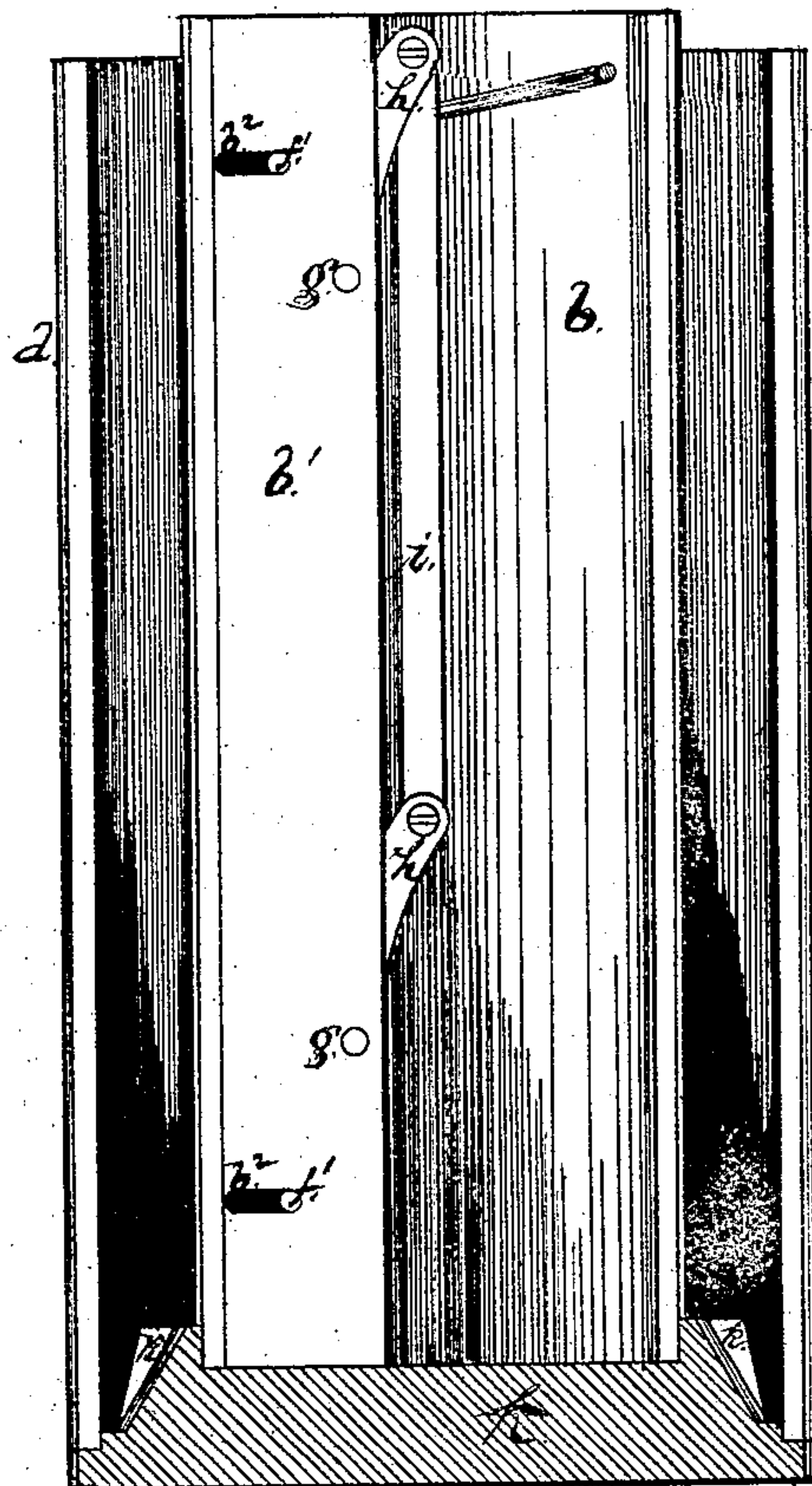
