

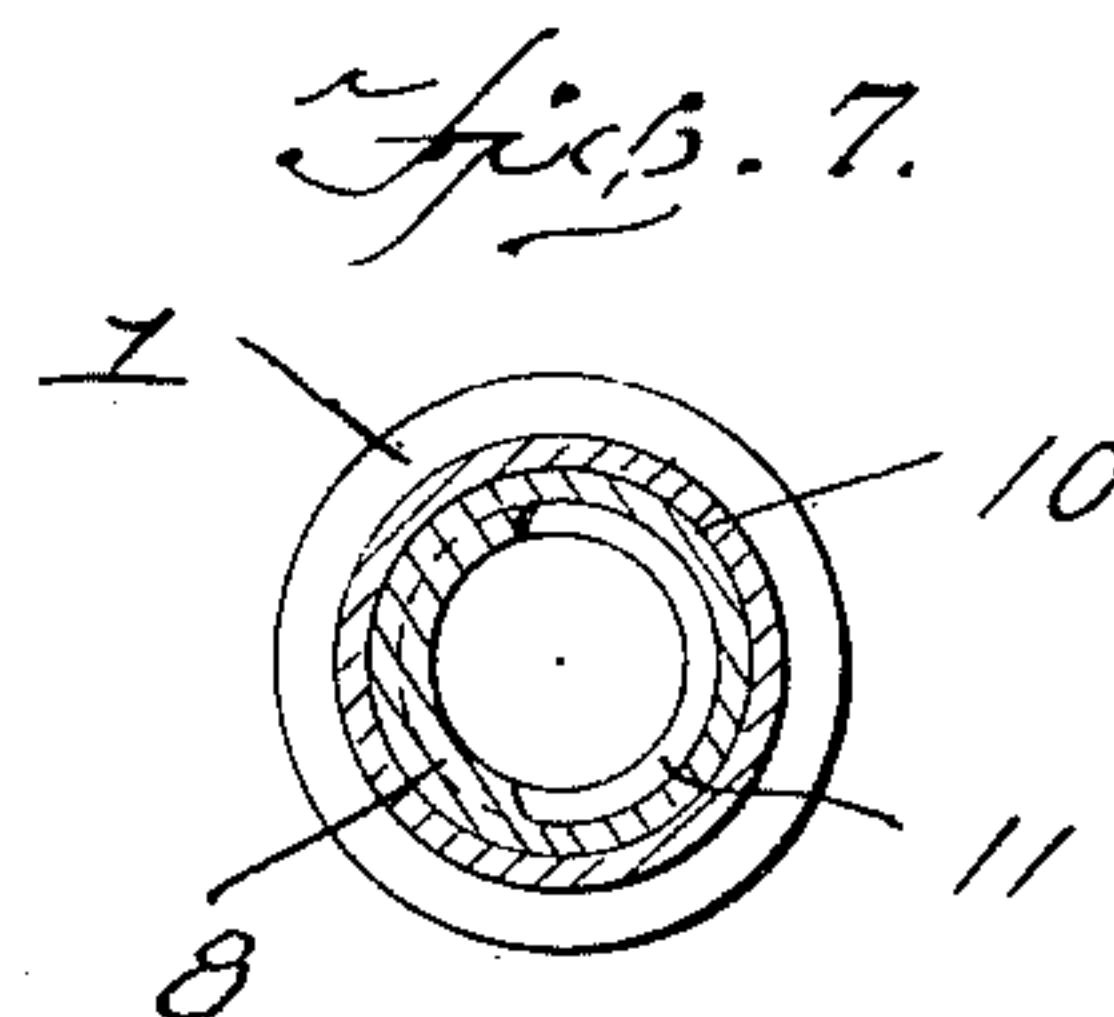
