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TOOTHBRUSH

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Fig.6. Fig.1. Fig.2. Fig.3. Fig.4.

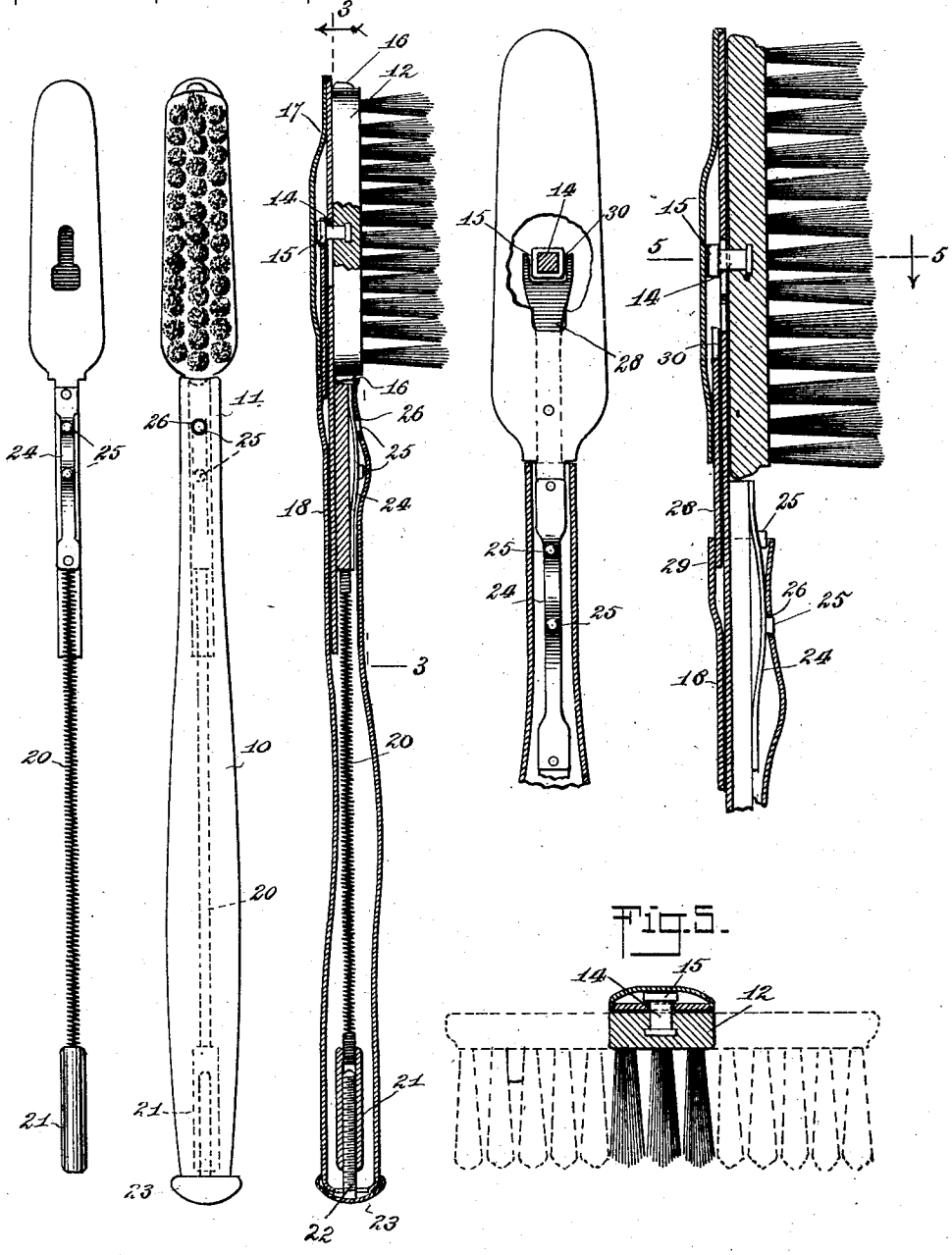


Fig.5.

