of the tongue of the lever member and having a finger extending through the space between the free end of the finger of the lever member and the adjacent margin of the slot of the body member, said finger also

bearing on the body member, and said several parts being united by fusible solder.

3. A releasing device consisting of a strut
5 composed of a body member and a lever member jointed together and united directly by fusible solder, the body member bearing against the short arm of the lever member, and
10 an intermediate multiplying-lever the long arm of which is united by fusible solder to the long arm of said lever member, and the short arm of which bears against the body member.

4. A releasing device composed of a body
15 member having a slot, and a second member having a tongue entering and extending along said slot, said members when nested together being secured together by fusible solder oc-

cupying the spaces between the margins of said slot and the tongue.

5. A releasing device composed of a body 20 member and a lever member jointed together, the body member having a slot, and the lever having a tongue entering and extending along said slot, said members when nested together being united by fusible solder occupying the 25 spaces between the margins of said slot and the tongue.

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

WILLIAM ESTY.

Witnesses:

F. A. PHELPS,
GEORGE W. SHERWELL.