

998,659.

W. H. VAN SICKEL.
PNEUMATIC TOOL.
APPLICATION FILED FEB. 16, 1911.

Patented July 25, 1911.

2 SHEETS—SHEET 1.

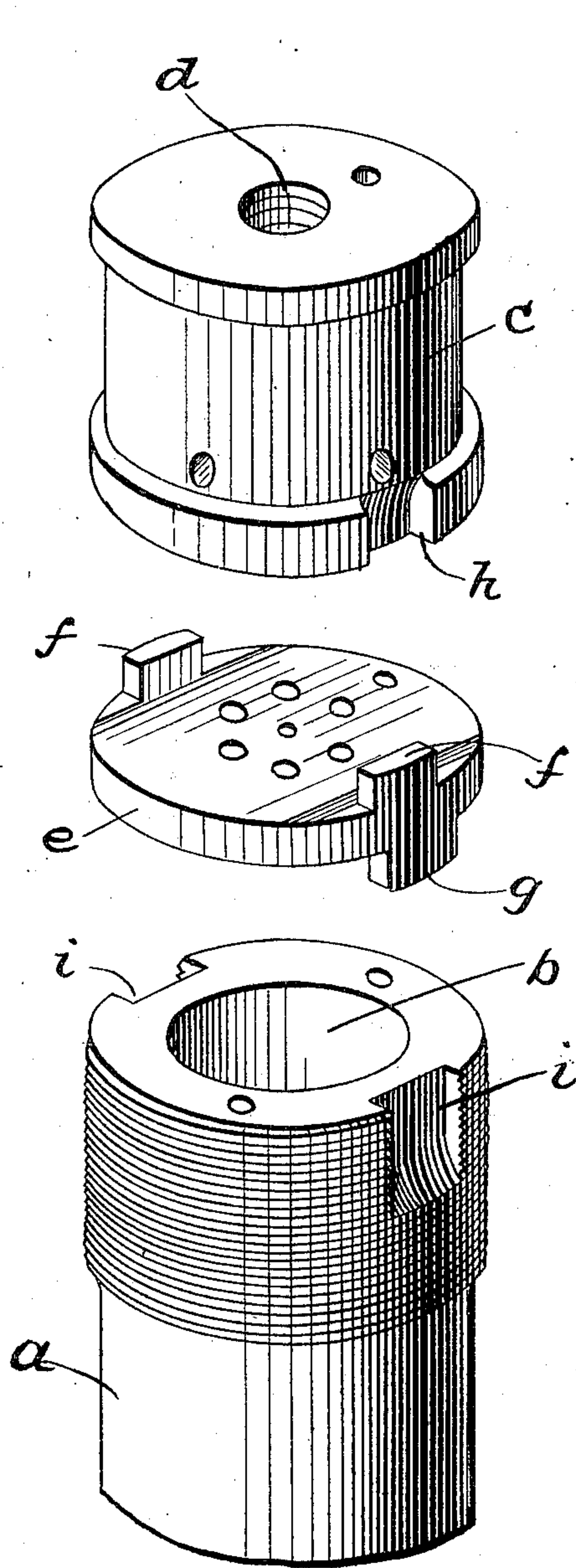


FIG. 1.

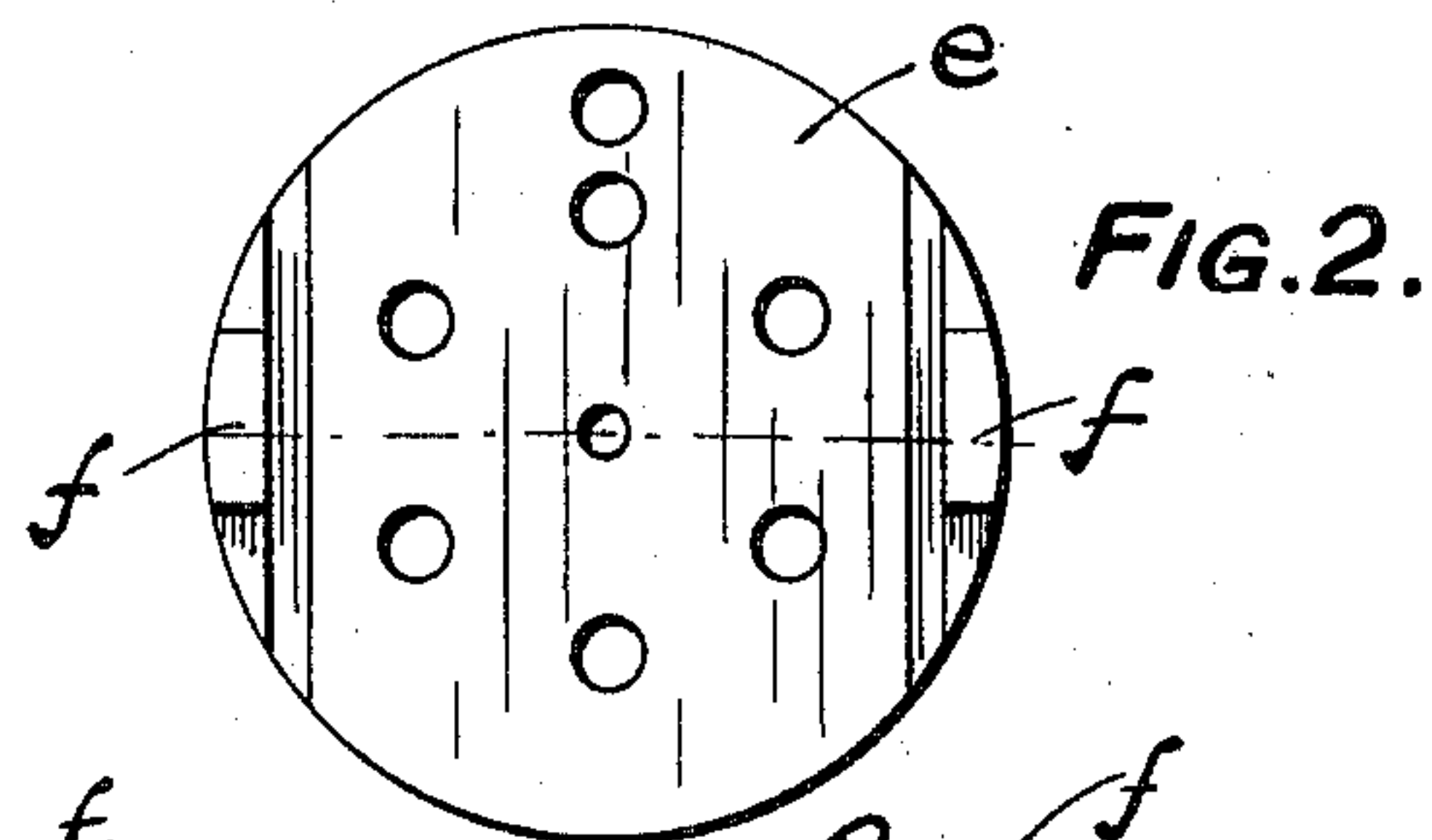


FIG. 2.