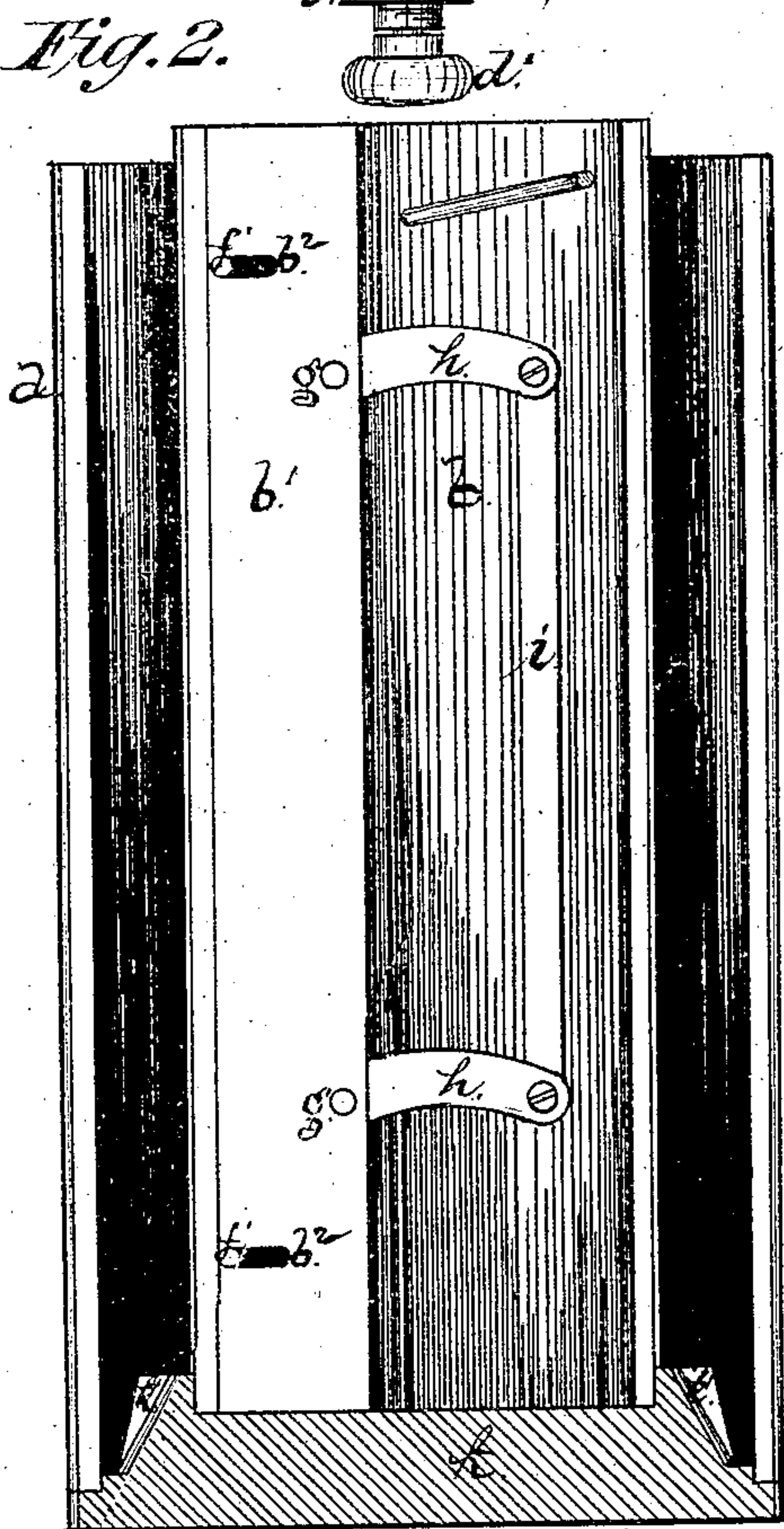
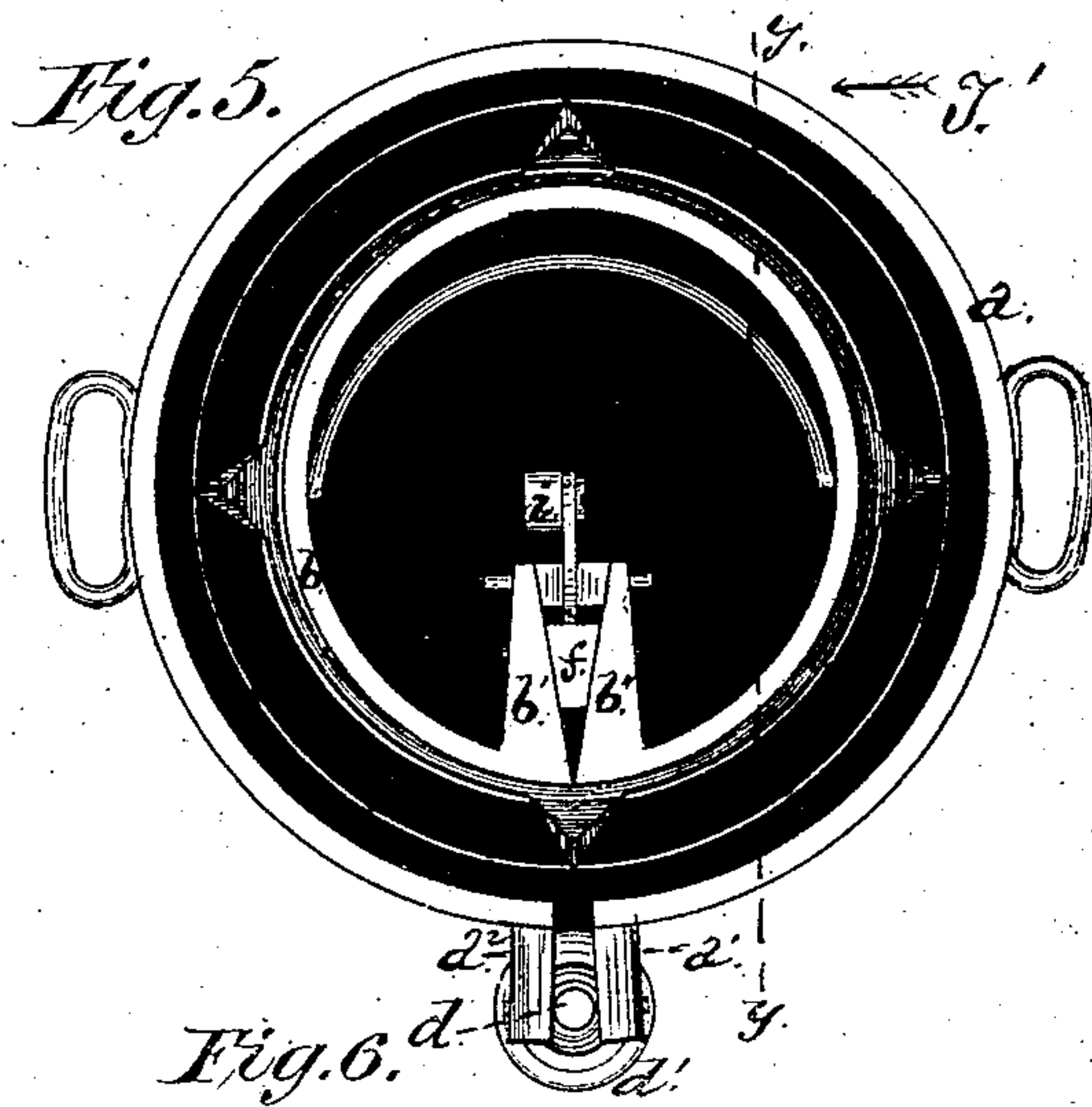
