

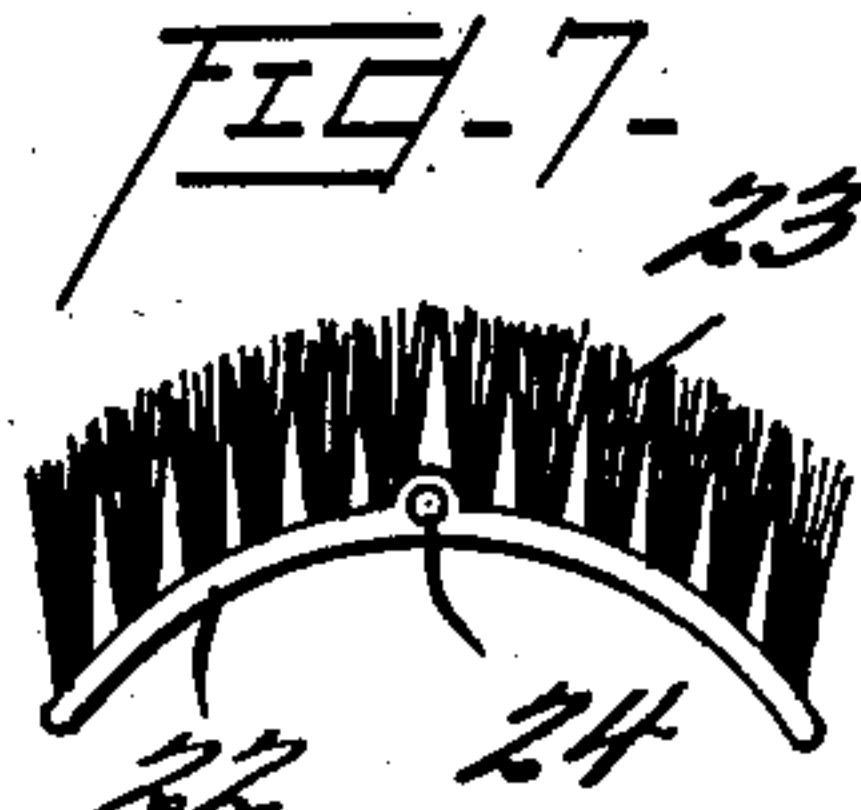
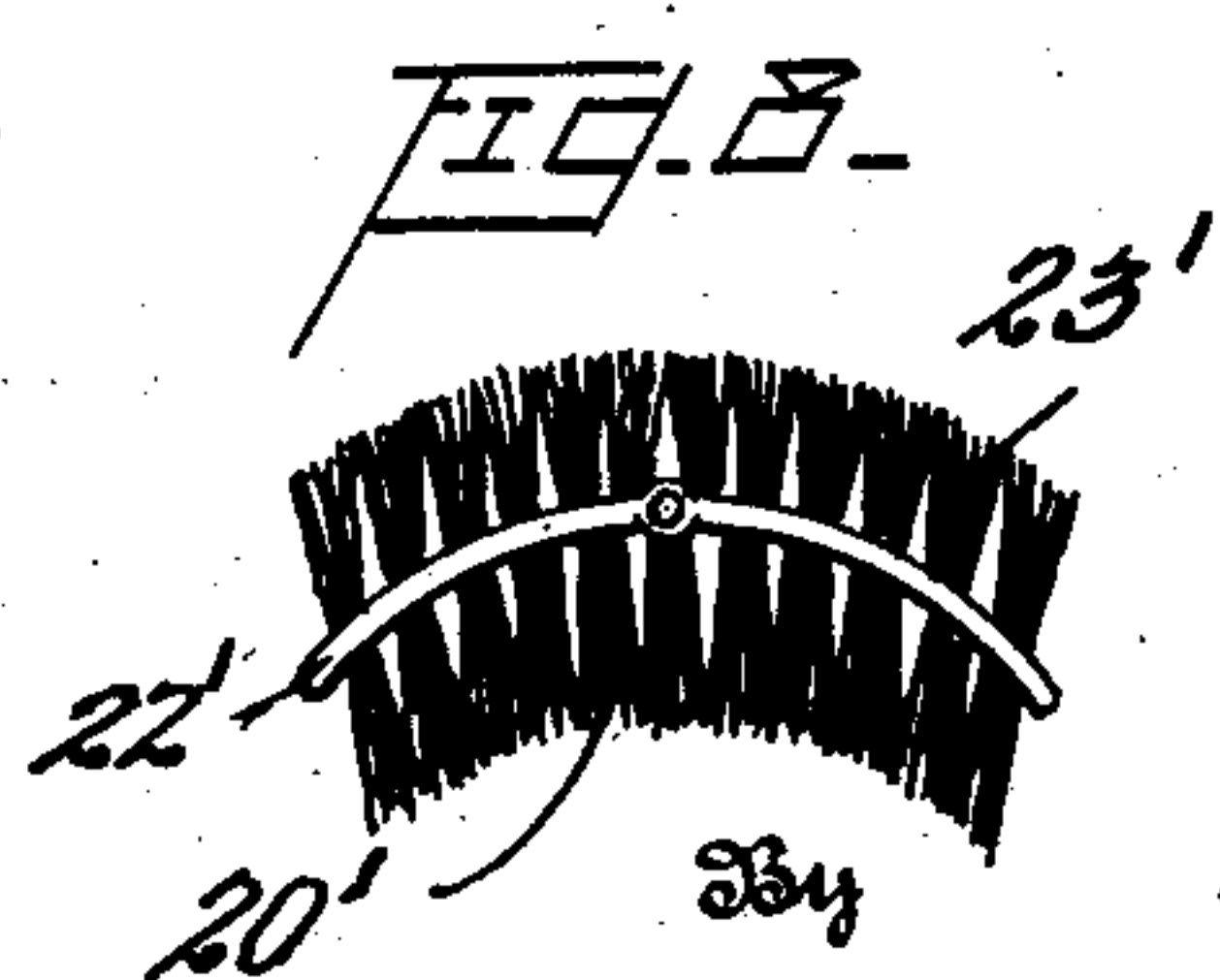