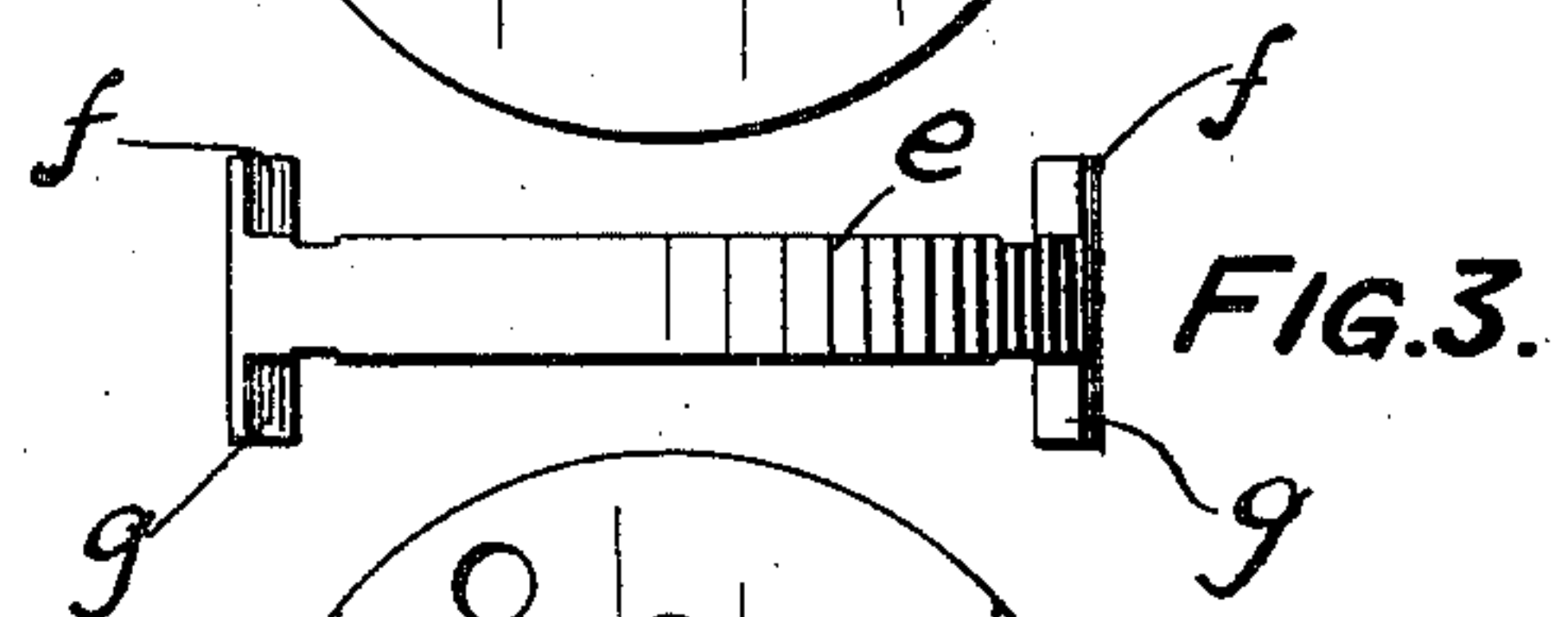


FIG. 3.

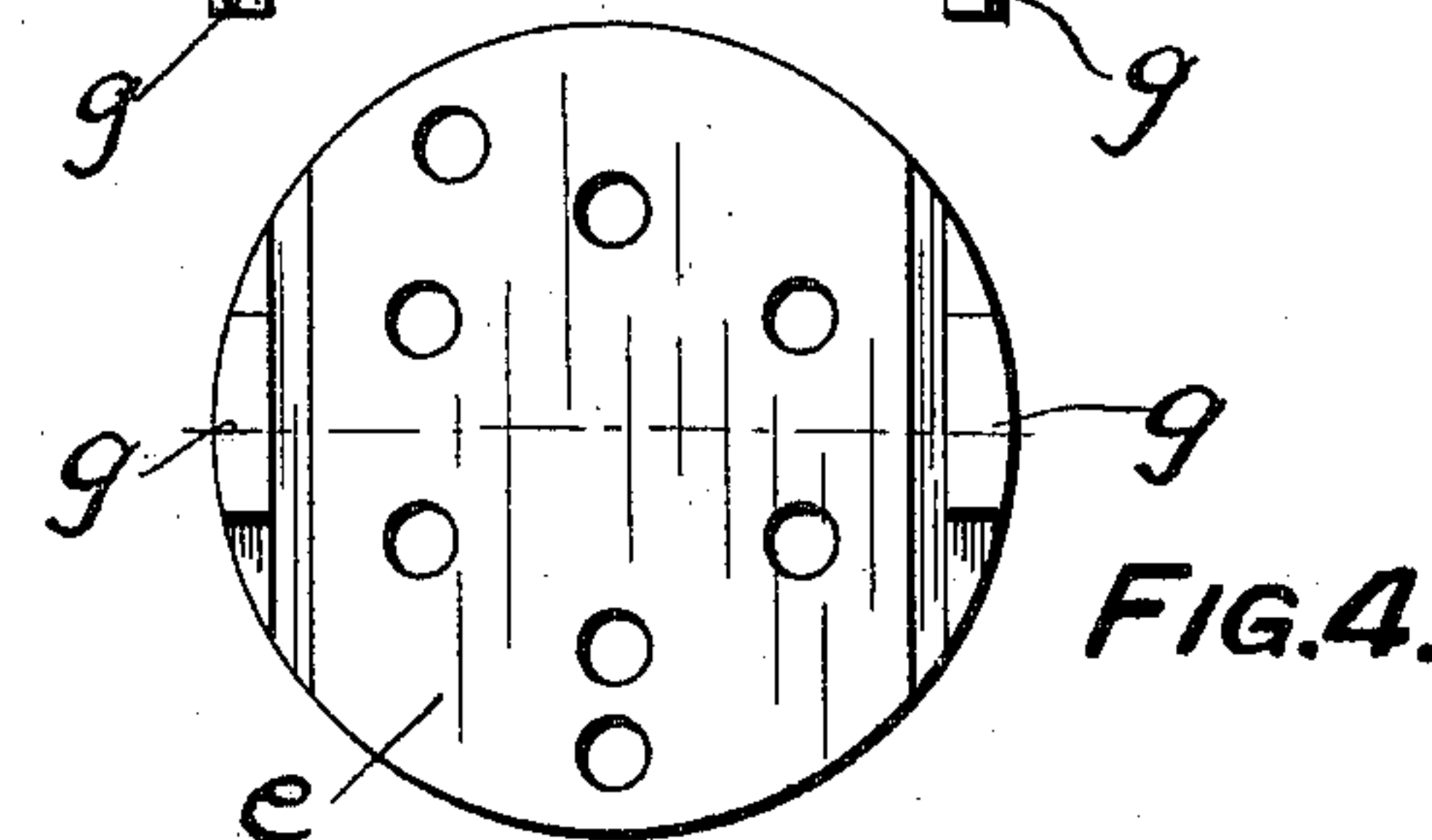


FIG. 4.