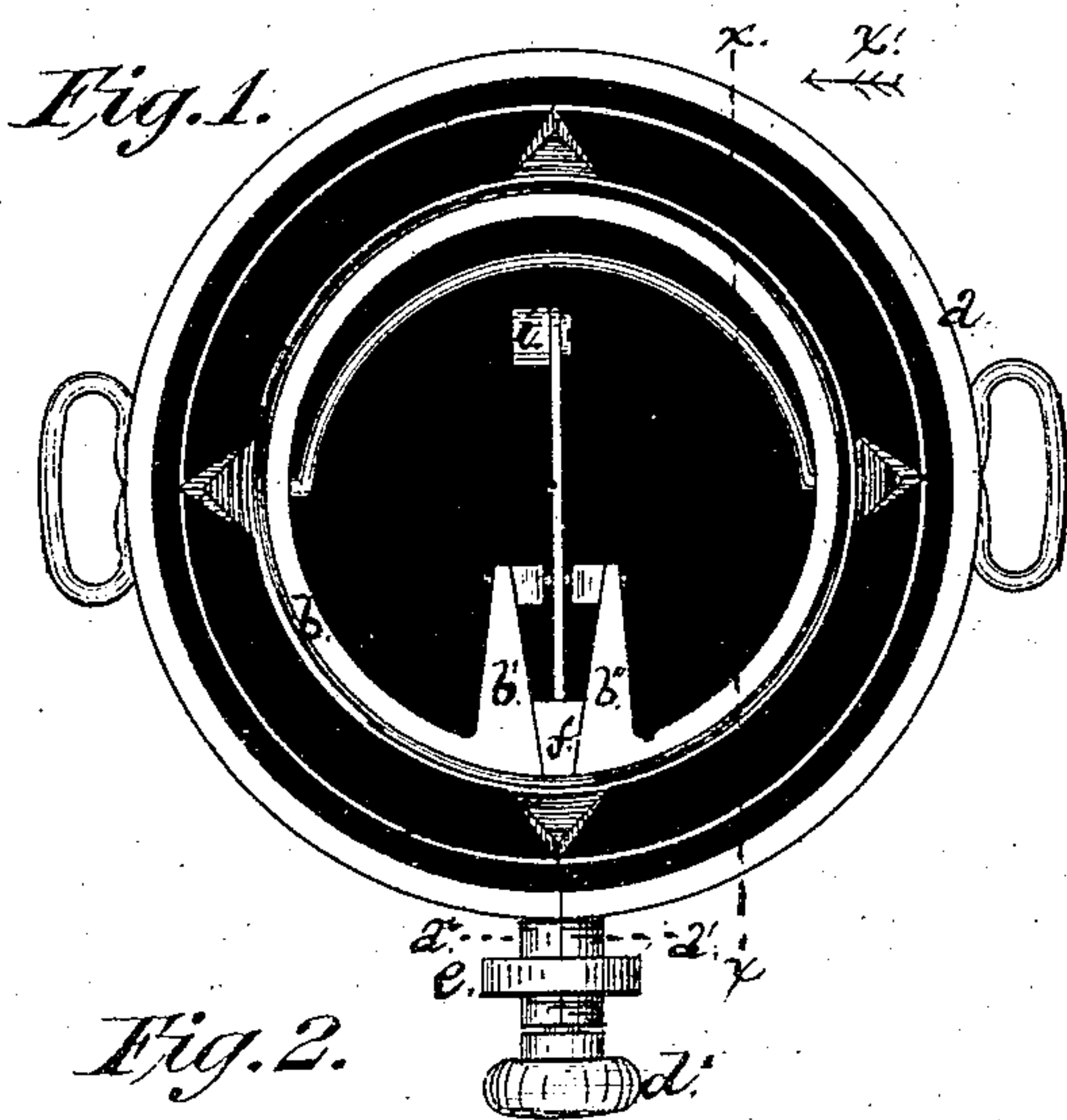