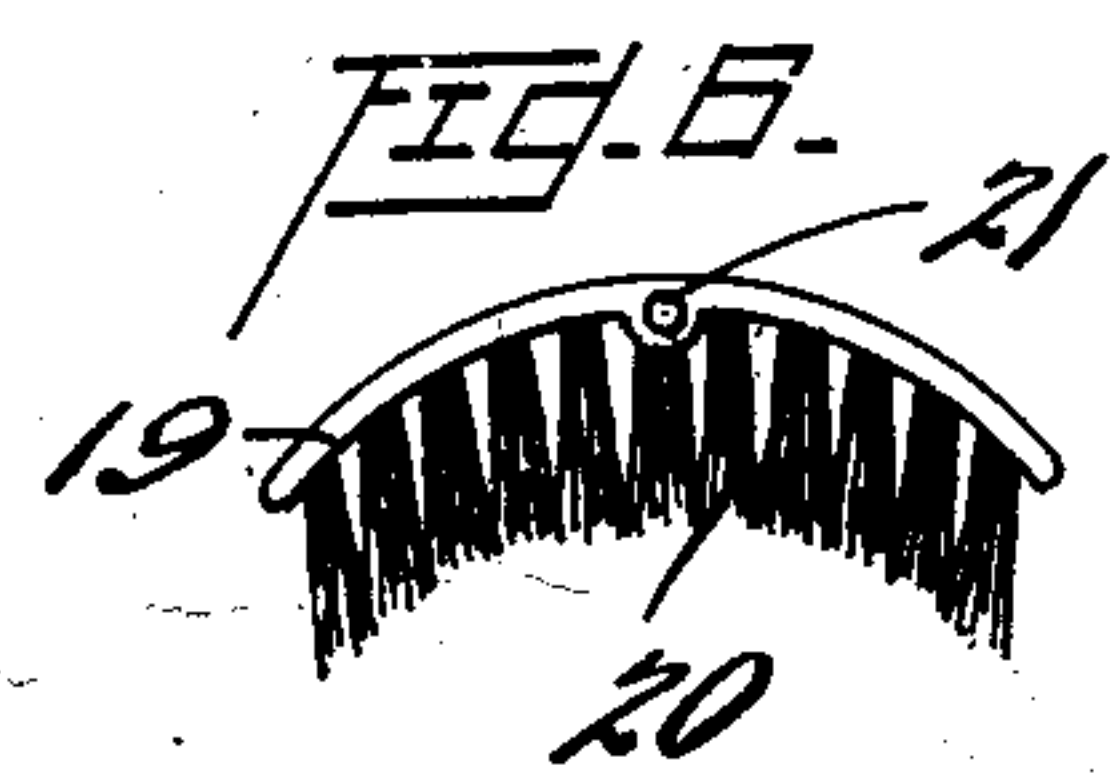