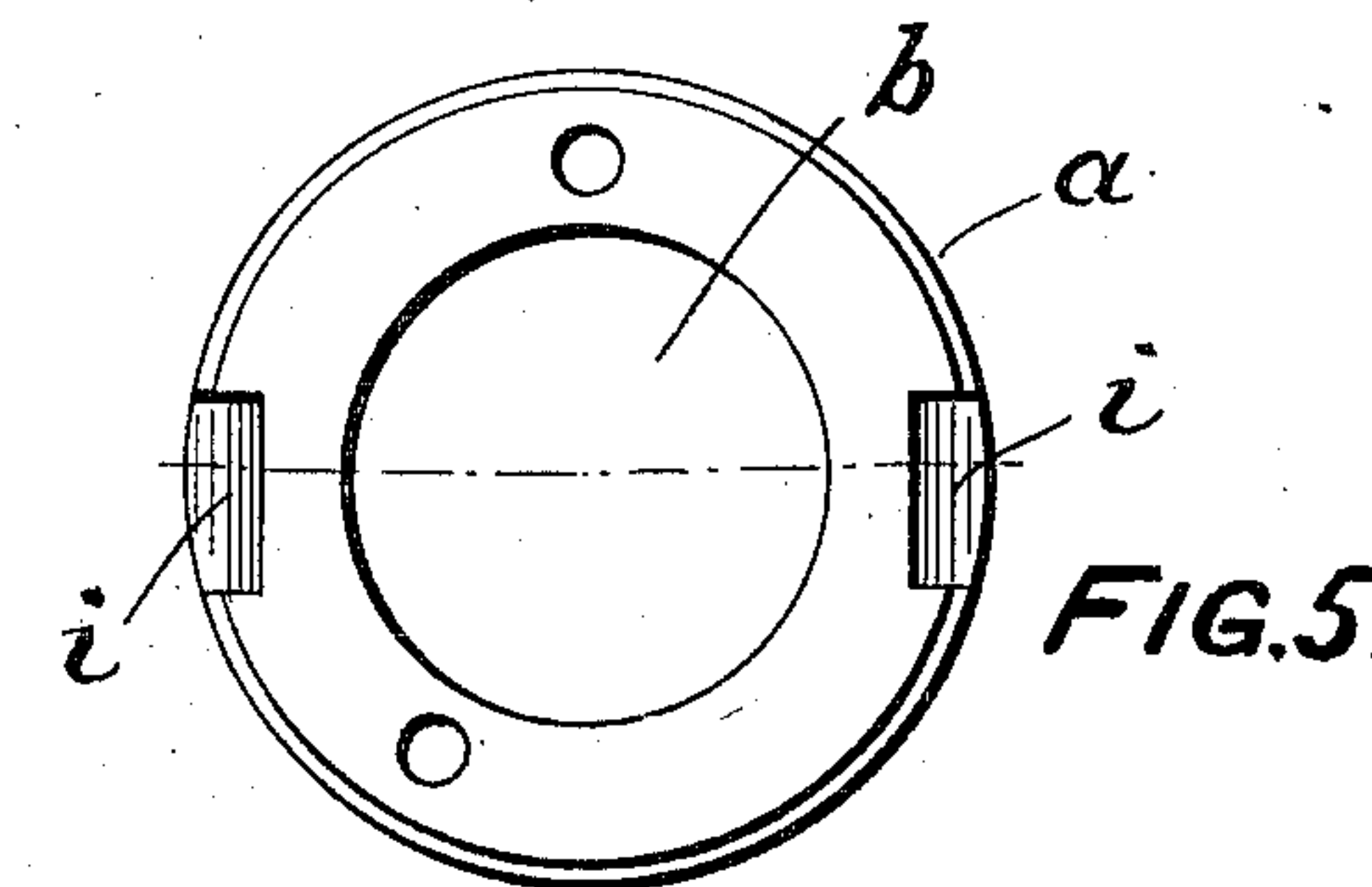


FIG. 5.

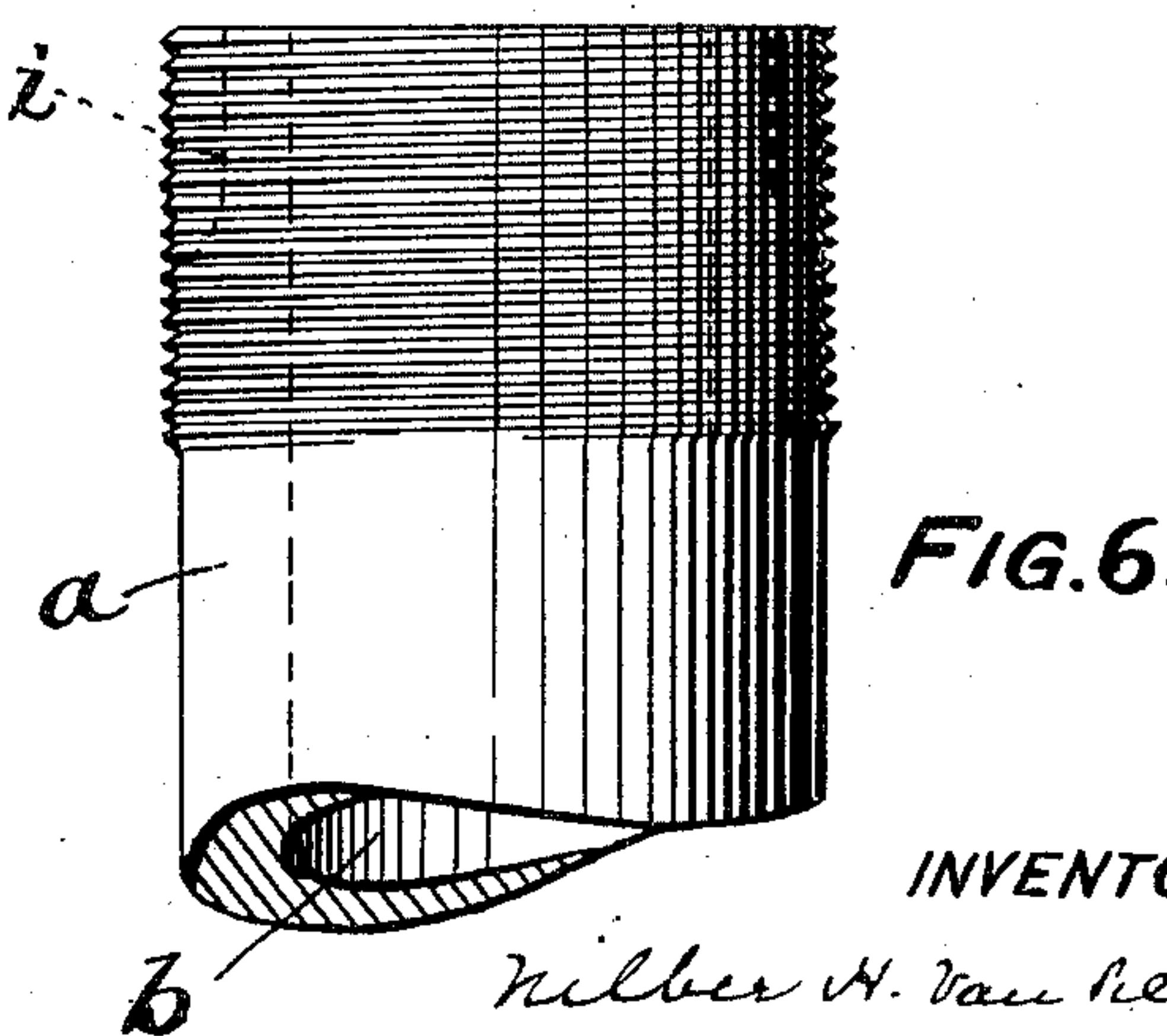


FIG. 6.

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2 SHEETS—SHEET 2.