J. H. ROOT.
Molds for Earthen Pipes.

No. 153,180.

Patented July 21, 1874.



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Fig. 8.

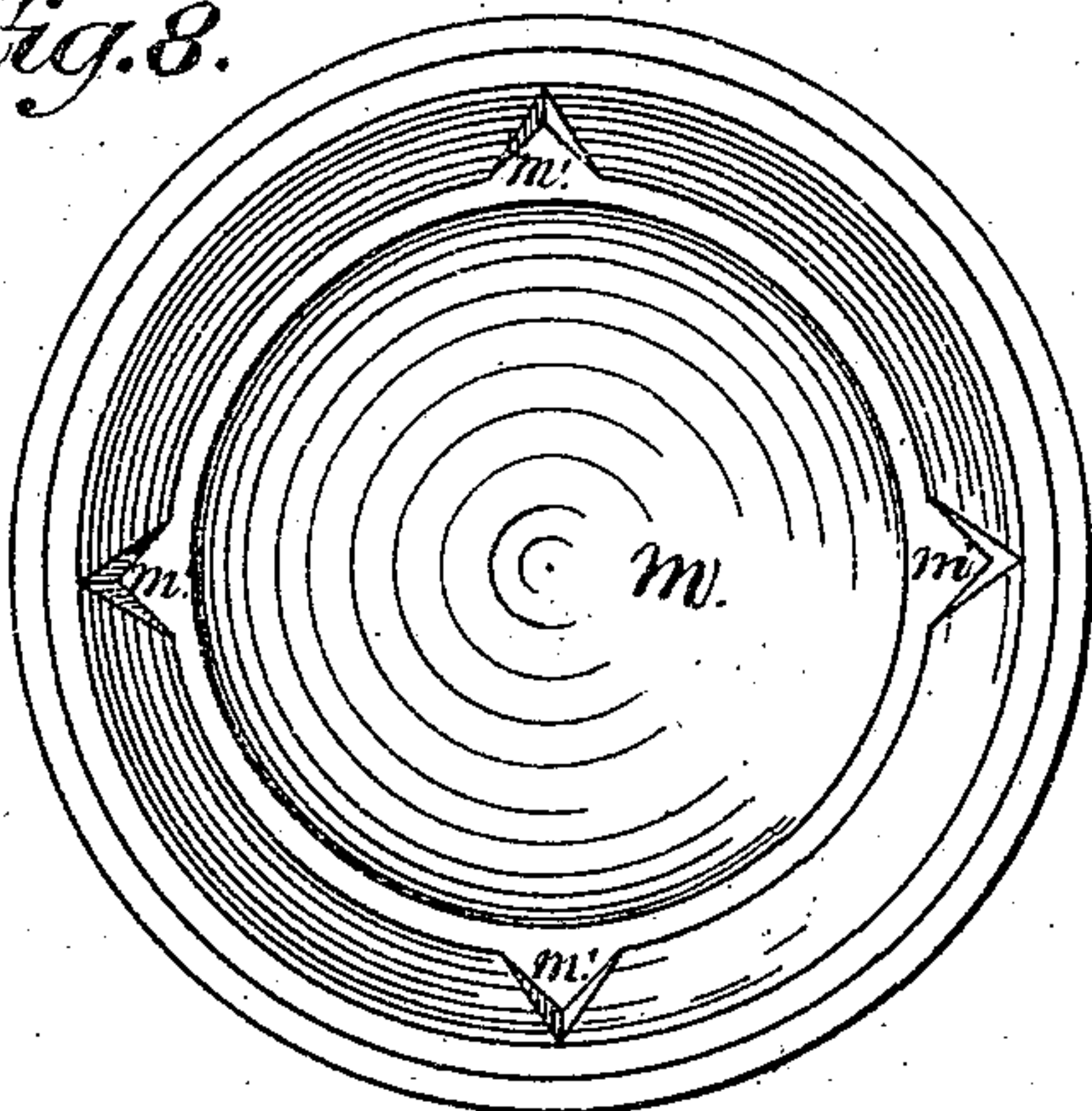


Fig. 7.