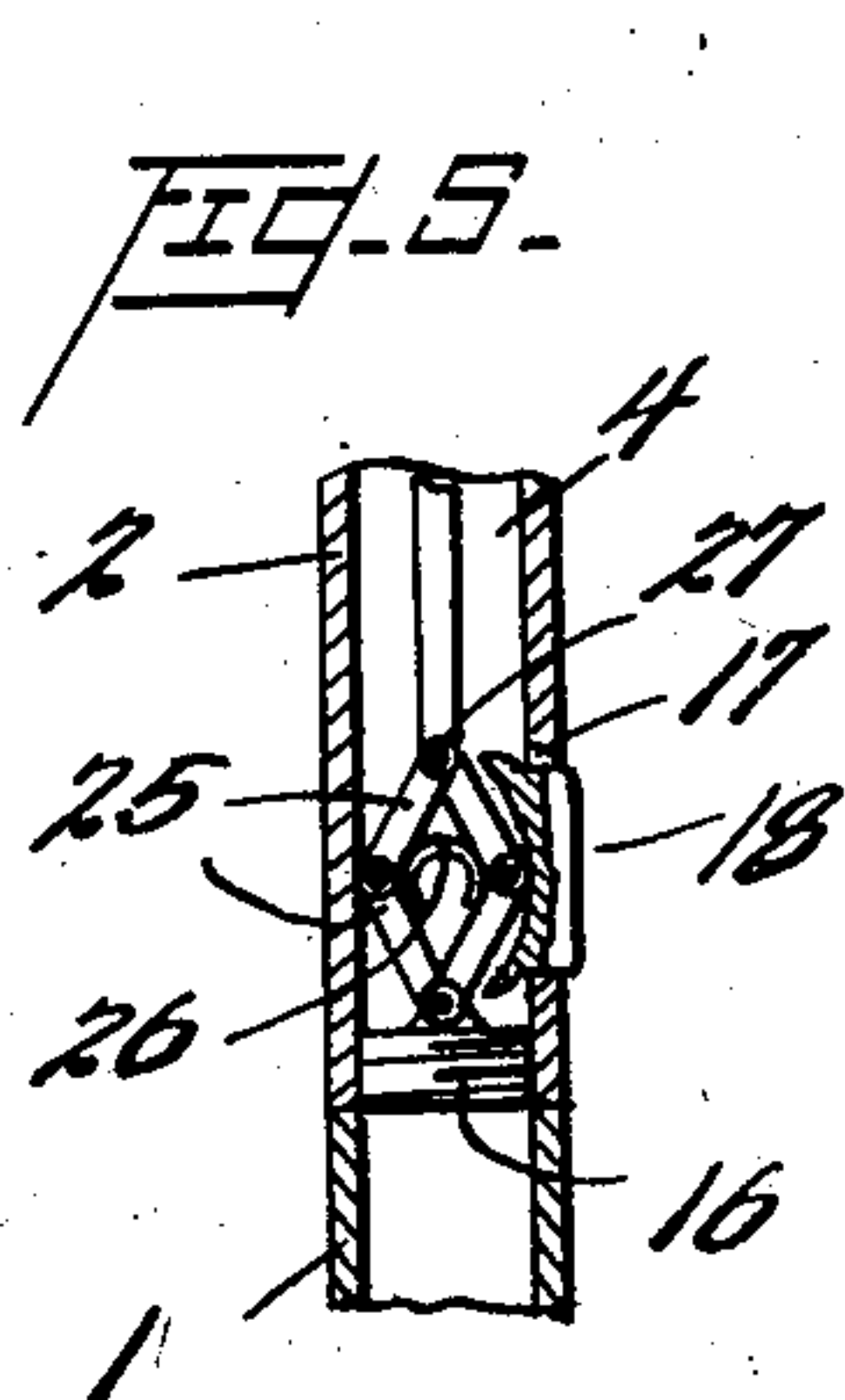
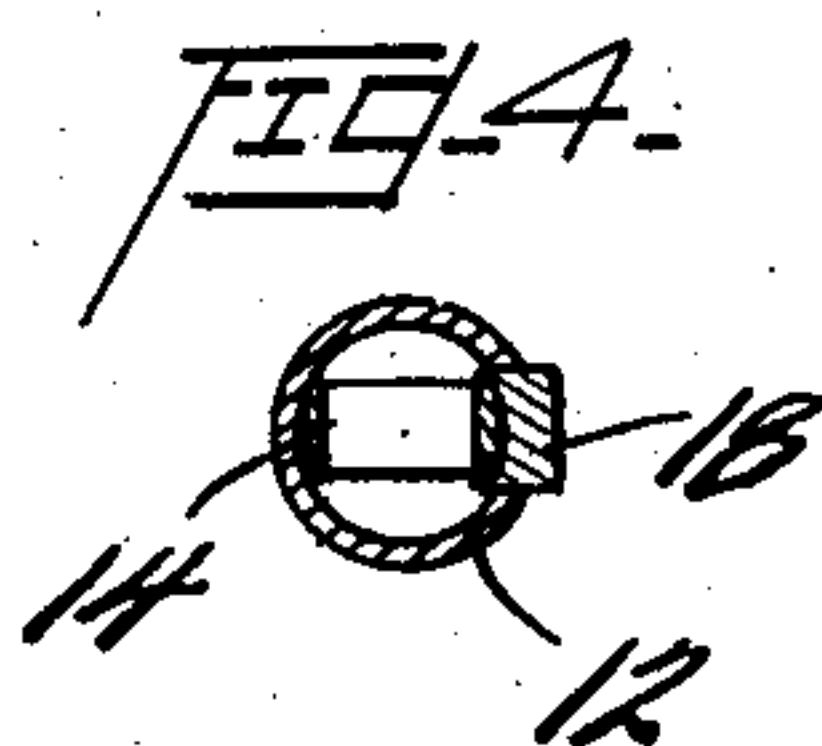
