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TELESCOPING BRUSH AND HOLDER

Filed May 17, 1965

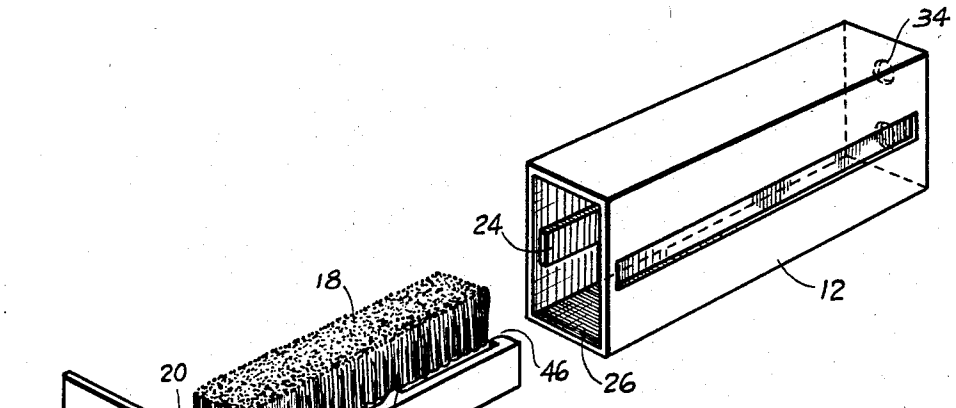


FIG_1

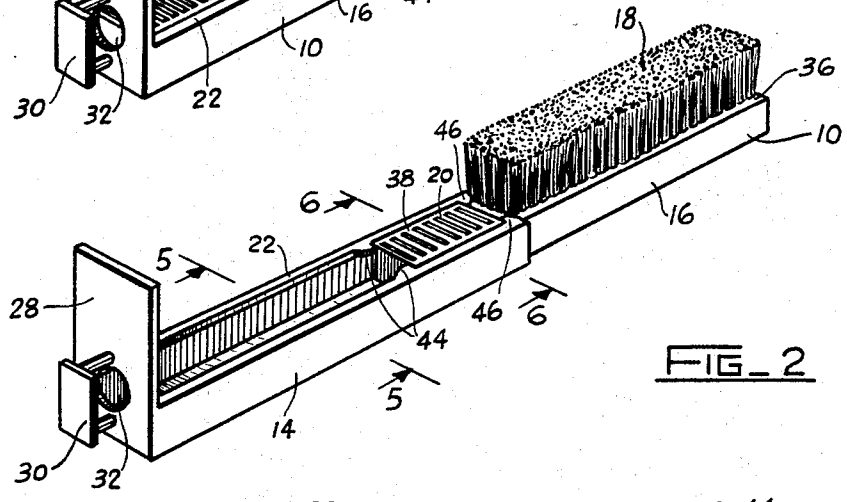


FIG_2

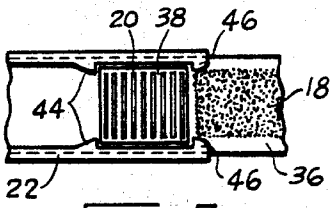


FIG_3

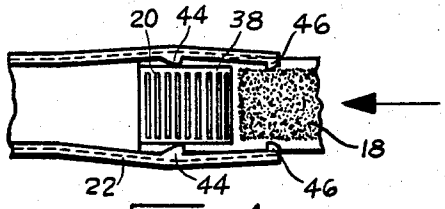


FIG_4

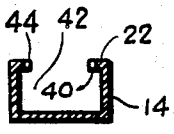


FIG_5

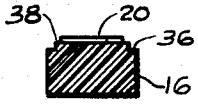


FIG_6

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TELESCOPING BRUSH AND HOLDER

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This invention relates to a telescoping brush and holder and more particularly to a telescoping brush and holder wherein the brush portion may be extended to a rigid positive position and thereafter be telescoped into the handle of the brush and the entire unit inserted into a fitted receptacle.

There are many designs and constructions of retractable or collapsible brushes, tooth brushes, or the like. These designs and constructions take many forms most of which are complicated, difficult to assemble and use, expensive to make and yet are not rigid or positive in the extended operating position. Several prior art retractable tooth brushes use wedge type slot engagements for holding the brush portion in the extended position. Other retractable tooth brushes, for example, use rollers that drop into spherical slots to lock the brush portion in the extended position. All these prior art constructions not only require a rather cumbersome and difficult to construct extensible mechanism that is costly to make, but usually the locking mechanism does not lock. Further many of the collapsible tooth brushes utilize single or inline locking devices that while capable of guiding the extensible member in its extended telescoping position, have little or no lateral strength. Thus such lateral constructions are unable to maintain positive alignment of the extended brush portion and can not provide a solid and rigid structure when extended

It is therefore an object of this invention to provide an improved and novel telescoping brush and brush holder.