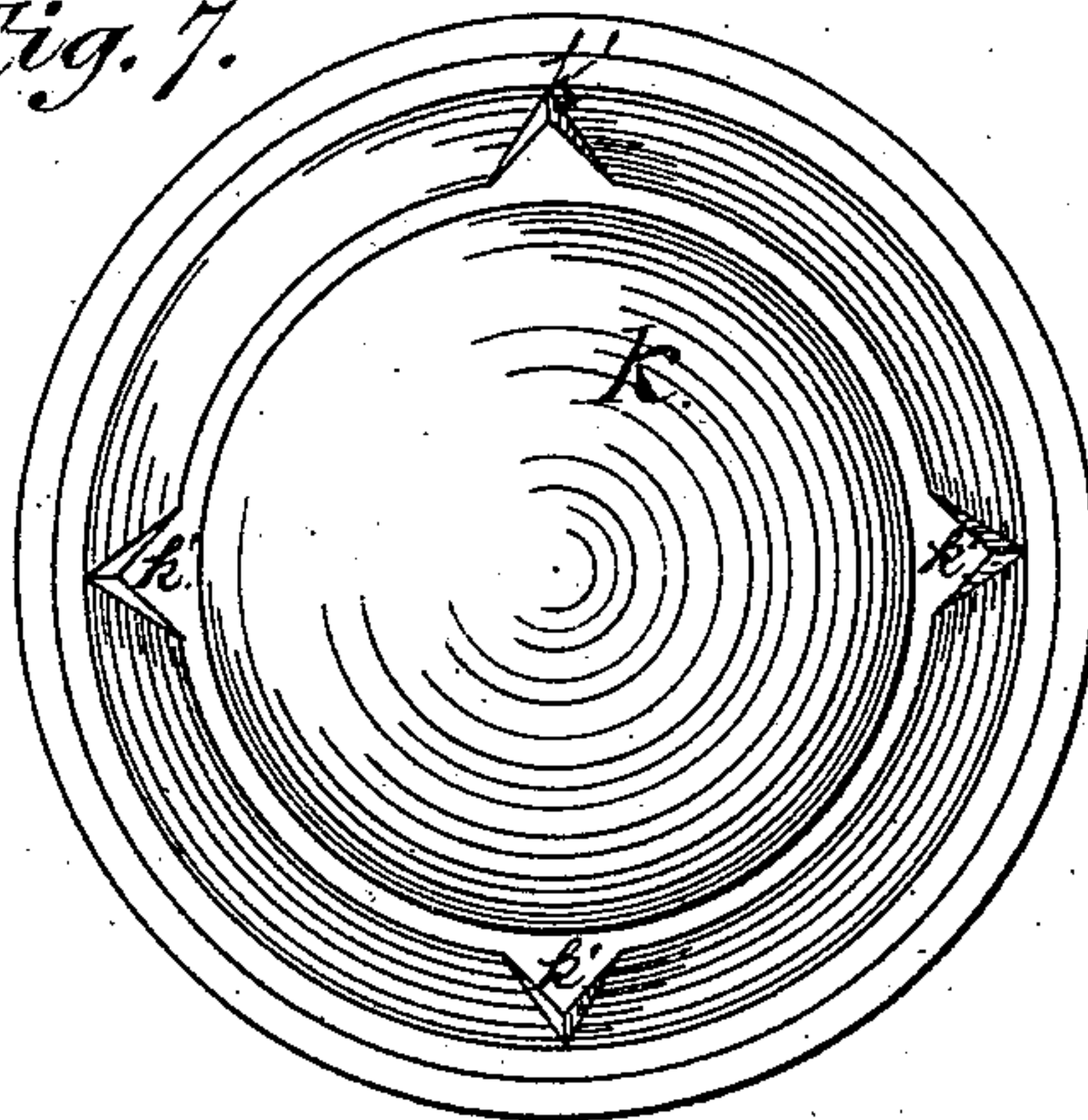


Fig. 4.