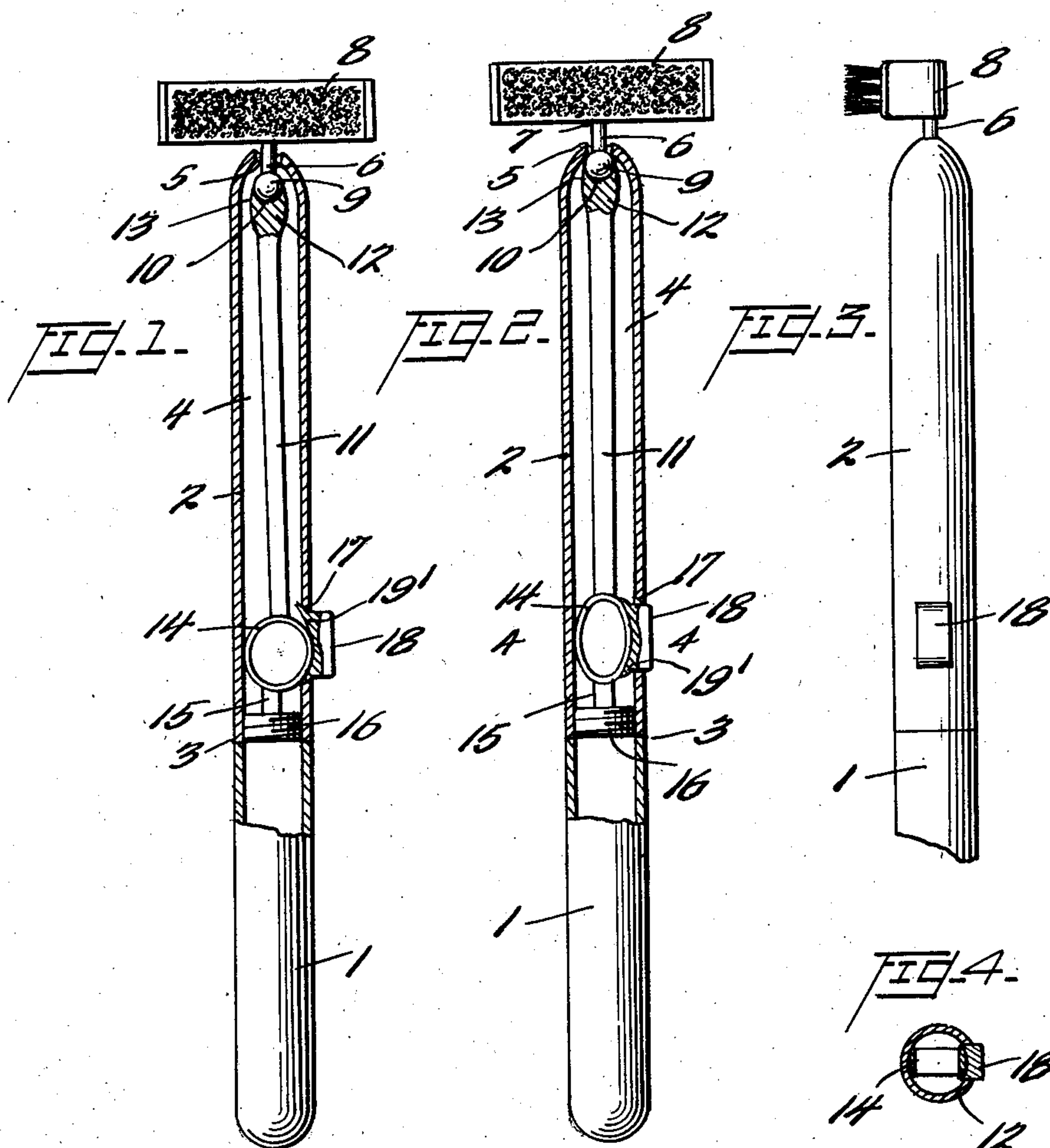
Sept. 16, 1947.