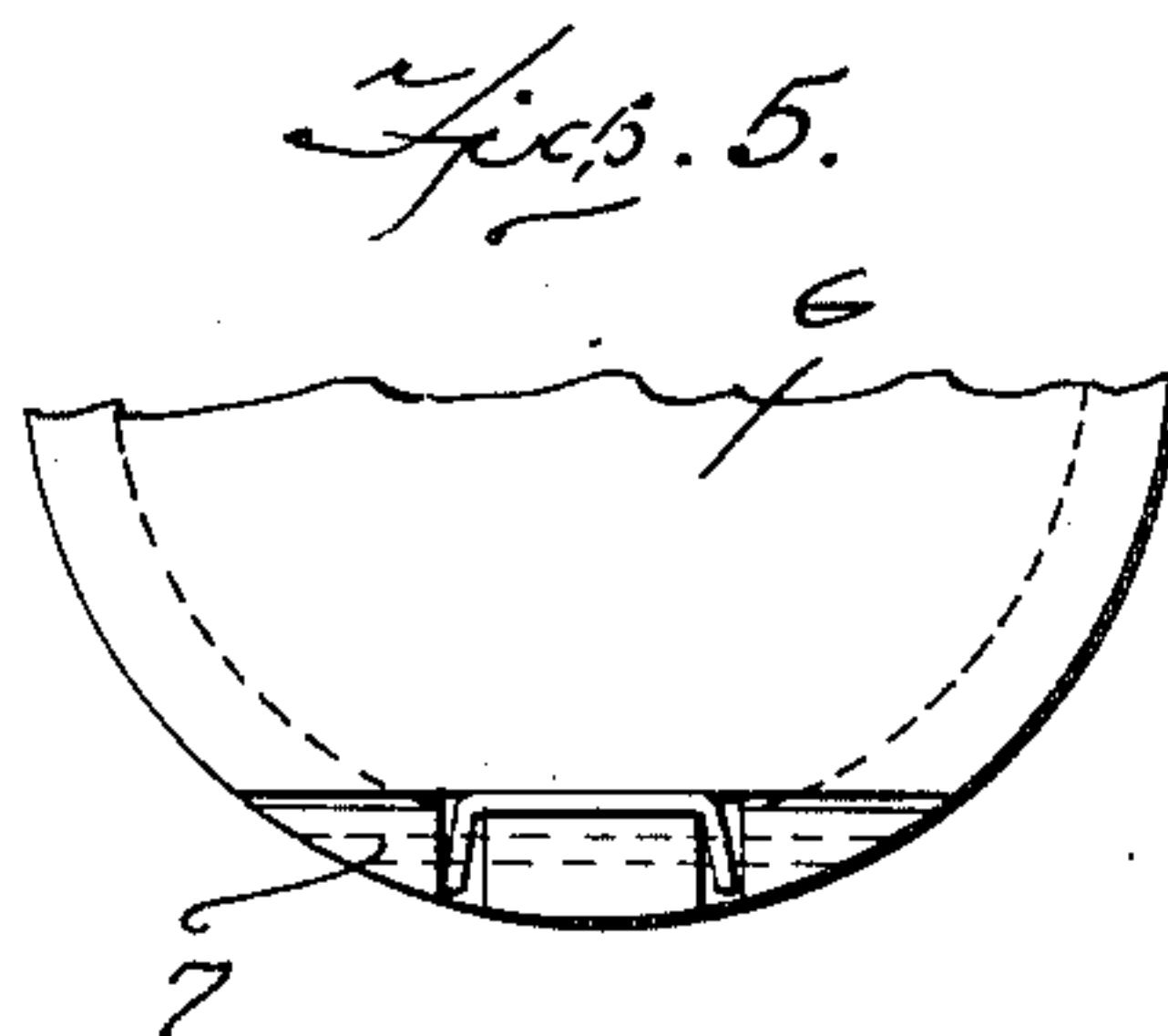
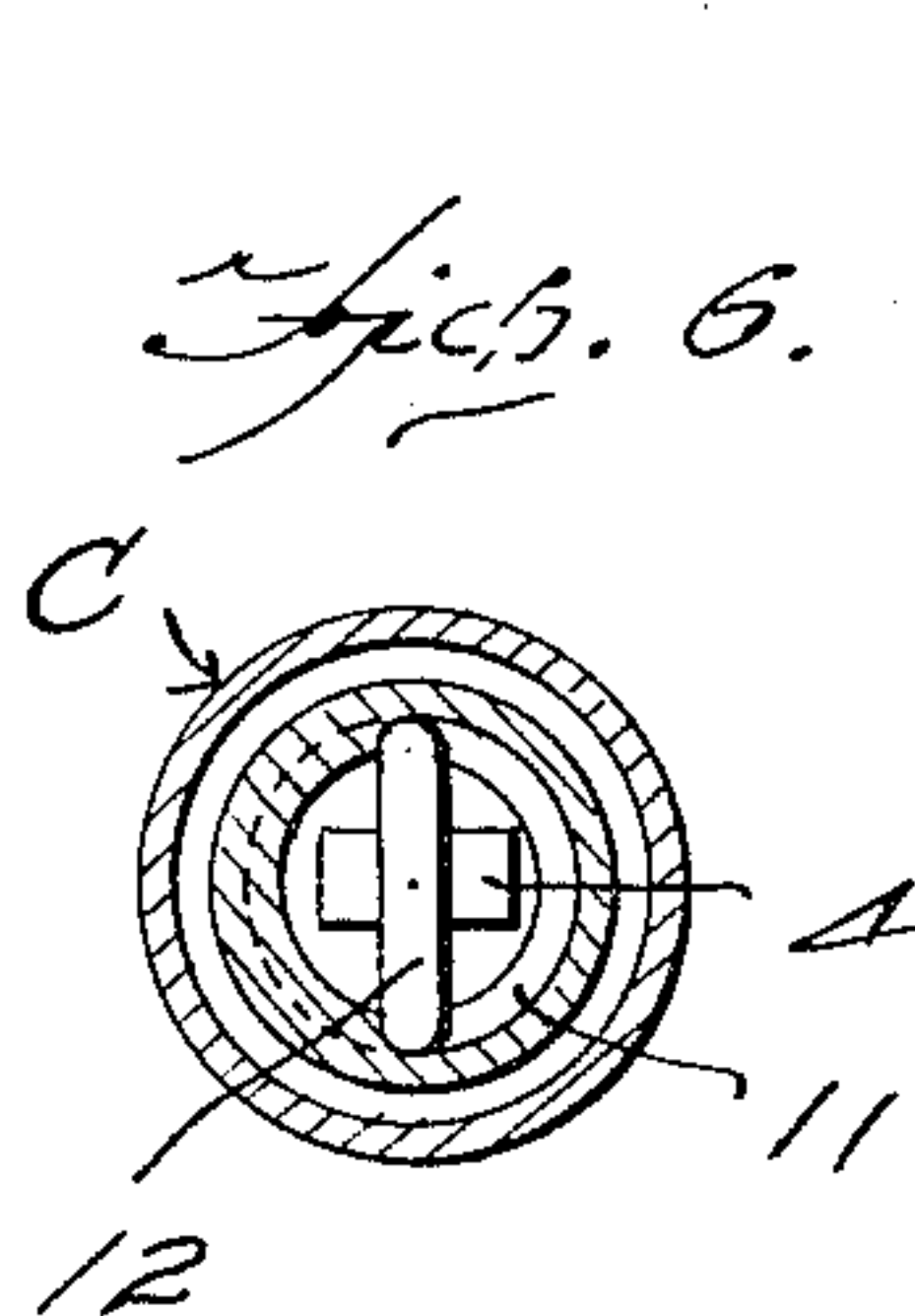
