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W. C. SALEMME

2,343,804

SPRAY DEVICE

Filed July 31, 1942

FIG. 1.

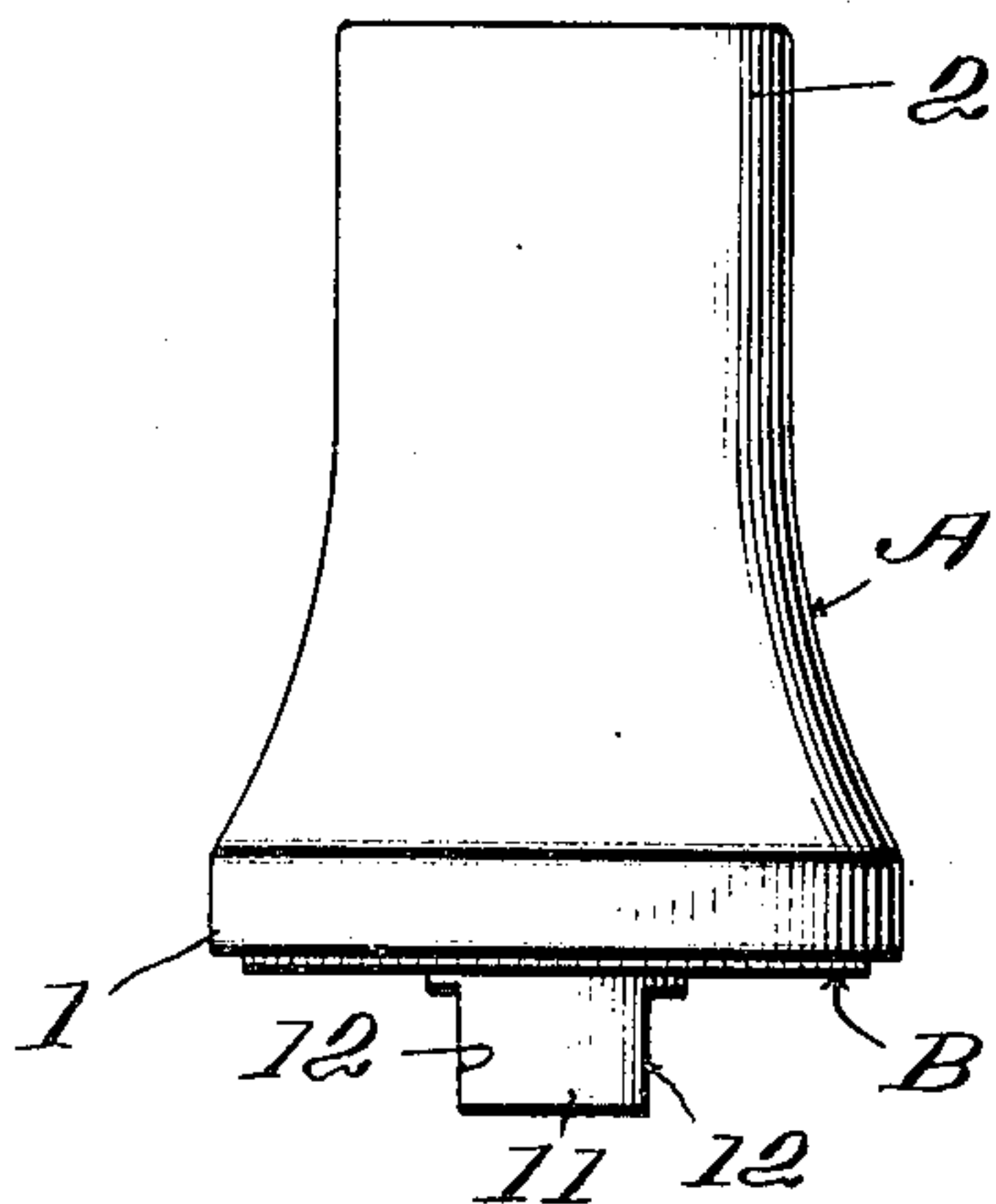


FIG. 2.