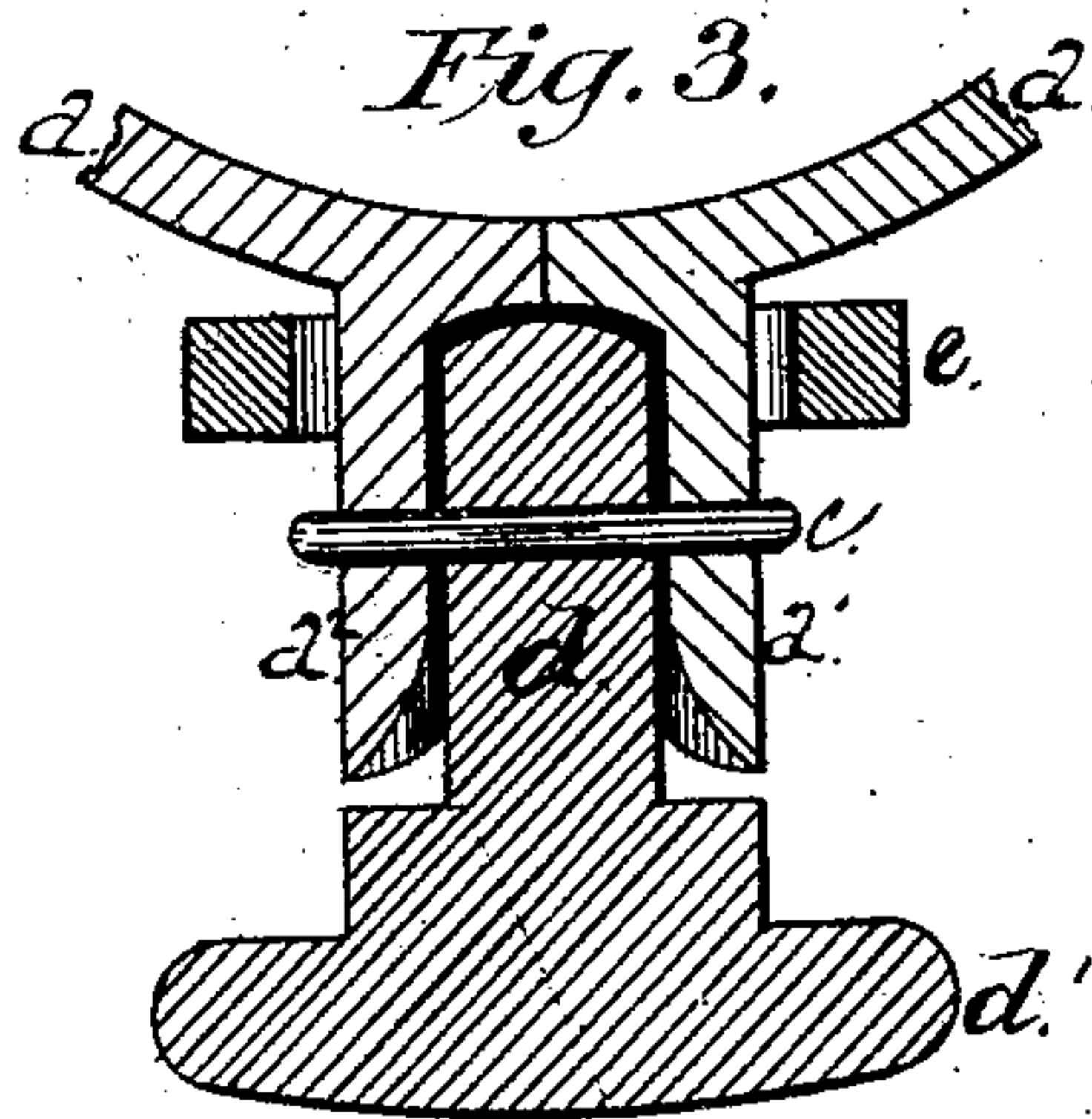
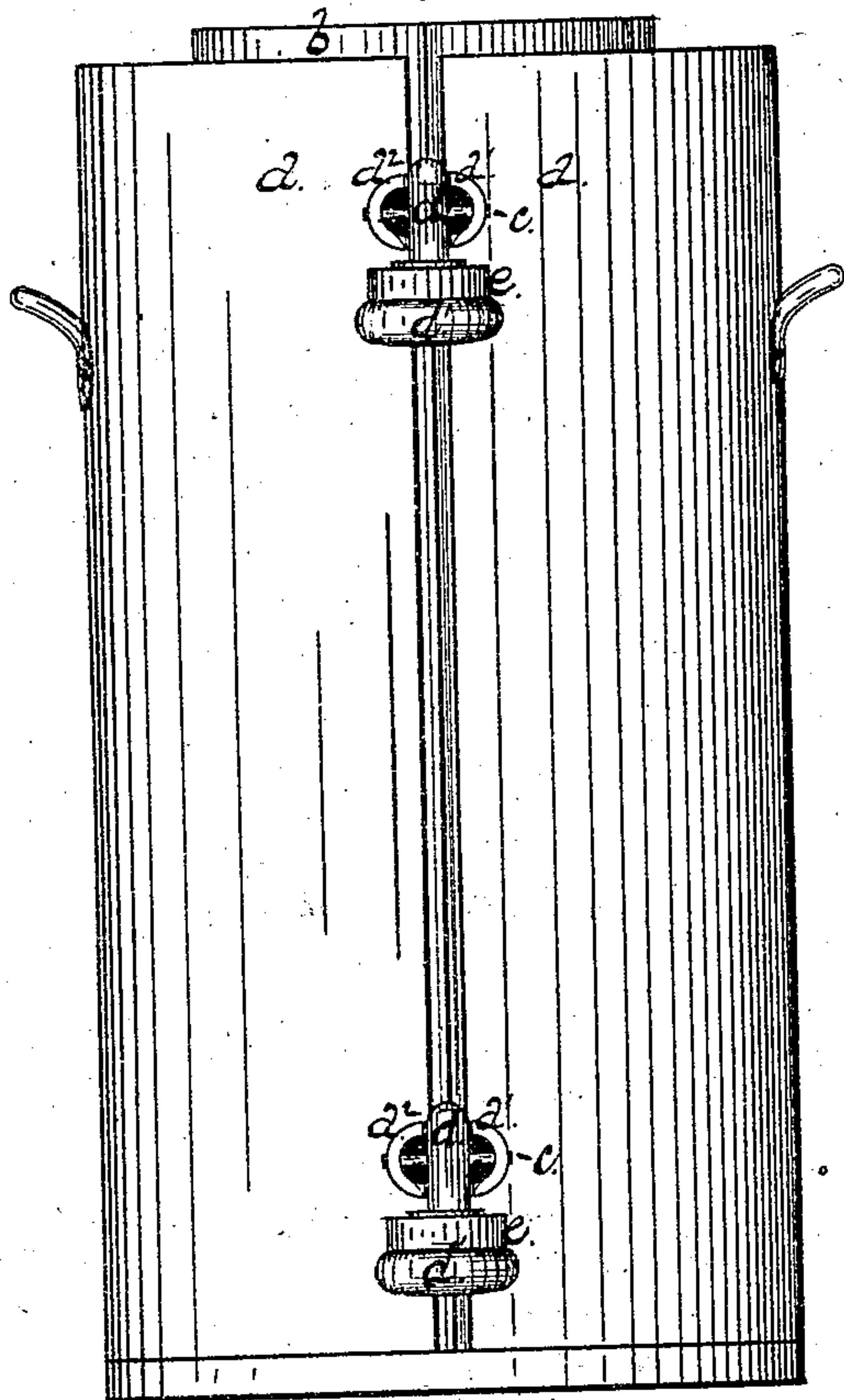