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2,427,411

TOOTHBRUSH WITH ADJUSTABLE BRUSH HEAD

Filed Sept. 13, 1944



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2,427,411

TOOTHBRUSH WITH ADJUSTABLE BRUSH HEAD

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Application September 13, 1944, Serial No. 553,893

3 Claims. (Cl. 15-172)

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This invention relates to tooth brushes and more particularly to such brushes which provide means for permitting variation in the angular position of the brush.

Among the objects of the present invention is the provision of a tooth brush of simple structure that provides manual control of a brush adapted to assume a variable angular position.

Other objects and advantages will appear from the more detail description set forth below, it being understood that such more detailed description is given by way of illustration and explanation only, and not by way of limitation since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In connection with that more detailed description there is shown in the accompanying drawing, in

Figure 1, a side elevation of a tooth brush in accordance with the present invention, a part of the casing being cut away; in

Figure 2, a side elevation as in Figure 1 with the parts in locked position; in

Figure 3, a fragmentary front elevation of the brush of Figures 1 and 2; in

Figure 4, a section on the line 4-4 of Figure 2; in

Figure 5, a fragmentary section of a modified form of reciprocating element for operation of the brush; in

Figure 6, a form of brush element; in

Figure 7, another form of brush element; and in Figure 8, a further form of brush element.

In accordance with the present invention, a simple tooth brush of economical structure is provided for obtaining a variable angular position of brush element, the position being controlled by manual means. As illustrated, such structures are readily produced by providing a casing within which a rod is adapted to reciprocate, the rod carrying a stem which extends outside of the casing as at one end thereof on which external end a brush is provided. Means are provided within the casing to cause reciprocation of the rod to release the brush so that it may be positioned at a desired angle, and to lock the brush in such adjusted position, a finer control element outside of the casing being used to operate the reciprocating means.

For these purposes as shown in the drawing, an elongated casing is provided desirably made in two parts, having a lower portion 1 and an upper portion 2, adapted to be attached together as at 3 to provide the continuous hollow cham-

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ber 4 within which the operating mechanism is placed, the parts 1 and 2 being detachably held together by any desirable means as screw threading (not shown). The upper portion of the casing is provided with an opening 5 within which a stem may move. The stem 6 is threaded at one end 7 on which the brush element 8 is mounted. The inner end of the stem 6 is provided with a ball shaped projection 9 as part of a universal joint and also serves to limit the outward movement of the stem and to lock it in fixed position when the ball is forced against the inner walls of the casing surrounding the opening 5. The ball seats within the socket 10 on the reciprocating rod 11 provided in the enlarged head 12 on the rod 11, the walls 13 of the socket being carried upwardly to embrace the ball 9 and to hold the parts together. The lower end of the rod 11 is attached to a circular band spring 14, the other side of the spring 14 being attached to the link 15 on which is mounted the head or plug 16 which is threadedly held in position at the lower end of portion 2 of the casing. This arrangement permits ready access for insertion or removal of the operating parts from within the casing.