It is another object of this invention to provide an improved and novel extendable tooth brush that when extended provides a rigid structure that is positively locked in the extended position.

It is another object of this invention to provide an improved and novel extendable tooth brush construction wherein the brush portion when extended is rigidly locked without the use of movable elements other than the movement of two telescoping members.

It is still another object of this invention to provide an improved and novel extendable tooth brush that when extended is locked on the four corners of a substantial section of the brush portion providing rigid lateral stability.

This invention concerns a telescoping brush and holder. The telescoping brush comprises two telescoping members with one solid member having a brush thereon. This solid member telescopes within a longitudinal hollow U shaped receiving member. Both of the telescoping members, when telescoped, comprise a compact unit that fits into an appropriately shaped housing. One of the two telescoping members has a square portion that snaps into position between four inwardly projecting ears on the other member that holds the square portion and thus the extended unit in a rigid fixed position. The entire unit may be collapsed and telescoped by applying appropriate force to the opposite ends of the two telescoping members.

Further objects and advantages of the invention will be apparent in the following description and claims considered together with the accompanying drawing, in which:

FIGURE 1 is a perspective view of the telescoping brush and housing in separated position.

FIGURE 2 is a perspective view of the telescoping brush in the extended position.

FIGURE 3 is plan view of a section of the telescoping brush in extended position.

FIGURE 4 is a plan view of the two telescoping members in the initial movement to retracted position.

FIGURE 5 is a cross-sectional view taken along lines 5—5 of FIGURE 2.

FIGURE 6 is a cross-sectional view taken along lines 6—6 of FIGURE 2.

Referring now to FIGURES 1 and 2, the telescoping brush **10** is shown in the retracted position in FIGURE 1 and in the extended position in FIGURE 2. A substantially hollow longiutdinal member **14** has an open volume **42** for receiving the extended portion **16** that holds the brush bristles **18**. The extended brush portion **16** has an upper surface **36** with the thickness from the bottom of the extended portion **16** to the top surface **36** being less than the distance from the bottom of the inner volume **42** of open member **14** to the upper inwardly projecting flanges **22** (see FIGURE 5). Accordingly the extended brush member **16** is readily telescoped by sliding the length of the cavity **14** and is held in this position by the frictional engagement of the overlapping shoulders **40** against the upper surface **36**. While the entire structure may be made of plastic or of other suitable material, plastic is particularly desirable because it allows bending without deformation.

The extended member **16** has on the end adjacent to the other member **14**, a raised surface **38** with finger contacting ridges **20**. The raised portion **38** has a width equal to the distance between the inwardly projecting flanges **22** of member **14** and greater than the distance between the ears **44** and **46**. Thus the upper portion **38** slides between the flanges **22**. When extended the outer edges of the upper surface **38** contact the ears **44** and because of the resiliency of the light gage plastic construction, the sides of member **14** are moved outwardly so that the wider portion **38** can pass therethrough to a locked position as shown in FIGURE 4.

The length of the raised portion **38** corresponds to that distance between inwardly projecting ears **44** and **46**. Accordingly when the raised portion **38** passes beyond the ears **44**, the outer sides of member **14** then snap back into original position with the ears **44** and **46** enclosing the ends of portion **38** and preventing longitudinal movement between members **14** and **16**. The shoulders **22** overlap the edge surface **36** and maintain longitudinal support. The ears **44** and **46** prevent longitudinal movement except when a large compressive force is applied to the ends of the two members. The ears **44** and **46** have sufficient positional rigidity to prevent longitudinal movement when using the brush **18** in the desired manner, such as for brushing teeth, dentures or the like.

The receiving member **14** has a handle projection **30** for supporting telescoping brush assembly and inserting it into the housing **12**. Housing **12** has inwardly projecting longitudinal ridges **24** that fit over the upper surface **22** of the brush assembly and thus restricts the brush assembly **10** from lateral movement in the housing. An end plate member **28** has a configuration corresponding with the opening in housing **12**, that when assembled provides substantially flush closing of opening **26**. Holes **32** and **34** provide air passage through the brush holder to facilitate drying brush bristles **18** following their use as a tooth brush.