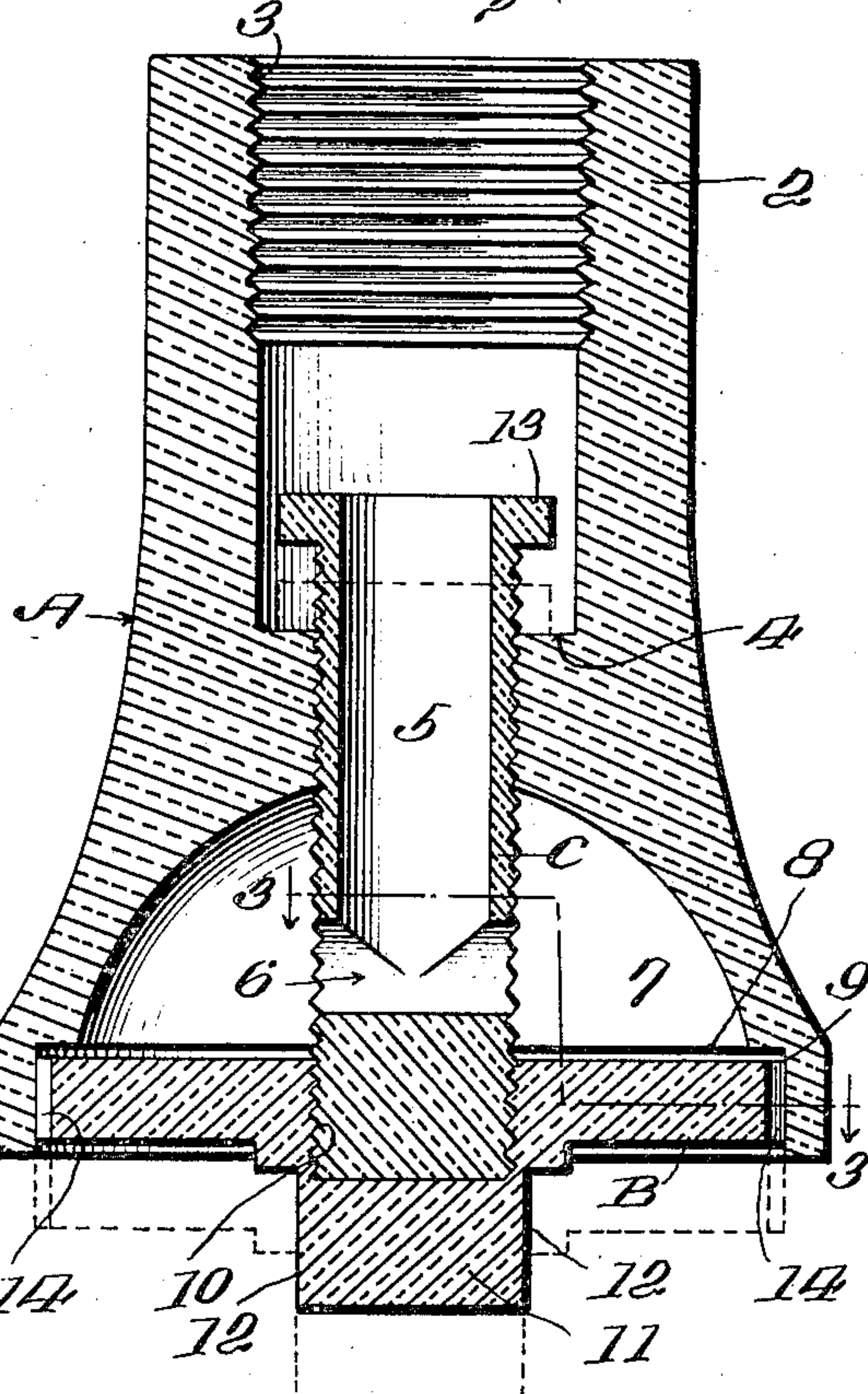


FIG. 3.