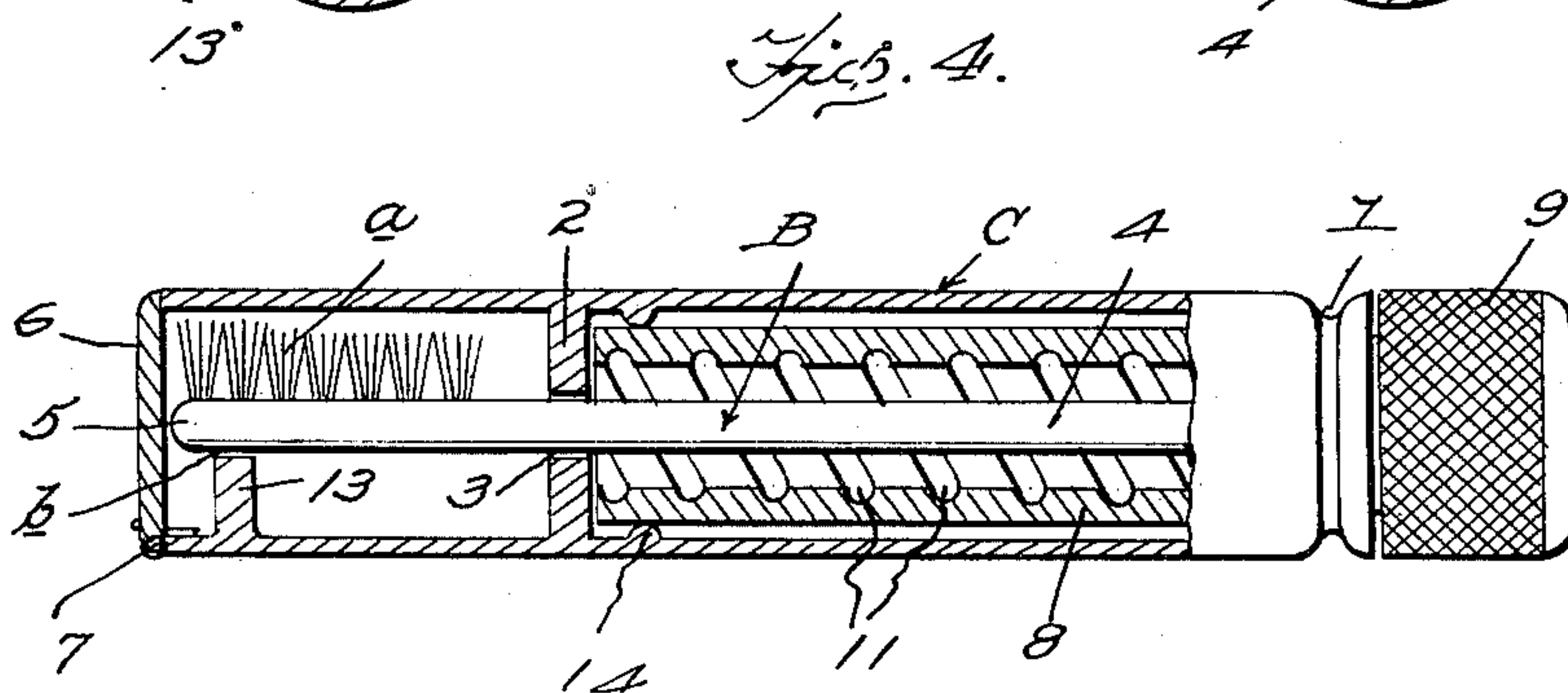