For simple manual manipulation of the spring to produce reciprocation of the rod, an opening 17 is provided in the upper portion 2 of the casing adjacent the spring 14, within which opening 17 a button 18 is provided having an enlarged inner end 19' to prevent removal of the button from the casing, the inner face of the button 18 engaging against the spring 14. It will be apparent that when no pressure is applied to the button 18, the spring 14 will assume its normal position as shown in Figure 1 with the ball withdrawn from contact with the casing so that the stem 6 is movable within the opening 5 to permit angular adjustment of the brush. But when the button 18 is depressed as by application of a finger, the spring 14 is compressed as shown in Figure 2, and the rod 11 thus forced upwardly, moving the ball correspondingly, and into contact with the walls of the casing to lock the ball against movement whereby the brush is held rigidly in its adjusted angular position.

Any type of brush may be used but as shown in Figure 6 a preferred form includes a brush having a concave form for brushing the outer surfaces of the teeth, while as shown in Figure 7, a brush having a convex form is provided for brushing the inner surfaces of the teeth. In Figure 6 the concave back 19 carries bristles 20, a threaded opening 21 being supplied so that the

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brush may be attached to the threaded end of the stem 6. In Figure 7, the convex back 22 carries bristles 23 and is provided with a threaded opening 24 for attachment to the stem 6. The brushes may thus be used interchangeably. Again in Figure 8, a brush is shown wherein the back 22' carries a concave brush portion 20' and a convex brush portion 23'.

Any other means of producing reciprocation of the rod 11 may be used. As shown in Figure 5, a lazy-tongs arrangement may be used, in which the levers 25, 25, 25, 25 are pivoted together, with a spring 26 held within the space between the levers to urge the latter sidewise, this arrangement serving in lieu of the spring 14 of Figures 1 to 4, the rod 11 being attached to the end 27 of the tongs, while the other end of the tongs carries the threaded head or plug 16. The button 18 engaging against the tongs enables the successive application and release of pressure to produce reciprocation of the rod 11 and consequently locking of the brush element in an adjusted angular position.

Assembly of the elements will be evident. The button is placed in the opening 17 and the rod 11 carrying universal joint mounted stem 6 at one end and the spring or tongs and plug 16 at the other end is placed within the casing with the stem 6 extending through the opening 5 and the spring or tongs opposite the button 18. The lower portion of the casing is then attached. The desired brush is then attached to the stem 6 and the device is ready for use.

The structures produced in accordance with the present invention are economical, they are easily constructed and assembled, and readily manipulated in use. The brush element may be given any desired angular position with respect to the handle, and locked in that position for the brushing operation. And this may be done while the brush is held in the mouth in a desired position, while the handle is being angularly adjusted with respect thereto.

Having thus set forth my invention, I claim:

1. A tooth brush comprising an elongated casing, a rod within the casing adapted to reciprocate longitudinally therein, a stem extending through one end of the casing and movably attached to the rod to assume a variable angular position with respect thereto, a brush rigidly mounted on the outside end of the stem to assume a variable angular position with respect to said rod, spring means within the casing to cause the rod to reciprocate, movement in one direction serving to force the stem against the casing to lock the stem and brush in a set position and

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a button engaging against said spring means and extending through the casing to the outside thereof for actuating said reciprocating means in the direction which locks the stem and brush in the set position.

2. A tooth brush comprising a casing having an opening at one end, a stem extending from within said casing through said opening, a brush element on the outer end of the stem, a rod within the casing one end of the rod being movably connected to the inner end of the stem, the other end of the rod being attached to spring means within the casing, the spring means normally tending to draw the rod inwardly away from the casing whereby the stem is freely movable on the end of the rod to permit the brush to assume different angular positions, and a button engaging against said spring means and extending through the casing to the outside thereof whereby pressure on the button causes the rod to move longitudinally in the casing to lock the stem in a fixed position.

3. A tooth brush comprising a casing having an opening at one end, a stem extending from within said casing through said opening, a brush element on the outer end of the stem, a rod within the casing one end of the rod being movably connected to the inner end of the stem by a ball and socket joint, the other end of the rod being attached to spring means within the casing, the spring means normally tending to draw the rod inwardly away from the casing to release the ball from contact with the walls of the casing whereby the stem is freely movable on the end of the rod to permit the brush to assume different angular positions, and a button engaging against said spring means and extending through the casing to the outside thereof whereby pressure on the button causes the rod to move longitudinally in the casing to engage the ball against the walls of the casing to lock the stem in a fixed position.

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