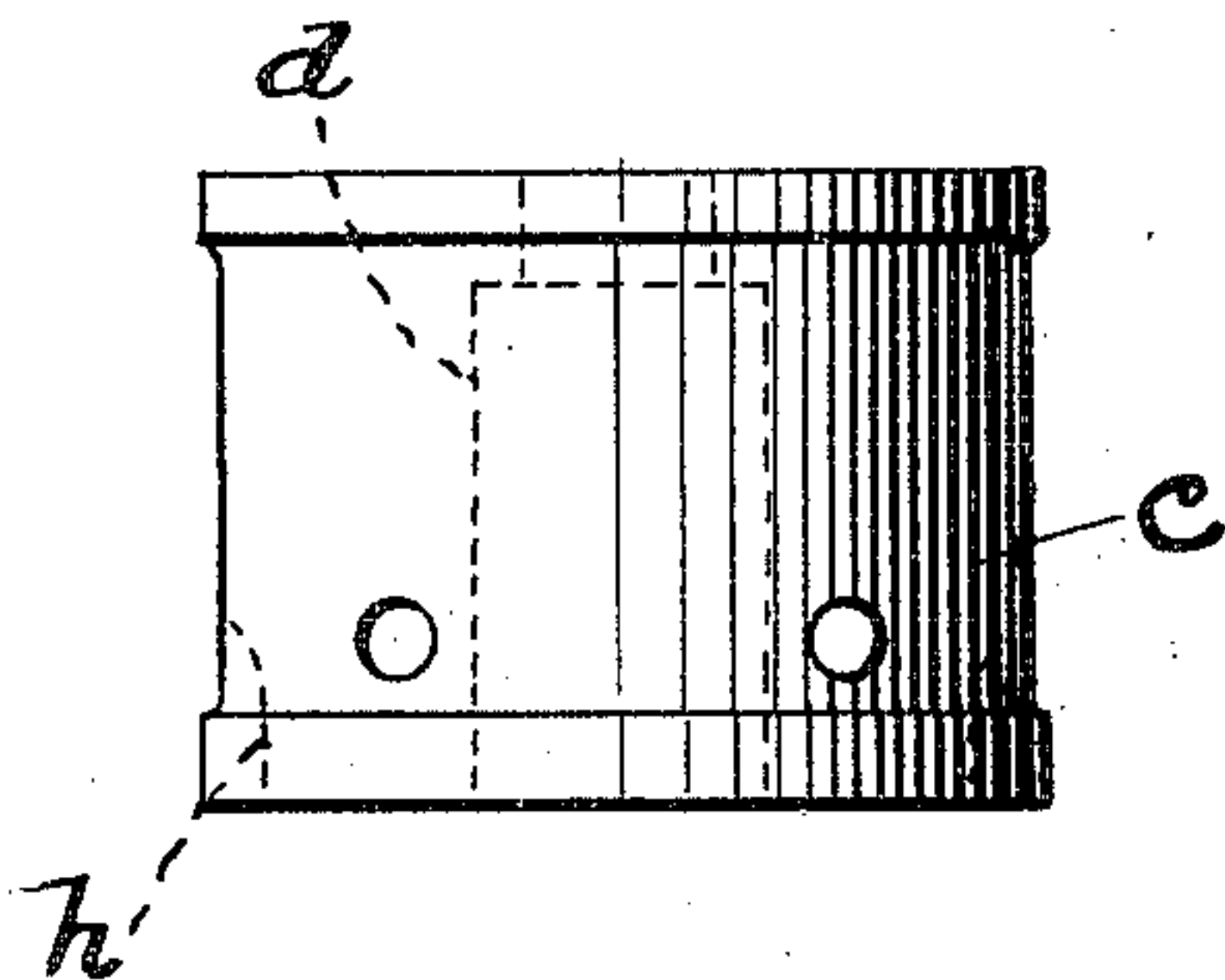


FIG. 7.

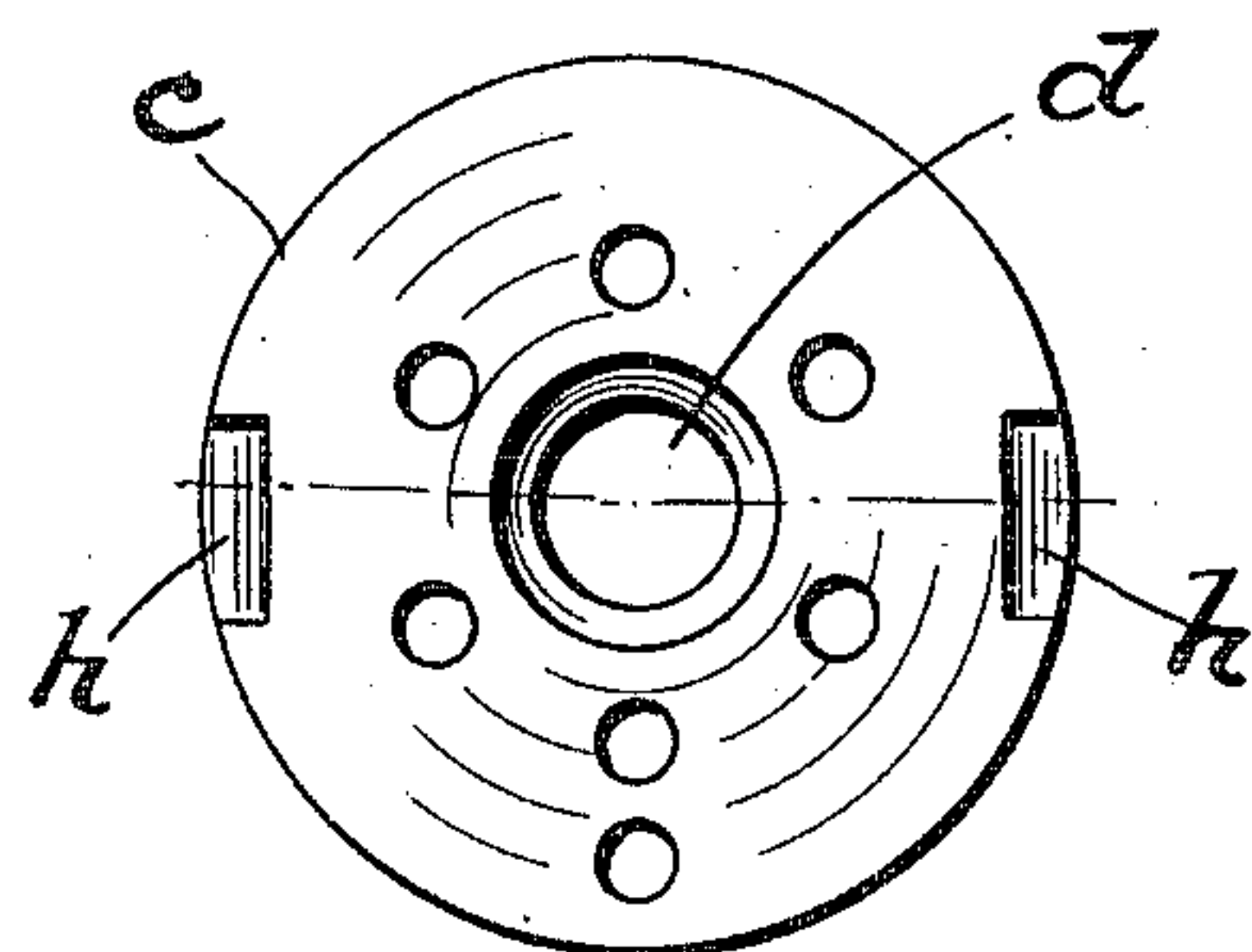


FIG. 8.

