

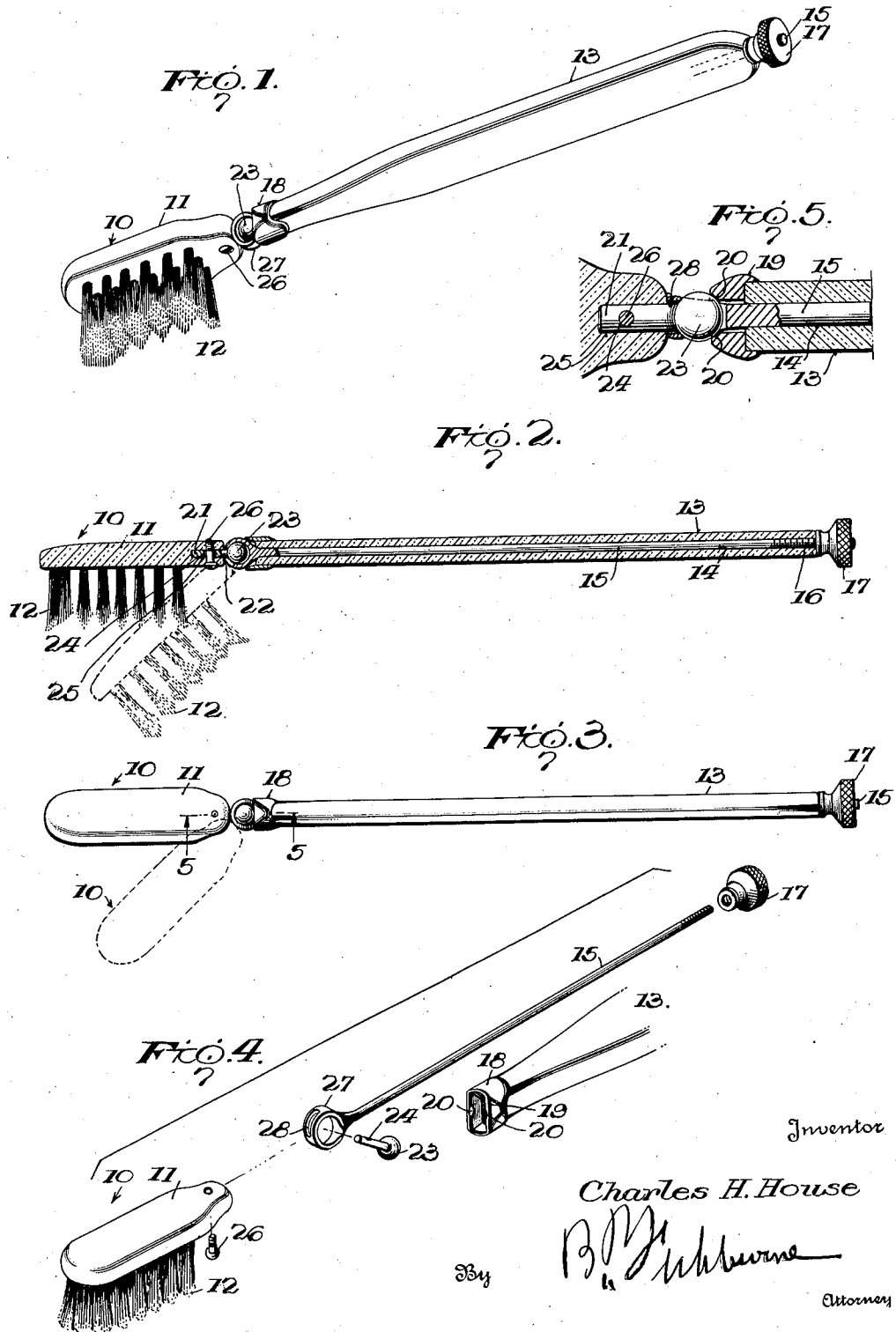
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CONNECTION FOR HANDLES AND IMPLEMENTS

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## CONNECTION FOR HANDLES AND IMPLEMENTS

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5 Claims. (Cl. 306—7)

My invention relates to an adjustable connection for a handle and implement, which is well adapted to be embodied in a tooth brush, while not necessarily restricted to this use.

5 An important object of the invention is to provide a connection of the above mentioned character which will permit of a large range of angular adjustments between the implement and handle, securely holding the implement in a selected adjusted position upon the handle.

10 A further object of the invention is to provide a connection of the above mentioned character which is simple in construction and cheap to manufacture.

15 Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawing forming a part of this application and in which like numerals are employed to designate like parts throughout the same,

20 Figure 1 is a perspective view of a tooth brush embodying my invention,

25 Figure 2 is a central longitudinal sectional view through the same,

Figure 3 is a plan view of the same, showing the handle turned with relation to the head of the brush,

30 Figure 4 is a perspective view of the elements constituting the brush, the same being separated, and,

Figure 5 is a detailed section taken on line 5—5 of Figure 3.