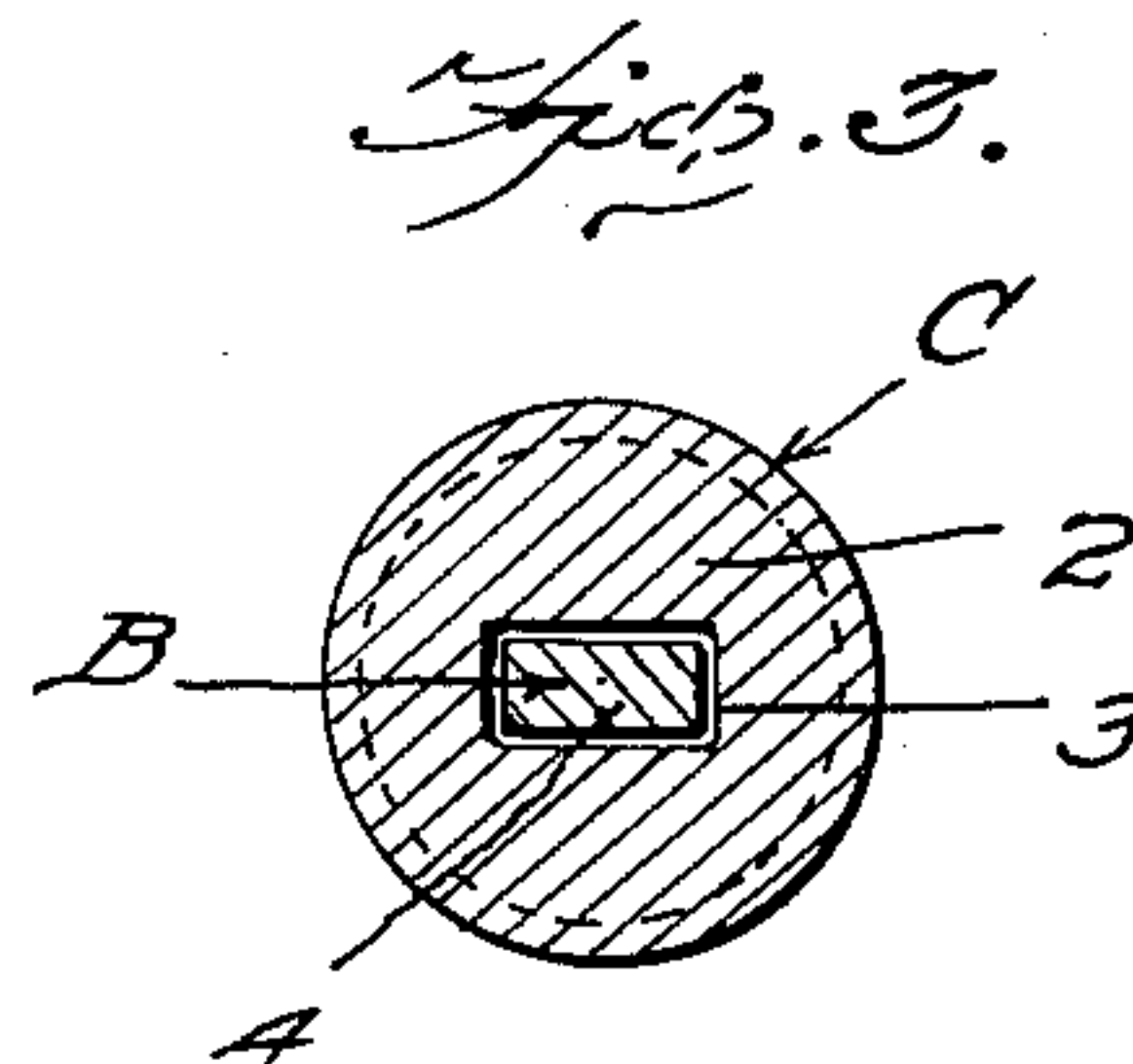
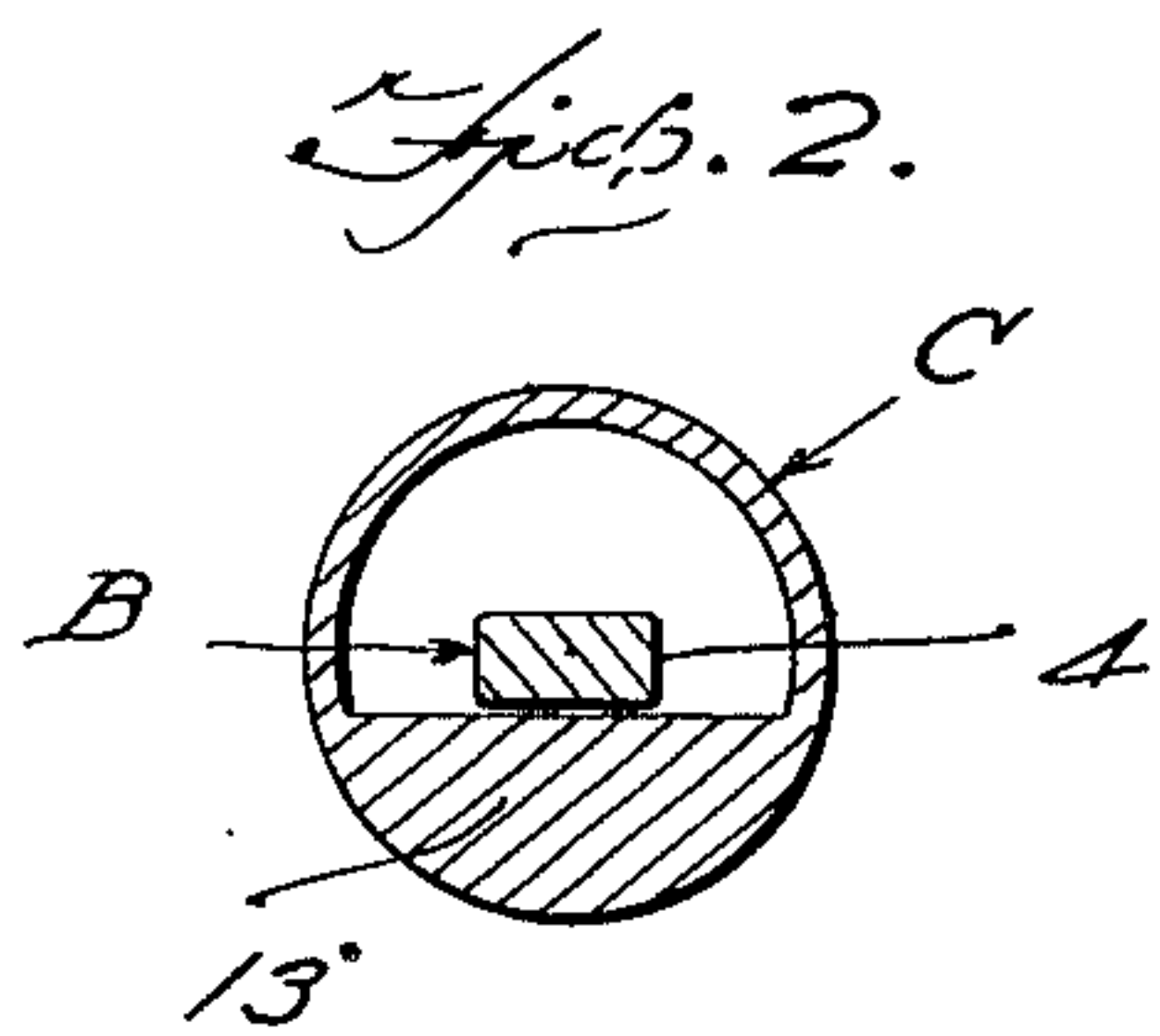