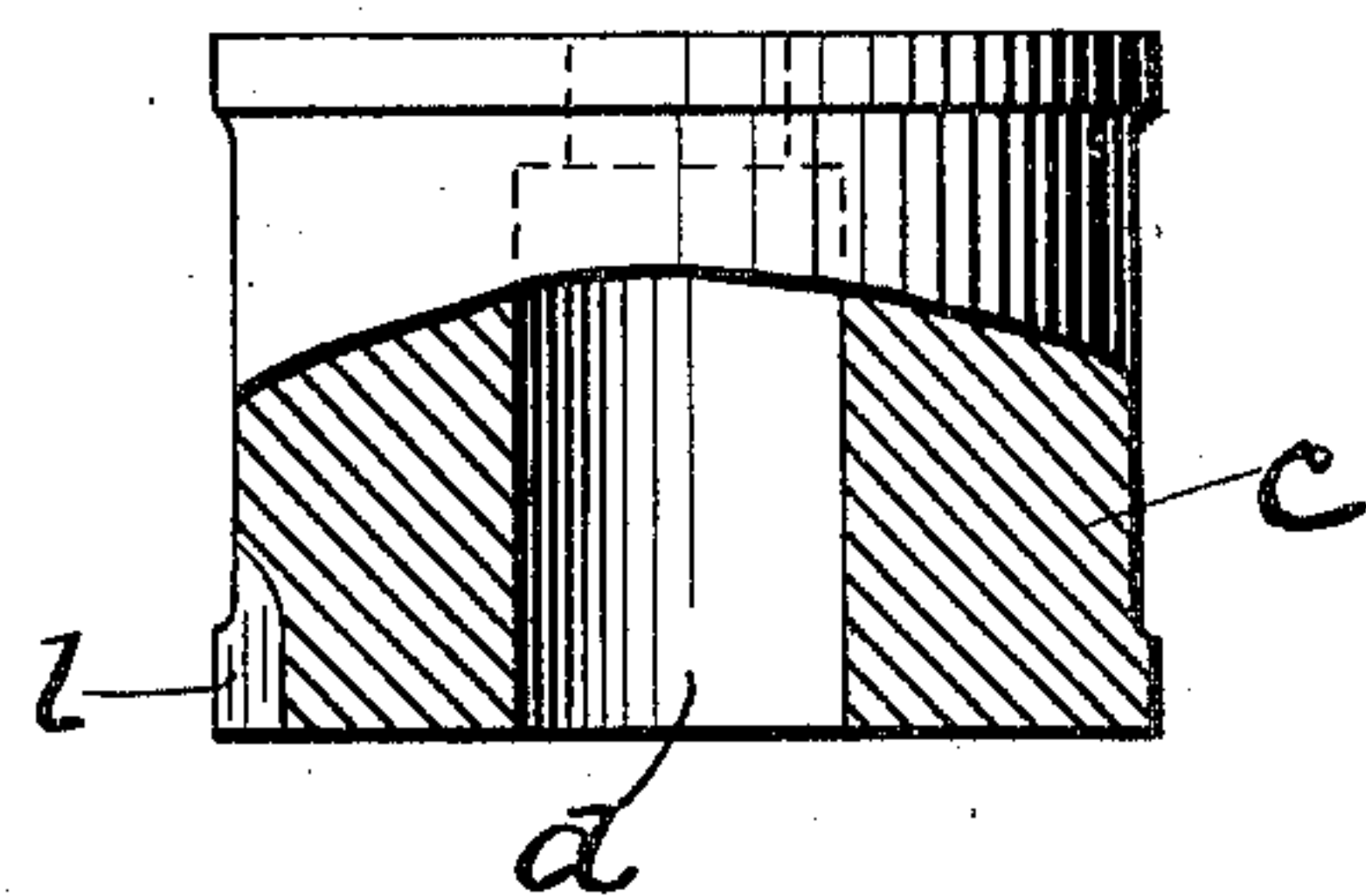


FIG. 9.