WITNESSES

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TOOTHBRUSH

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The invention relates to tooth brushes.

It is among the objects of the invention to provide a tooth brush with a removable head, together with improved means for securing the head to the handle, and locking it in position to prevent relative movement therebetween.

It is a further object of the invention to provide in a device of the character set forth, a handle and brush head assembly in which the head may be turned with respect to the handle, and having means for locking the head in a plurality of positions with respect to the handle.

Another object of the invention relates to the provision of a handle and brush head assembly in which the brush may be locked in an aligned position with respect to the handle, but in which the brush may be rotated about its center to permit either end of the brush to be nearest the handle.

Another object of the invention is to provide an improved detachable brush element which may be readily applied to, and removed from the handle, and which may thus be utilized as a refill brush for replacement of worn brushes in connection with the invention.

Other objects of the invention includes the improved locking means together with the combination and interrelation of parts, whereby the whole forms a useful and efficient article of manufacture which will be cheap in construction and simple in operation.

Numerous other objects and features of the present invention will be apparent from a consideration of the specification, together with the drawings, in which—

Fig. 1 is a top plan view of one form of my present invention.

Fig. 2 is a sectional view of the device illustrated in Fig. 1.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged sectional view showing the head and handle assembly in unlocked position.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4.

Fig. 6 is a detail view of the locking means for the brush head.

Referring more particularly to the drawings, there is provided a tooth brush having a hollow tubular handle 10 which may be designed to conform with any desired conventional form of tooth brush handle. The handle 10 terminates in a rectangular portion 11 against which the brush head abuts as will be hereinafter described. The brush head comprises a bristle-carrying base 12 projecting from the back of which a lug 14 is provided including a squared head 15, the opposite ends of the base 12 are provided with projecting lugs 16 formed integral therewith which are adapted to be selectively secured within the rectangular termination 11 of the handle 10. The head 15 of the lug 14 is adapted to extend through a bayonet slot or keyhole aperature in the upper face of a retaining plate 17 carried by the handle 10 and movable with respect thereto. The plate 17 is provided with an extending arm 18 to which is secured a contraction spring 20 adjustably associated with the free end of the handle 10 by means of a turn buckle 21 and screw 22 which is provided with an operating head 23 forming the closure for the otherwise open free end of the handle 10.

It may be readily seen that with the head 12 associated with the plate 17, the lug 14 passing therethrough, that when the arm 18 of the plate 17 is wholly within the tubular handle 10, that one of the projecting lugs 16 of the head 12 is secured within the rectangular end 11, and the brush is locked in this position.

For maintaining the plate 17 in adjusted position, either extended, or with its arm 18 within the handle 10, a spring member 24 is provided with projections 25. The projections 25 are adapted to be received selectively within an aperture 26 of the handle 10. It may be readily seen that the projections 25 of the spring member 24 when received within the aperture 26, thus prevent relative movement of the plate 17 with respect to the handle 10.

In the position thus described, it will be noted that the squared head 15 of the lug 14

extends through the keyhole aperture and is positioned between the upper and lower surface of the plate 17. When the arm 18 is in retracted position within the handle 10, it will be noted that the lug 14 is positioned in the small end of the keyhole aperture, and thus, the head 15 prevents its removal therefrom until outward movement of the plate 17 and arm 18 from the handle 10.

For providing additional means for locking the head 12, in its adjusted position, and to prevent rotation thereof, an extending bifurcated arm 28 is provided rigidly secured to the handle 10 as at 29; its bifurcated end 30 being squared as illustrated in Fig. 3 to receive the squared end 15 of the lug 14. By the provision of member 28 it will be noted that inward movement of the plate 17 carrying the head 12 and the arm 18 within the handle causes the approach and engagement of the lug 15 with the bifurcated end 30 of the member 28. Thus locking the lug 14 within the small end of the keyhole aperture and also providing by the squared configuration of the bifurcated portion 30 locking means for the head 12. Thus, it may be seen that in operation of the device from the operative position shown in Fig. 2, the detent 25 is pushed inwardly to release it from the aperture 26, the plate 17 is then free to move outwardly against the tension of the spring 20 to assume a position shown in Fig. 4. Thus, outward movement of the plate 17 carrying with it the head 12 disengages the head 15 and the lug 14 from the bifurcated end 30 of the member 28.