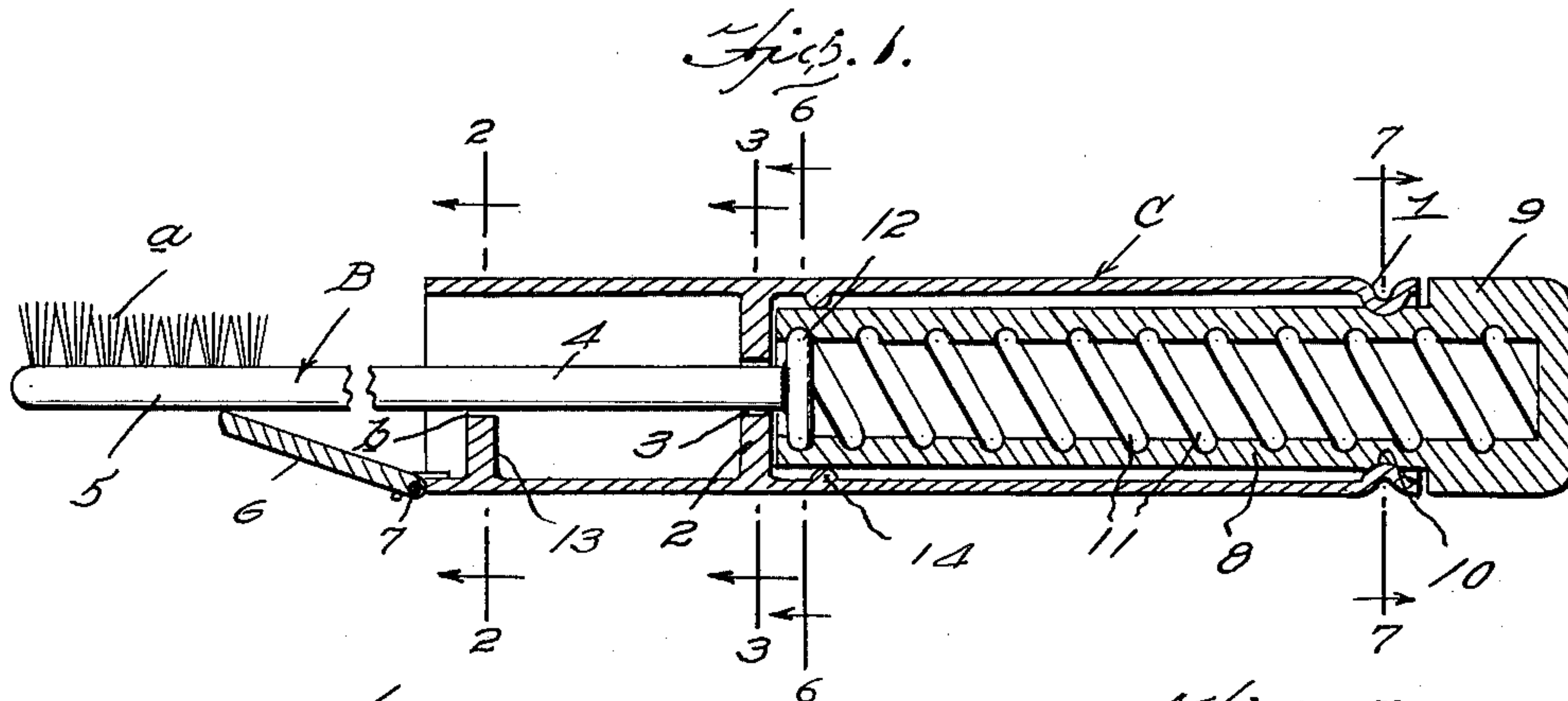
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2,544,130