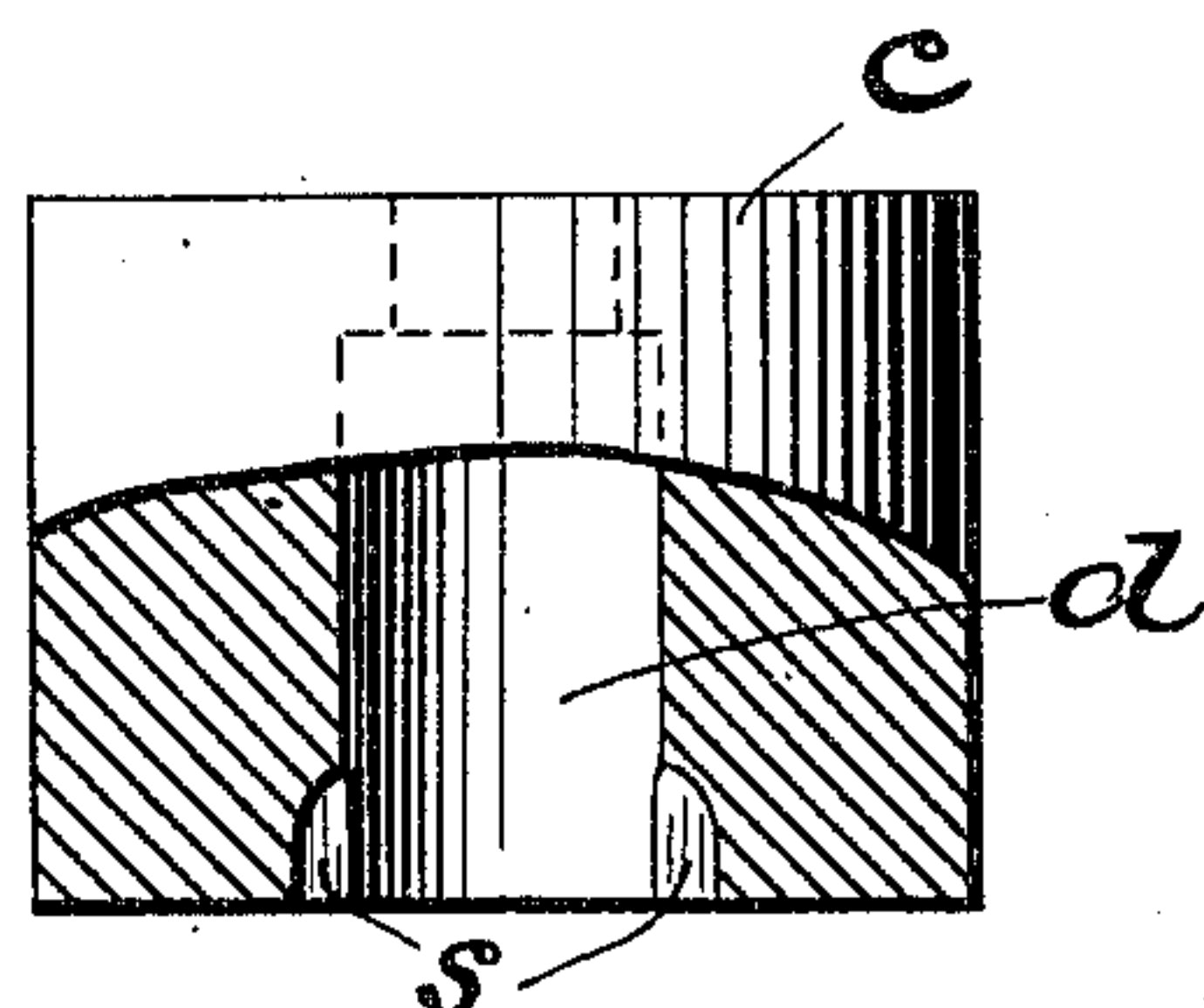
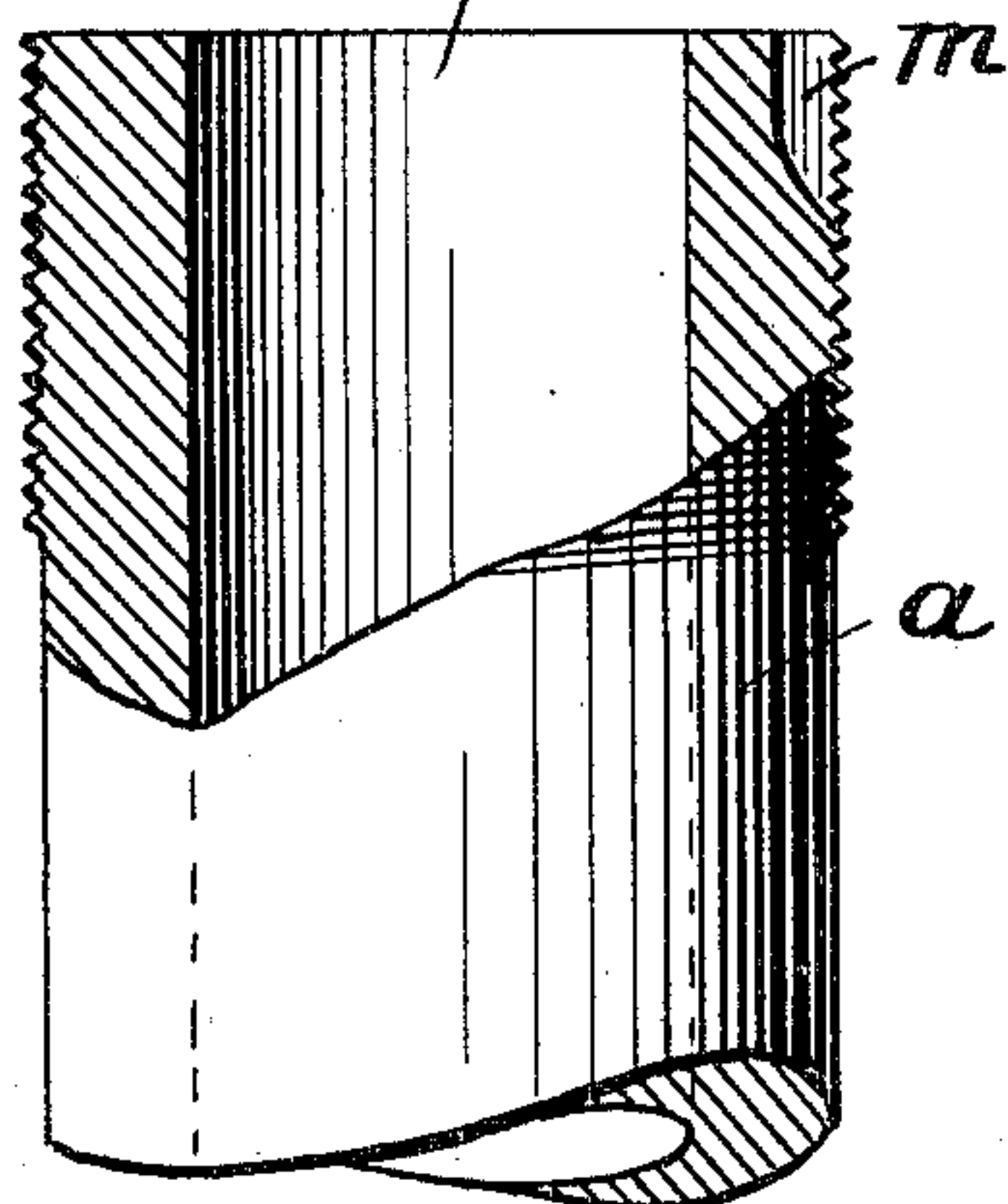
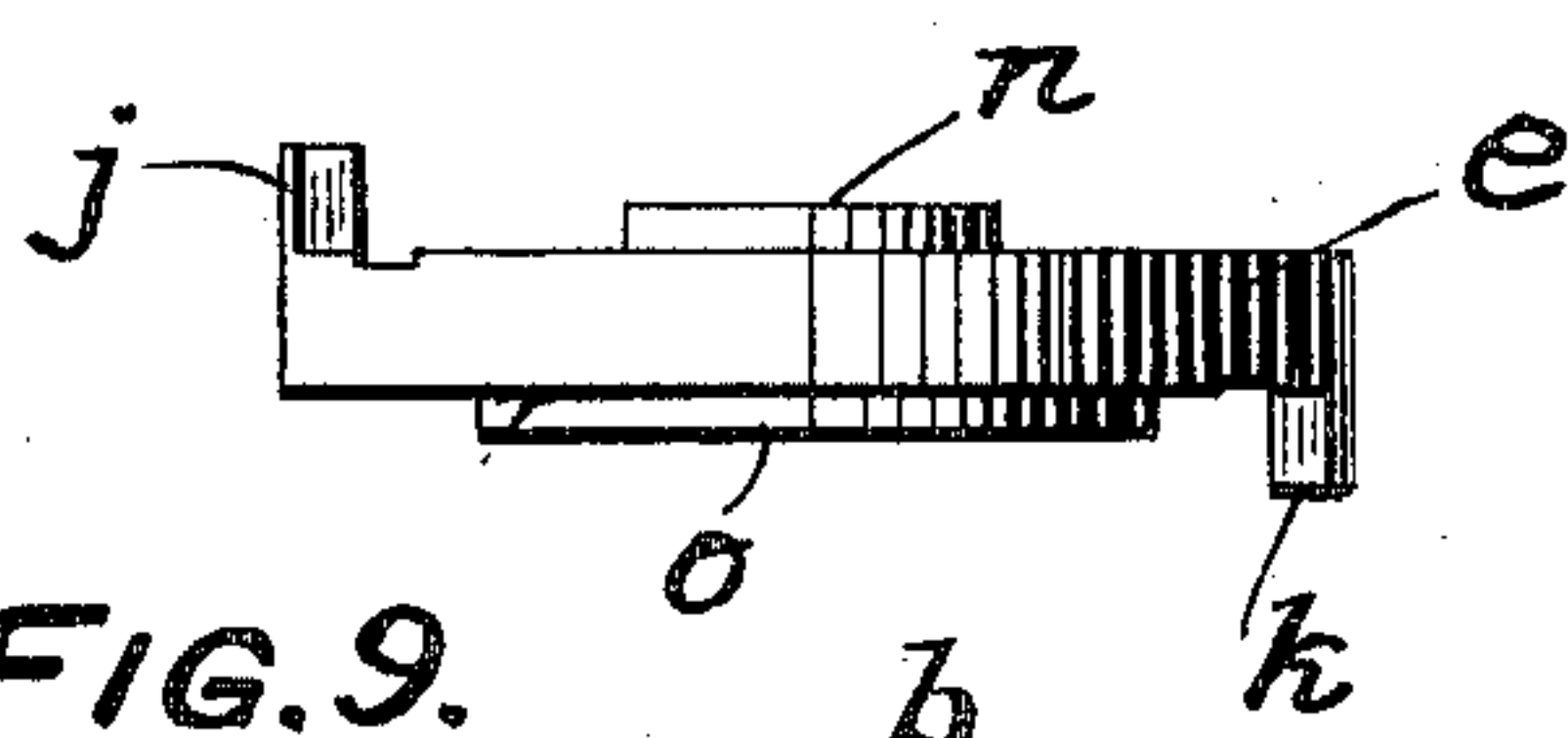