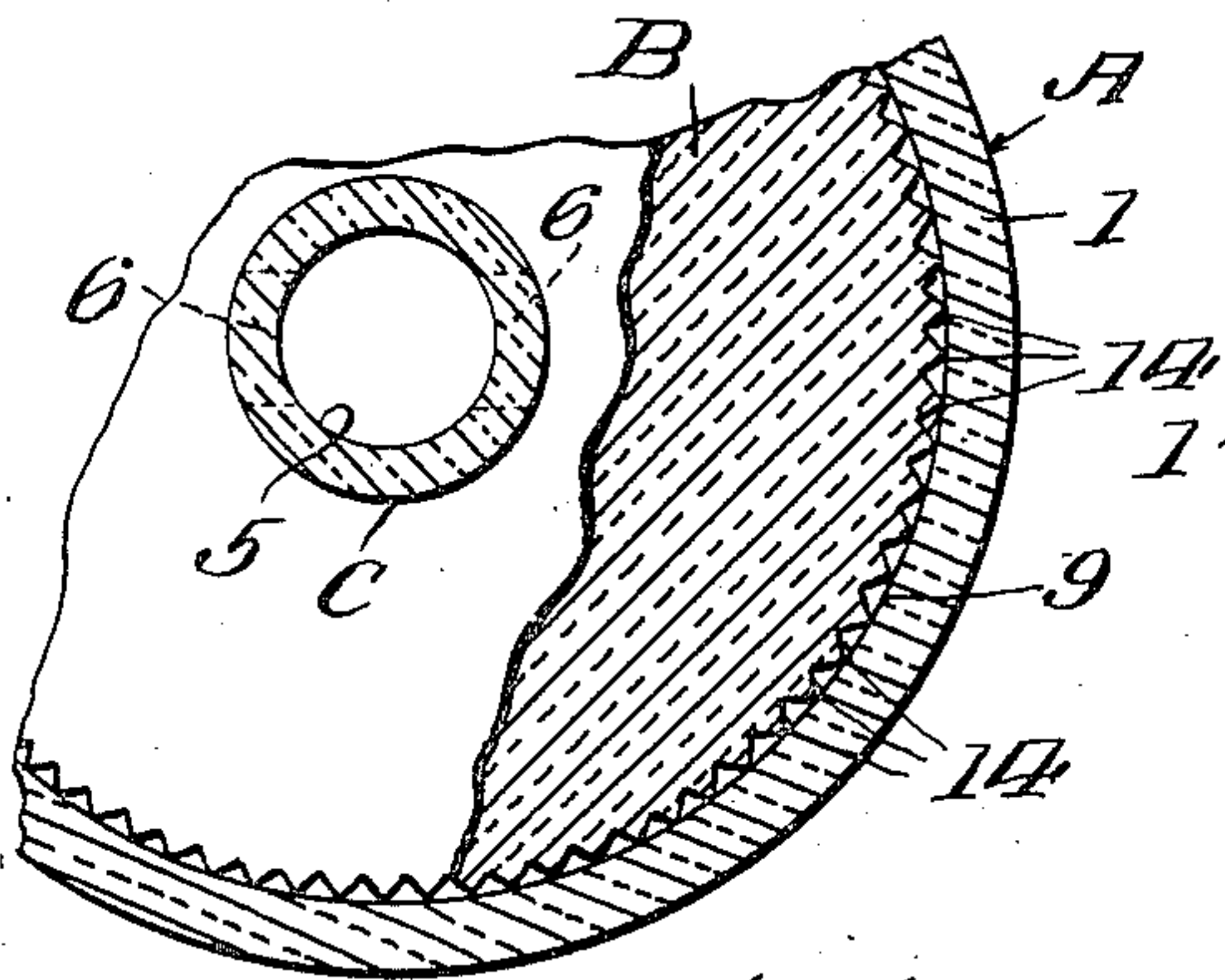
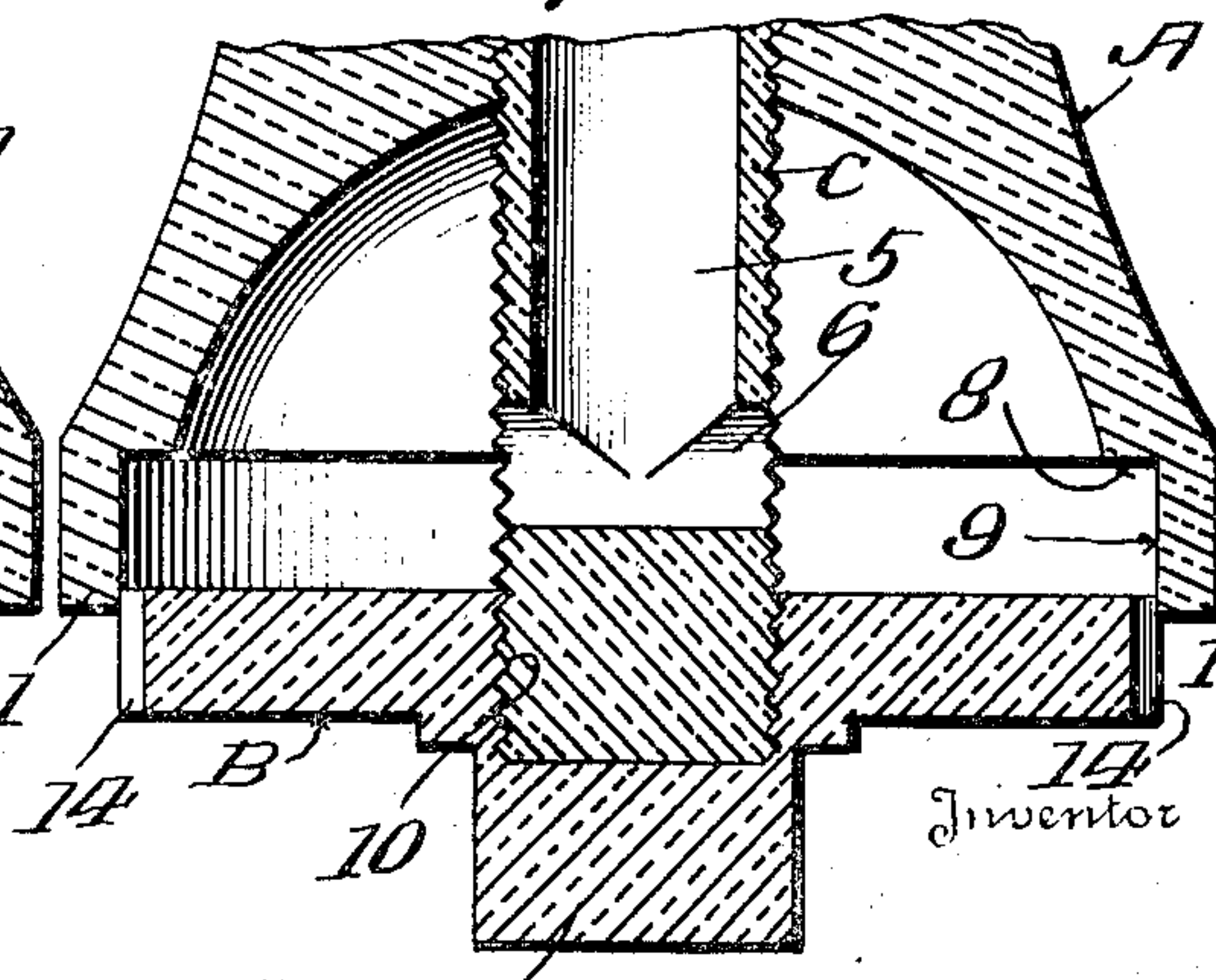