OPERATION

In operation the telescoping brush member **10** is removed from housing **12** by pulling on the handle **30**. Thereafter with one hand holding member **14**, the thumb or forefinger of the other hand is placed on the ridges **20**

and the brush supporting member **16** is forced against inwardly projecting ears **44** causing the side walls of member **14** to expand outwardly. The ears **44** then snap inwardly around the raised portion **38**, locking the members **14** and **16** in extended position. After the brush is used, force is applied to opposite ends of the brush holder **10** and the unit is forced into telescoped position and the brush assembly **10** is then reinserted into the housing **12**.

Various other modifications and constructions of this invention may be employed without departing from the true spirit and scope of the invention as exemplified in the foregoing description and defined in the following claims.

I claim:

1. A retractable denture and tooth brush comprising,
a pair of telescoping members,
one of said members being open on one side with inwardly projecting longitudinal shoulders,
said other member having brush bristles on the upper surface and having a raised portion capable of fitting between the inner edges of said shoulders,
said shoulders having inwardly projecting pairs of cooperating stops,
said stops being spaced apart along the length of said shoulders, and said stops and shoulders being sufficiently resilient to pass said raised portion and sufficiently rigid to lock said raised portion between said stops.

2. A retractable denture and tooth brush, and holder comprising,
a pair of telescoping members,
one of said members being open on one side with inwardly projecting longitudinal shoulders,
a longitudinal box shaped holder being open at one end,
said holder having a pair of aligned inwardly projecting ridge members for frictionally fitting against said shoulders and holding said pair of longitudinal members in said holder, said other member having brush bristles on the upper surface and a raised portion capable of fitting between the inner edges of said shoulders,
said shoulders having inwardly projecting pairs of cooperating stops,
said stops being spaced apart along the length of said shoulders,
and said stops and shoulders being sufficiently resilient to pass said raised portion and sufficiently rigid to lock said raised portion between said stops.

3. A retractable denture and tooth brush comprising,
a pair of rectangular longitudinal members,
one of said members being capable of telescopically receiving said other member,
said one member being open on one side with inwardly projecting longitudinal shoulders,
said shoulders overlapping said other member for holding said members together in lateral dimension,
said other member having brush bristles on the upper surface and having a raised section that fits against the inner edges of said shoulders,
said shoulders having spaced inwardly projecting pairs of cooperating stops,
and said stops and shoulders being sufficiently resilient to pass said raised longitudinal section and sufficiently rigid to lock said raised longitudinal section between said pairs of stops.

4. A retractable denture and tooth brush comprising,
a pair of rectangular longitudinal members, being made of plastic or like material,
one of said members being hollow and capable of telescopically receiving said other member,

said hollow member being open at one end and one side with longitudinal shoulders projecting inwardly in said open one side and extending to said end,
said shoulders overlapping edges of said other member and pressing thereagainst for holding said members together in lateral dimension,
said other member having brush bristles on the upper surface at one end and the other end a raised longitudinal section of given length that fits against the opposing edges of said shoulders,
said raised section having laterally positioned spaced ridge portions on the upper surface,
said shoulders adjacent said one end having pairs of cooperating stops being spaced apart said given length along the longitudinal length of said shoulders,
said stops comprising ears having adjacent edges projecting inwardly at a normal angle and opposite edges having surfaces inclined with said longitudinal shoulders,
said shoulders and the walls of said hollow member being sufficiently resilient to pass said raised longitudinal section between said pairs of stops,
and said other member being in extended position when said raised longitudinal section is locked between said stops.

5. A retractable denture and tooth brush and holder comprising,
a pair of rectangular longitudinal members being made of plastic or like material,
one of said members being hollow and capable of telescopically receiving said other member,
said hollow member being open at one end and one side with longitudinal shoulders projecting inwardly in said open one side and extending to said end,
said shoulders overlapping edges of said other member and pressing thereagainst for holding said member together in lateral dimension,
a longitudinal box shaped holder being open at one end, said holder having a pair of aligned inwardly projecting ridge members for frictionally fitting against said shoulders and holding said pair of longitudinal members in said holder, said other member having brush bristles on the upper surface at one end and on the other end a raised longitudinal section of given length that fits against the opposing edges of said shoulders,
said raised section having laterally positioned spaced ridge portions on the upper surface,
said shoulders adjacent said one end having pairs of cooperating stops being spaced apart said given length along the longitudinal length of said shoulders,
said stops comprising ears having adjacent edges projecting inwardly at a normal angle and opposite edges having surfaces inclined with said longitudinal shoulders,
and the walls of said hollow member being sufficiently resilient to pass said raised longitudinal section and sufficiently rigid to lock said raised longitudinal section between said pairs of stops,
and said other member being in extended position when said raised longitudinal section is locked between said stops.

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