TOOTHBRUSH AND CASING THEREFOR

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TOOTHBRUSH AND CASING THEREFOR

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4 Claims. (Cl. 15—184)

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This invention relates to a toothbrush and it is primarily an object of the invention to provide an article of this kind which can be readily and conveniently carried in a hand bag or the like.

It is also an object of the invention to provide an article of this kind which can be readily compacted when desired to occupy a minimum of space to permit the same to be carried in a hand bag, pocket, or other place of relatively limited capacity.

Furthermore, it is an object of the invention to provide a device of this kind which can be easily compacted and in a manner whereby the head of the brush will be entirely housed so that after use the device may be placed within a hand bag, pocket, or the like without injury to the other contents or to the bag, pocket, or the like into which the device is placed.

A still further and a particular object of the invention is to provide a toothbrush which, when not in use, may be so adjusted to assure its maintenance in a highly sanitary condition.

With the foregoing and other objects in view, the invention consists in the details of construction and in the arrangement and combination of the several parts to be hereinafter more particularly described and claimed.

In order that the invention may be better understood, reference will be made to the accompanying drawing wherein similar parts are indicated by corresponding reference characters, and wherein:

Figure 1 is a view partly in elevation and partly in section of a toothbrush assembly constructed in accordance with an embodiment of the invention;

Figure 2 is a sectional view taken substantially on the line 2—2, of Figure 1, looking in the direction of the arrow;

Figure 3 is a sectional view taken substantially on the line 3—3, of Figure 1, looking in the direction of the arrow;

Figure 4 is a view similar to Figure 1, but showing the brush assembly fully retracted and with the cap in closed position.

Figure 5 is a view in elevation of the lower portion of the front end of the casing with the brush retracted into the casing.

Figure 6 is a transverse section taken substantially on the line 6—6 of Figure 1.

Figure 7 is a transverse section taken substantially on the line 7—7 of Figure 1.

In the embodiment of the invention as illustrated in the accompanying drawing, C denotes a cylindrical casing of desired dimensions and

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open at opposite ends and preferably of a plastic material possessing requisite strength. This casing C closely adjacent to its rear end is provided with an inwardly pressed bead 1, extending entirely circumferentially therearound and in a plane substantially at right angles to the axis of the casing C.

The forward extremity of the casing C, at a predetermined point inwardly of the outer end thereof, is partitioned by a plate 2, provided approximately at its center with an opening 3, angular in contour and in accordance with the cross sectional formation of the handle 4 of the brush member B. It is important that the handle 4 have at least one relatively flat face so that the plate 2 will effectually hold the brush member against rotation independently of the casing C.

The plate 2 is positioned inwardly of the adjacent or outer end of the casing C a distance sufficient to permit the head 5 of the brush member B being entirely housed within the casing C, when the brush element B is at substantially the limit of its movement inwardly of the casing C.

The outer end of the casing C has associated therewith a closure cap or plate 6, hingedly connected, as at 7, with the wall of the casing C. The hinge connection 7 is of any preferred spring type so that, as the member B is fully retracted within the casing C, the cap or plate 6 will automatically close the open end of the casing C, and thus protect the brush head 5 against foreign particles and thereby maintain the head 5 in a highly sanitary condition when the article is compacted.