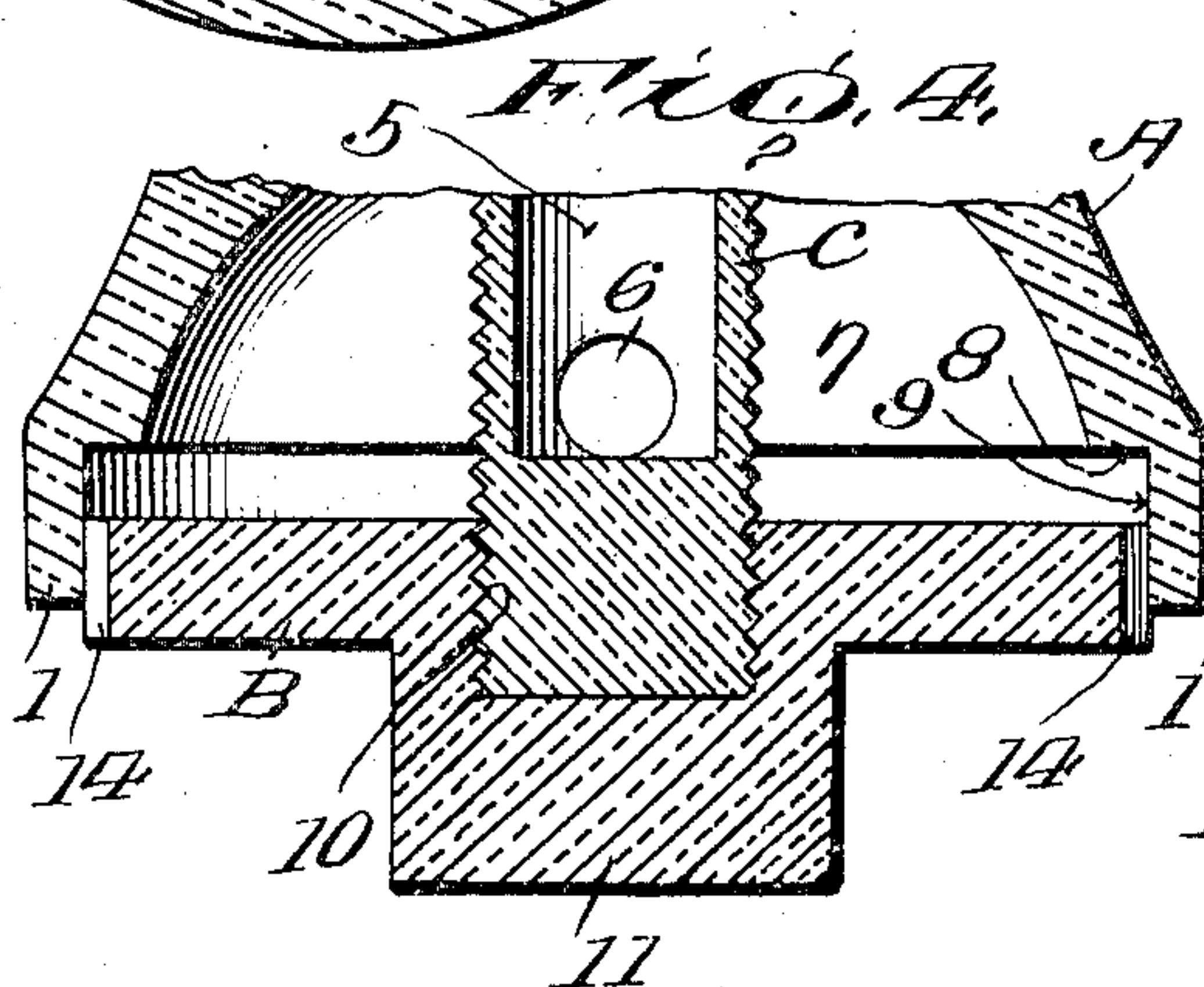