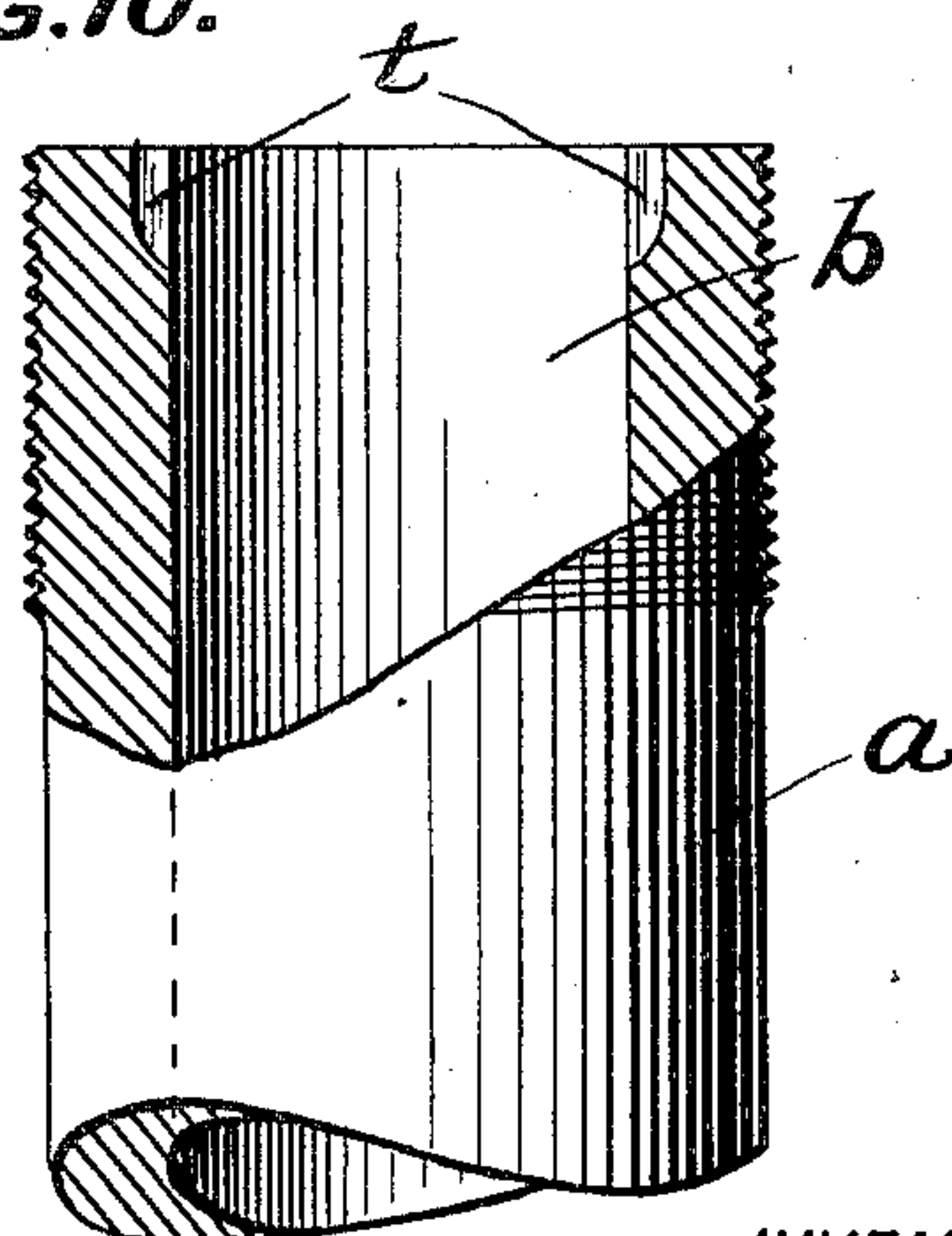
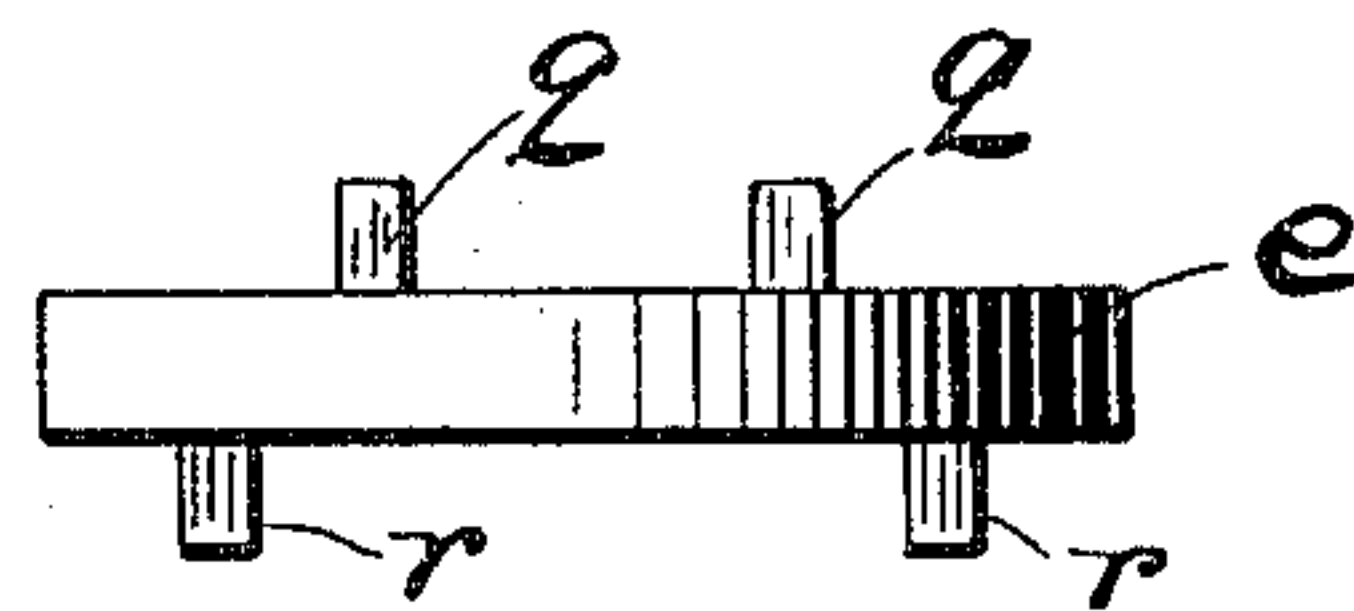