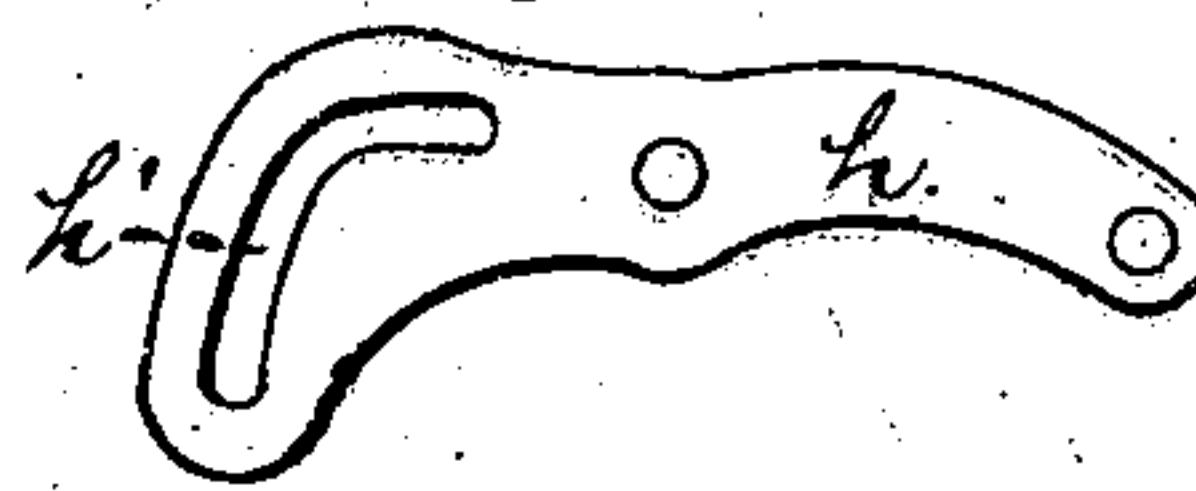