35 In the drawing, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 10 designates the head of a tooth brush, including a back 11 and bristles 12.

40 The numeral 13 designates a tubular handle, having a bore 14, slidably receiving a rod 15, the rear end of which is threaded, as shown at 16, for receiving a clamping nut 17, the threads 16 having no screw-threaded engagement with the wall of the bore 14. At its forward end, the tubular handle 13 has a ferrule or sleeve 18, mounted thereon, rigidly secured thereto, and projecting forwardly beyond the tubular handle. This ferrule has an elongated slot 19 formed therein and is provided with spherically curved recesses 20 upon its opposite sides.

45 The back 11 has a longitudinal opening 21 formed therein, receiving a shank 22, and this shank carries a ball 23 at its rear end, which is preferably formed integral therewith. The shank 22 has a transverse opening 24, receiving a

transverse screw 25, extending through a transverse opening 26 formed in the back 11, the end and head of this screw being preferably substantially flush with the opposite faces of the back 11. The rod 15 is provided at its forward end with a ring or hollow keeper 27, preferably integral therewith, and this ring is provided in its forward portion with a slot 28, preferably extending from a point in alignment with the longitudinal axis of the rod 15 to a point at about 90° from the first point, although the length of the slot may be varied. The edges of the ring or keeper are preferably rounded.

5 In assembling the elements of the brush, the shank 22 is inserted into the slot 28 through one open side of the ring or keeper 27, there being sufficient play between the shank 22 and the wall of the slot 28 to permit of this. The shank will then project forwardly beyond the ring 27, while the ball 23 will be arranged within the ring and will project laterally beyond opposite sides of the ring. The shank 22 is now inserted into the longitudinal opening 21 and is rigidly anchored within this opening by means of the screw 25. The rod 15 is now passed into the bore 14 of the tubular handle and the nut 17 applied to the rear screw-threaded end of the rod. By screwing up the nut 17, the rod 15 is drawn rearwardly with respect to the tubular handle 13, and the ring is drawn into the slot 19, the projecting sides of the ball 23 engaging within the recesses 20. By screwing up the nut 17 sufficiently, the ball will have clamping engagement within the recesses 20 and will accordingly be locked to the ferrule 18.

35 When the back 11 of the head 10 has the plane of its surface disposed in the plane of the surface of the handle 13, Figures 1 and 2, the head may be angularly adjusted upwardly and downwardly with respect to the plane of the handle and locked in the selected adjusted position with relation to them. The handle 13 may be turned with relation to the head, and in Figure 3 the handle has been turned so that the plane of its side is at a right angle to the plane of the surface of the head, and the head may then be angularly adjusted horizontally with relation to the handle. It is obvious that the handle may assume any selected rotary angular position with respect to the head within 360°. When the head is at the selected angular position with respect to the handle, it is clamped to the handle by screwing up the nut 17, which causes the ball 23 to have clamping engagement within the recesses 20.

50 It is to be understood that the form of my invention herewith shown and described, is to be 55

taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. In a tooth brush, an implement, a shank secured to the implement, a ball carried by the shank, a tubular handle, a rod adjustably mounted within the tubular handle, means engaging the rear end of the rod to shift the same longitudinally with relation to the handle, and a ring secured to the forward end of the rod, said ring having a slot extending circumferentially of the ring with its opposite ends closed to receive the shank while the ball is arranged within the ring and projects laterally beyond the same for contact with a part of the tubular handle when the rod is shifted rearwardly with relation to the handle.

2. In a tooth brush, an implement, a shank secured to the implement, a ball carried by the shank, a tubular handle provided at its forward end with a slot, a rod extending through the tubular handle, means carried by the rear end of the rod to move it longitudinally with relation to the tubular handle, a ring secured to the forward end of the rod and adapted to enter the slot, said ring having a slot to receive said shank while the ball is arranged within the ring and projects laterally beyond the same for clamping engagement with the wall of the slot of the handle.

3. In a tooth brush, an implement, a handle

and an adjustable connection between the implement and handle including a ring and a ball held substantially concentrically therein, said ball having a diameter sufficiently large for projecting laterally beyond the ends of the ring, and means for clamping engagement with those portions of the ball projecting laterally beyond the ends of the ring.

4. In a tooth brush, a handle, a ring carried by the handle, said ring having an elongated slot extending circumferentially thereof, a ball arranged substantially concentrically within the ring and having a sufficiently large diameter to project beyond the ends of the ring, a shank secured to the ball and extending through the slot and serving to retain the ball within the ring, an implement secured to the shank, and means to draw the ring rearwardly with relation to the handle so that portions of the ball projecting beyond the ring contact with parts of the handle and are clamped thereto.

5. In a tooth brush, a handle, a ring carried by the handle, a ball arranged substantially concentrically within the ring and having a sufficiently large diameter to project beyond the ends of the ring, a shank secured to the ball, an implement secured to the shank, and means to draw the ring rearwardly with relation to the handle so that portions of the ball projecting beyond the ring contact with parts of the handle and are clamped thereto.

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