FIG. 5.



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## UNITED STATES PATENT OFFICE

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## SPRAY DEVICE

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Application July 31, 1942, Serial No. 453,067

1 Claim. (Cl. 299—141)

This invention relates to spray devices and more particularly to adjustable spray devices adapted for use as shower spray heads.

Some of the spray devices of the class referred to heretofore known in the art have been constructed with a view to providing anti-clogging or self cleaning properties and to be adjustable for varying the character of the spray.

An object of the present invention is to provide a spray device of simple and improved construction, which is self cleaning, and which may be nicely adjusted for changing the character of the spray to suit the desires of users.

Another object of the invention is to provide a spray device of the character stated which is simple, rugged, and economical to produce.

A further object is to provide a device of the character referred to which is particularly well suited for being made of molded plastic material.

Other objects will become apparent from a reading of the following detailed description, the appended claim, and the accompanying drawing, in which:

Figure 1 is a side elevation of a spray device embodying the invention;

Figure 2 is a central vertical section showing the parts adjusted to deliver a fine spray;

Figure 3 is a fragmentary section on the line 3—3 of Figure 2;

Figure 4 is a fragmentary vertical section showing the parts adjusted to deliver a needle spray; and

Figure 5 is a view similar to Figure 4 but showing the parts adjusted to deliver a wide or diverging spray.

The spray device shown in the drawing as embodying the invention in one preferred form includes a body or bell A, a disc member B, and a stem C adjustably mounting the disc on the bell at the mouth end 1 of the latter. Broadly stated, the member B is so fitted within the open end of the bell mouth as to provide for the discharge of fluid between the periphery of the member B and the inner surface of the bell.