Fig. 9.



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UNITED STATES PATENT OFFICE.

JAMES H. ROOT, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN MOLDS FOR EARTHEN PIPES.

Specification forming part of Letters Patent No. **153,180**, dated July 21, 1874; application filed June 17, 1874.

To all whom it may concern:

Be it known that I, JAMES H. ROOT, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Molds for Earthen Pipe, of which the following is a specification, reference being had to the accompanying drawings, where—

Figure 1 is a top view of the spring-case, and spring-core made use of with the case, closed, and the core expanded ready for use. Fig. 2 is a view of the part shown in Fig. 1, in the same adjustment, the view being a longitudinal vertical section on the plane indicated by the dotted line xx , Fig. 1, and looking in the direction indicated by the arrow x' . The plugs or spurs on the front of the case are omitted. Fig. 3 is a view of one of the spurs or plugs upon the front of the case in central horizontal section. Fig. 4 is a front view of the case and core, with the case expanded and the core contracted. Fig. 5 is a top view of the parts shown in Fig. 4, in the same adjustment. Fig. 6 is a view of the same parts shown in Figs. 4 and 5, in the same adjustment, the view being a vertical longitudinal section on the plane indicated by the dotted line yy , Fig. 5, looking in the direction indicated by the arrow y' . Fig. 7 is a detail top view of the base or foot former. Fig. 8 is a detail view of the under side of the cap or top former. Fig. 9 is a detail side view of one of the levers made use of to give motion to the core-wedge.

This apparatus is more especially designed for making so-called cement-pipe, but is obviously applicable to the making of pipe of any material that is plastic and can be molded.

Both the case a and core b are of spring-metal, the spring in both cases tending to close the ends of the metal sheet together.

Upon what I will call the front of the case, which serves to form the exterior of the pipe, and where the two edges or ends of the metal sheet which forms the case meet, lugs $a^1 a^1$ $a^2 a^2$, preferably half round in shape, project from the case, forming, when the case is closed, round spurs or lugs. These lugs $a^1 a^1$ $a^2 a^2$ are hollowed out somewhat on their apposed faces, and in this space is hung, upon the pivot-pin c , the rod or wedge d , bearing at the outer end of the knob d' , the neck of which

is of the same size as the round spur formed by the two lugs $a^1 a^2$. When the rod d is in the position shown in Fig. 1 the body of the rod lies in the hollow between, or in, the lugs $a^1 a^2$, permitting the edges of the case to come together, and they can be held together by the ring e which lies upon the neck of the knob d' , when the rod d is turned down, as shown in Figs. 4 and 6. Turning the rod d down forces the edges of the case apart. From the edges of the sheet forming the core the lugs $b^1 b^1$ project inward, being wedge or cam shaped on their opposed faces. Between these two wedge-lugs $b^1 b^1$ lies the wedge f running the whole length of the core, having a lateral motion outward and inward by means of the pins f' resting in the slots b^2 . On the pivot-pins g are hung the levers $h h$, jointed at their outer ends to the bar i , which, being moved up or down, operates both levers at once. The inner ends of these levers have the slots h' , (see Fig. 9,) and these inner ends are jointed to wedge f by pins running through the wedge and through these slots h' , the inner ends of these levers entering into mortises made in the back of the wedge f . By moving the bar i upward the wedge f is moved backward, the edges of the core being thereby permitted to approach each other, and the size of the core thereby contracted. The foot of the case a sits upon the foot-former k , and the core sits into the foot-former. The beveled rise of the foot-former bears the wedge-shaped projections k' , which serve to form wedge-shaped depressions in the bevel at the foot of the pipe. The cap m for forming the upper end of the pipe has wedge-like incisions m' on its bevel, serving to form on the upper end of the pipe projections corresponding to the depressions made by the projections k' , so that when the lengths of pipe are fitted together one length shall not move rotarily independent of the other, such independent movements of two lengths often effecting a break in joints of pipes of the common construction.

In making use of this apparatus the case, closed, as in Fig. 1, is set upon the foot-former; the core, expanded, as in Fig. 1, is set into the foot-former; the plastic mixture is then rammed or tamped between the case and core; the upper end of the pipe is formed by the cap

m. After the pipe is sufficiently hard the case is opened and the core contracted, and they can both be readily removed from the pipe.

The apparatus shown is adapted to making pipe with so-called V-shaped ends. It can readily be adapted to making pipe with so-called bell-mouth ends, and to pipes of oval as well as to round shape.

I claim as my invention—

1. The spring-core *a* bearing the lugs *a*¹ *a*², in combination with the rod *d* pivoted between the lugs and the ring *e*, substantially as shown and described.

2. In combination with the spring-core *b* bearing the wedge-lugs *b b*, the wedge *f* and the levers *h h*, substantially as shown and described.

3. In combination with a case and core, the foot-former *k* bearing the projection *k'*, and the cap *m* bearing the incisions *m'*, all substantially as shown and described.

JAMES H. ROOT.

Witnesses:

WM. E. SIMONDS,
H. B. WEAVER.