FIG. 10.



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UNITED STATES PATENT OFFICE.

WILBER H. VAN SICKEL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THOS. H. DALLETT CO., A CORPORATION OF NEW JERSEY.

PNEUMATIC TOOL.

998,659.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed February 16, 1911. Serial No. 609,054.

To all whom it may concern:

Be it known that I, WILBER H. VAN SICKEL, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Pneumatic Tools, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain improvements in pneumatic tools and to that class in which the tool is comprised of a valve box having an orifice therein for the insertion of the valve. In this character of tools, in order to insert the valve, the bottom of this valve box, so far as the orifice therein is concerned, is open. As the cylinder in the barrel is also open, there is interposed between the valve box and the barrel what is called the valve cap. This valve cap not only forms a proper closure for the valve box, but is provided with the openings for the passages to carry the compressed air, controlled by the valve, to the proper passages and ports in the barrel. It is therefore essential that this cap should be connected with a valve box and barrel in such a manner as to, at all times, make a permanent and proper connection.

My invention relates particularly to a novel construction for connecting the valve cap to the valve box and barrel so as to produce with certainty this necessary and proper relation between the valve box and barrel. Speaking generally, I accomplish this by providing the valve cap with projections which are integral with the valve cap, and which projections enter corresponding openings in the valve box and barrel. In order to insure the connection of the valve cap to the valve box and barrel in a proper relation to both, these lugs at the top and bottom are not corresponding, and therefore unless inserted in proper position, the valve cap lugs will not enter the orifices in the valve box and barrel. For the same purpose, that is of insuring the proper placing of the cap with relation to the valve box and barrel, I can, instead of using a plurality of lugs on top and bottom, use bosses, one on the upper and one on the lower surface of the

valve cap, one boss being of size to enter the orifice in the valve box, and the other of size adapted to enter the interior of the barrel. As the diameter of the interior of the barrel is much larger than the diameter of the orifice or valve chest in the valve box, the insertion of the cap between them can only take place when it is so set that the boss adapted to enter the valve box orifice or chest will enter such chest. I can also so arrange the lugs and openings that such openings may be formed in the outer surface of the valve box and barrel, or on the inner surface of such parts.

I will now describe the embodiments of my invention as shown in the accompanying drawings.

Figure 1 shows separate from each other, and in perspective, the valve box, valve cap and barrel. Fig. 2 is a top view of the valve cap of Fig. 1. Fig. 3 is a side view of said cap. Fig. 4 is an inverted plan view of the cap. Fig. 5 is a top view of the barrel. Fig. 6 is a side view of the barrel. Fig. 7 is a side view of the valve box. Fig. 8 is a bottom view of the valve box. Fig. 9 is a sectional view of another embodiment of my invention showing the valve box, valve cap and the barrel. Fig. 10 is a sectional view, similar to Fig. 9, of another embodiment of my invention.

Speaking first of Figs. 1 to 8, *a* is the barrel in the hollow portion *b* of which the piston works as in the ordinary pneumatic tool. *c* is the valve box having the valve chamber *d* therein, and *e* is the valve cap. This valve cap is provided with lugs *f* projecting from the upper surface of the valve cap, and lugs *g* projecting from the lower surface of the valve cap. The lugs *f* do not correspond with the lugs *g*, as may be seen, the lugs *g* projecting beyond the lugs *f*. The lugs *f* are not diametrically opposite each other nor are the lugs *g*. *h* are cut away portions on the outer surface of the valve box adapted to mate with the lugs *f*. *i* are cut away portions in the barrel adapted to mate with the lugs *g*. Unless the valve cap is set so that the lugs *f* project upwardly, that is the proper position for the valve cap, there will be no entry of either the lugs *f* or lugs *g* into orifices in the cut away por-

tions of the barrel or valve box, but if the cap is placed in the position shown in Fig. 1, then the lugs *f* will enter the cut away portions *h* and the lugs *g* will enter the cut away portions *i*, thus insuring the proper positioning of the cap with respect to the valve box and valve barrel. The lugs *f* and *g* being integral with the cap, insure with certainty the fixed connection between the valve cap and the valve box on the one hand, and the valve cap and the barrel on the other hand. Moreover, these lugs being of material size, have no tendency to break.

In the construction shown in Fig. 9, I use one lug *j* projecting from the upper surface of the valve cap, and one lug *k* from the other surface of the valve cap, each of these lugs being at the outer edge of the valve cap, and lug *j* being adapted to enter the cut away portion *l* in the valve box and the lug *k* the cut away portion *m* in the barrel. In order to center under these conditions, I provide a central lug *n* on the upper surface of the valve cap which is of size adapted to enter the valve chest *d*, and on the lower surface a projection *o* adapted to enter the cylinder *b* of the barrel.

In the construction shown in Fig. 10, I use on the upper surface of the valve cap two lugs *q q*, and on the lower surface of the valve cap two lugs *r r*, the lugs *q q* both being within the line of the lugs *r r*, the lugs *q* entering the orifices *s* on the one edge of the inner surface of the wall of the valve box, and the lugs *r* entering orifices *t* in the inner surface of the barrel.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. In a pneumatic tool, in combination, a valve box, a valve cap and a barrel, said valve cap having a lug integral with and projecting above the upper surface of the valve cap, and a lug integral with and projecting below the lower surface of the valve cap, there being cutaway portions in the peripheral surface of the valve box corresponding to the lug on the upper surface of the cap, and a cutaway portion in the peripheral surface of the barrel corresponding to the lug on the lower face of the valve cap.

2. In a pneumatic tool, in combination, a valve box, a valve cap and a barrel, said valve cap having a lug integral with and projecting above the upper surface of the valve cap, and a lug integral with and projecting below the lower surface of the valve cap, there being a cutaway portion in the peripheral surface of the valve box corresponding to the lug on the upper surface of the cap, there being a cutaway portion in the peripheral surface of the barrel corresponding to the lug on the lower face of the valve cap, and means to center the valve cap with respect to the valve box and barrel.

3. In a pneumatic tool, in combination, a valve box, a valve cap and a barrel, there being lugs integral with and projecting from the upper surface of the valve cap, and lugs integral with and projecting from the lower surface of the valve cap, there being cutaway portions in the peripheral surface of the valve box corresponding with the projections on the upper surface of the valve cap, there being cutaway portions in the peripheral surface of the barrel corresponding to the lugs on the lower surface of the valve cap.

4. In a pneumatic tool, in combination, a valve box, a valve cap and a barrel, there being lugs integral with and projecting from the upper surface of the valve cap, and lugs integral with and projecting from the lower surface of the valve cap, there being cutaway portions in the peripheral surface of the valve box corresponding with the projections on the upper surface of the valve cap, there being cutaway portions in the peripheral surface of the barrel corresponding to the lugs on the lower surface of the valve cap, and means to center said valve cap with respect to the valve box and barrel.

5. In a pneumatic tool, in combination, a valve box, a valve cap and a barrel, there being a lug integral with and projecting from the upper surface of the valve cap and a lug projecting from the lower surface of the valve cap, said lugs not corresponding one with the other, there being a cutaway portion in the peripheral surface of the valve box adapted in form and location to the lug, on the upper surface of the valve cap, there being a cutaway portion in the peripheral surface of the barrel corresponding in form and location to the lug on the lower surface of the valve cap.

6. In a pneumatic tool, in combination, a valve box, a valve cap and a barrel, there being a plurality of lugs integral with and projecting from the upper portion of the valve cap, and a plurality of lugs integral with and projecting from the lower surface of the valve cap, there being cutaway portions in the peripheral surface of the valve box corresponding in form and location to the projections on the upper surface of the valve cap, there being cutaway portions in the peripheral surface of the barrel corresponding in form and location to the projections on the lower face of the valve cap.

7. In a pneumatic tool, in combination, a valve box, a valve cap and a barrel, there being a plurality of lugs integral with and projecting from the upper portion of the valve cap, and a plurality of lugs integral with and projecting from the lower surface of the valve cap, the lugs projecting from the upper surface of the valve cap not corresponding to the lugs projecting from the lower surface of the valve cap, there being

cutaway portions in the peripheral surface
of the valve box corresponding in form and
location to the projections on the upper sur-
face of the valve cap, there being cutaway
5 portions in the peripheral surface of the
barrel corresponding in form and location
to the projections on the lower face of the
valve cap.

In testimony of which invention, I have
hereunto set my hand, at Philadelphia, on 10
this 14th day of February, 1911.

WILBER H. VAN SICKEL.

Witnesses:

M. M. HAMILTON,
A. J. MAGUIRE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."