Extending within the casing C, rearwardly of the plate 2, is a sleeve 8, also preferably of plastic. This sleeve 8 is of a length to extend substantially from the plate 2 to a desired distance outwardly beyond the casing C. The extended portion of the sleeve 8 constitutes an operating head 9, the peripheral surface of which is knurled or otherwise roughened to facilitate rotation of the sleeve 8 within the casing.

The sleeve 8, adjacent to the head 9, has a surrounding peripheral groove 10 which snugly receives the bead 1 of the casing C, whereby the casing C and the sleeve 8 are held one to the other against independent endwise movement but free for rotation one independently of the other.

The sleeve 8 from one end to the other is provided therealong with internal spiral groove 11 of predetermined pitch and in which are received the outer extremities of the lateral arms 12, carried by the handle 4 of the brush member B, inwardly of the plate 2. This connection between the handle 4 of the brush member B and the

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sleeve 8, allows for the extending or retracting of the brush member B upon required relative rotation between the casing C and the housing 8.

The outer end portion of the casing C, at a point closely adjacent to the outer open end, carries a transversely disposed plate 13, positioned across the back of the brush member B, or across the side of the handle 4 remote from the abrasive elements *a* of the brush head 5. The inner edge *b* of the plate 13 is straight and has contact with the handle 4 to effectually resist the pressure imposed upon the handle during use of the device and thereby prevent displacement which would destroy the efficiency of the article.

The sleeve 8 is of a major diameter throughout its length slightly less than the internal diameter of the casing C, and the casing C, closely adjacent to the inner end of the sleeve 8 is provided circumferentially therearound with an inwardly disposed bead or rib 14 which contacts with the periphery of the sleeve 8. By this assembly, relative rotation between the casing C and the sleeve 8 is had with the substantial elimination of frictional resistance.

I claim:

1. An article of the class set forth comprising a long casing having an open end, a plate disposed transversely within and partitioning the casing inwardly of the open end thereof, a sleeve freely extending into the casing through the end thereof opposite said open end, said sleeve having a thread groove in the inner surface thereof, means connecting the casing and sleeve for relative rotary movement but holding the same against relative endwise movement, a brush member including an elongated handle and a head, the plate having an opening through which the handle slides, the plate being positioned inwardly of the adjacent open end of the casing a distance sufficient to allow the head of the brush element to be entirely housed within the casing upon endwise movement of the handle inwardly of the casing, and a member carried upon the inner end of said handle and engaging said thread groove, by which, upon relative rotation of the casing and sleeve, the brush member will be moved outwardly or inwardly of the casing.

2. An article as set forth in claim 1, with a closure member pivoted to the open end of the casing for movement into and out of closing position over said open end, and spring means normally urging swinging of the closure member to closed position, the brush being positioned to engage the closure member at a point to force the closure member open upon outward movement of the brush.

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3. An article as set forth in claim 1, with a closure member for the open end of the casing, means pivotally mounting the closure member on the casing for movement into open or closed position, and means for urging the closure member to move into closed position as the brush member is retracted into the casing.

4. An article of the class set forth, comprising a long cylindrical casing having an open end, a plate forming a partitioning wall across the interior of the casing at a substantial distance inwardly from the said open end providing a chamber, a cover member pivotally connected with the casing at said open end and adapted to move into covering position over said open end, means normally urging such movement of the cover member, said partitioning plate having a central opening therethrough, a relatively long sleeve extending into the casing from the end opposite said open end, the sleeve having its inner end in close proximity to said partitioning plate, the opposite end of the sleeve being enlarged to form a head which is disposed at the said other end of the casing, the sleeve having an encircling groove in its outer surface adjacent to said head, the casing having an inside rib adjacent to said head and engaging in said groove, the said rib and groove maintaining the sleeve against longitudinal movement but permitting its rotational movement in the casing, said sleeve having an interior screw groove therein, a brush member adapted to position in said chamber and having a long handle extending through the opening of said partitioning plate and into the sleeve, and a cross head upon the end of the handle within the sleeve engaged at its ends in said groove to follow the groove upon the rotation of the sleeve to effect the inward and outward movement of the brush with respect to said chamber, the brush in said outward movement engaging the cover member and forcing it open against the said means normally urging the cover member to closed position.

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