The projecting lug 16 of the head 12 is also disengaged from the rectangular termination of the handle 10. The brush 12 is thus free to rotate, using the lug 14 as its pivot. The brush may thus be turned half way around, thus bringing what was formerly the far end of the brush adjacent the handle 10. The inward detent 25 may then be depressed to release it from the aperture 26, and the plate 17 carrying the head 12 thus moves inwardly under the influence of the spring 20, whereby the opposite lug 16 is locked within the end 11 of the handle 10, and the bifurcated portion 30 of the member 28 engages the opposite side of the head 15 of the lug 14 and secures the brush in its newly adjusted position. It will be understood that this feature of the brush provides for a longer life of brush in that when one end of the brush becomes worn, the brush may be revolved as described, and the other end used at the point of greatest wear.

It may also be seen that with this construction, a brush in which the brushing surface is concave, may be thus rotated to bring the higher bristles to a new position. Thus, giving the effect of a different brush. Should it be desired to change the brush head 12, the detent 25 is released from the aperture 26, and the plate 17 is moved outwardly from the handle 10; the rear detent 25 being engageable with the aperture 26 to retain the brush in the adjusted position against the tension of the spring 20. In this position, the member 28 is moved with respect to the plate 17, and disengages the head 15 allowing the lug 14 to move with respect to the plate 17 when the brush is turned right angularly with respect to the handle 10 as shown in the dotted line position of Fig. 5. In this position, the brush may be moved toward the handle, thus bringing the head 15 into alignment with the large end of the keyhole aperture and permitting the removal of the head 12 from the plate 17. The head 12 may then be discarded and a new similar head be provided.

After insertion through the keyhole aperture of the lug 14 and head 15 of the new brush, the brush is revolved to a position in alignment with the handle 10. The rear detent is then depressed, disengaging it from the rear aperture 26 and allowing the plate 17 to be moved inwardly with respect to the handle and the brush to the spring 20. Lug 16 of the new head is thus engaged within the rectangular aperture of the handle 10, and the bifurcated end 30 of the member 28 receives the squared head 15 of the lug 14 and locks the brush in the position illustrated as in Figs. 1 and 2.

It will be understood that the brush assembly including the head with the laterally projecting ends and the squared lug may be formed separately and sold separately as a refill to be used in connection with the handle as herein described. The brushes therefore, are separate articles of manufacture, and it is understood that the invention is not confined to the use of the brush with the specific form of handle herein disclosed.

Thus it may be seen that my invention provides an improved device of the character set forth in which the brush head is adjustably associated with respect to the handle, and means are provided for locking the brush in the adjusted position. The invention also provides for the interchangeability of brush heads; the structure being a novel improvement in the art to which the invention relates.

It will be understood that numerous changes and modifications from the embodiment of the invention herein described and illustrated may be resorted to without departing from the spirit and scope of the invention as outlined in the appended claims.

I claim:

1. A device of the character set forth comprising a handle, an extending member rigidly secured thereto, a plate having an extended portion adapted to be received within said handle, and adapted to receive said rigid extension of said handle, a keyhole aperture in said plate, a brush head having an extending lug receivable through said aperture, said

rigid extension of said handle being adapted to engage said lug to retain said brush in one of a plurality of positions when said rigid extension is wholly received in said plate.

2. A device of the character set forth comprising a handle, an extending member rigidly secured thereto, a plate having an extended portion adapted to be received within said handle, and adapted to receive said rigid extension of said handle, a keyhole aperture in said plate, a brush head having an extending lug receivable through said aperture, said rigid extension of said handle being adapted to engage said lug to retain said brush in one of a plurality of positions when said rigid extension is wholly received in said plate, and means for normally urging said plate and handle in position to so lock said head.

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