The bell A is formed with a neck 2 threaded internally as at 3 for attachment to any suitable fluid supply pipe or fitting (not shown). The bell neck 2 is separated from the mouth 1 by a division wall 4 which is apertured axially and threaded internally for engagement with exterior threads on the stem C. Fluid under pressure delivered to the bell neck 2 is conducted through an axial passage portion 5 and transverse passage portion 6 in the stem C and discharge to a chamber 7 in the interior of the bell.

The bell body A is formed with a circumferential surface 8 surrounding the hemispherical inner wall of the bell and lying in a plane perpendicular to the bell axis and spaced somewhat from the extreme mouth end of the bell body A. A circumferential surface 9 comprising a section of a cylinder concentric with the surface 8 previously referred to extends from the surface 8 to the extreme end of the mouth 1. The circumferential surfaces 8 and 9 thus conjointly define a recess or seat, L shaped in cross section, for receiving the disc B.

The disc B may be secured to the stem C by inter-engaging threads as indicated at 10, and accidental separation of the parts B and C may be prevented by cementing or otherwise adhering or locking together the components of the threaded connection 10. Preferably the disc B is formed integrally with an enlargement or button 11 in the zone of the connection 10, and the button 11 may be shaped with parallel sides 12—12 to facilitate finger-gripping and turning to adjust the parts in a manner hereinafter described. The end of the stem C projecting into the bell neck is formed with a lateral protuberance in the form of a flange 13 which is adapted to engage the division wall 4 for limiting movement of the stem and disc away from the neck 2.

In accordance with the invention the disc B is shaped, sized and mounted so as to fit closely within the circumferential surface 9 but to permit flow of fluid from the chamber 7 between the upper surface of the disc and the surface 8 when the disc is not screwed tightly against the surface 8. The rate of flow and hence the characteristics of the spray may be varied by adjusting the position of the disc axially with respect to the bell surface 9. In the form shown, the periphery of the disc is serrated to provide a plurality of grooves 14, the bottoms of which lie in a circle of larger diameter than the inner edge of the bell circumferential surface 8. The arrangement is such that the serrated edge of the disc and the smooth surface 9 conjointly define a plurality of orifices extending parallel to the disc axis.

In operation, the orifices deliver a multiplicity of fine jets or streams of fluid, the volume and intensity of which can be controlled by varying the spacing between the disc B and the bell surface 9. The axial position of the disc may be changed easily by rotating it together with the threaded stem C. Figure 2 shows the disc and bell in the relative positions they will occupy for producing a fine relatively light spray; Figure 4 shows the adjusted position of disc and bell for



producing a hard, driving needle spray; and Figure 5 shows the parts in the relative positions they are placed for delivering a wide spray in which the individual streams are inclined outwardly at a relatively large angle. Thus a very close and effective control of the spray characteristics is easily obtainable, it being only necessary for the user to turn the button 11 and with it the disc B until the desired kind of spray is discharged. Should any of the orifices become clogged, the obstructions may be flushed away by simply turning the disc until it is positioned beyond the bell mouth.

The device is of exceeding simple construction, comprising a minimum of parts and all of these are so shaped as to be easily made of molded plastic material as well as of metal.

The construction shown in the drawing embodies the invention in the form now preferred, but it will be understood that changes may be made without departing from the invention as defined in the claim.

I claim:

In a spray device of the character described,

5 a bell having a mouth end, a neck end adapted to be connected to a fluid supply means, and an axially apertured division wall between said mouth and neck ends; a disc having its outer edge formed to fit within said bell mouth closely but to permit flow between said disc and said mouth; a seat in said bell mouth cooperable with said disc outer edge for varying the character of the spray in response to adjustment of the disc axially with respect to the bell; a stem connected to said disc to move therewith and extending through the aperture in said division wall and having adjustable threaded engagement with said wall and projecting into the neck end of said bell; a flange integral with said projecting stem end engageable with said wall for limiting movement of said stem and disc axially away from said bell neck end; and a passage in the stem extending axially from the flanged end of said stem and radially into said bell between said division wall and said disc for conducting fluid from the neck end of the bell to the mouth end thereof.

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