

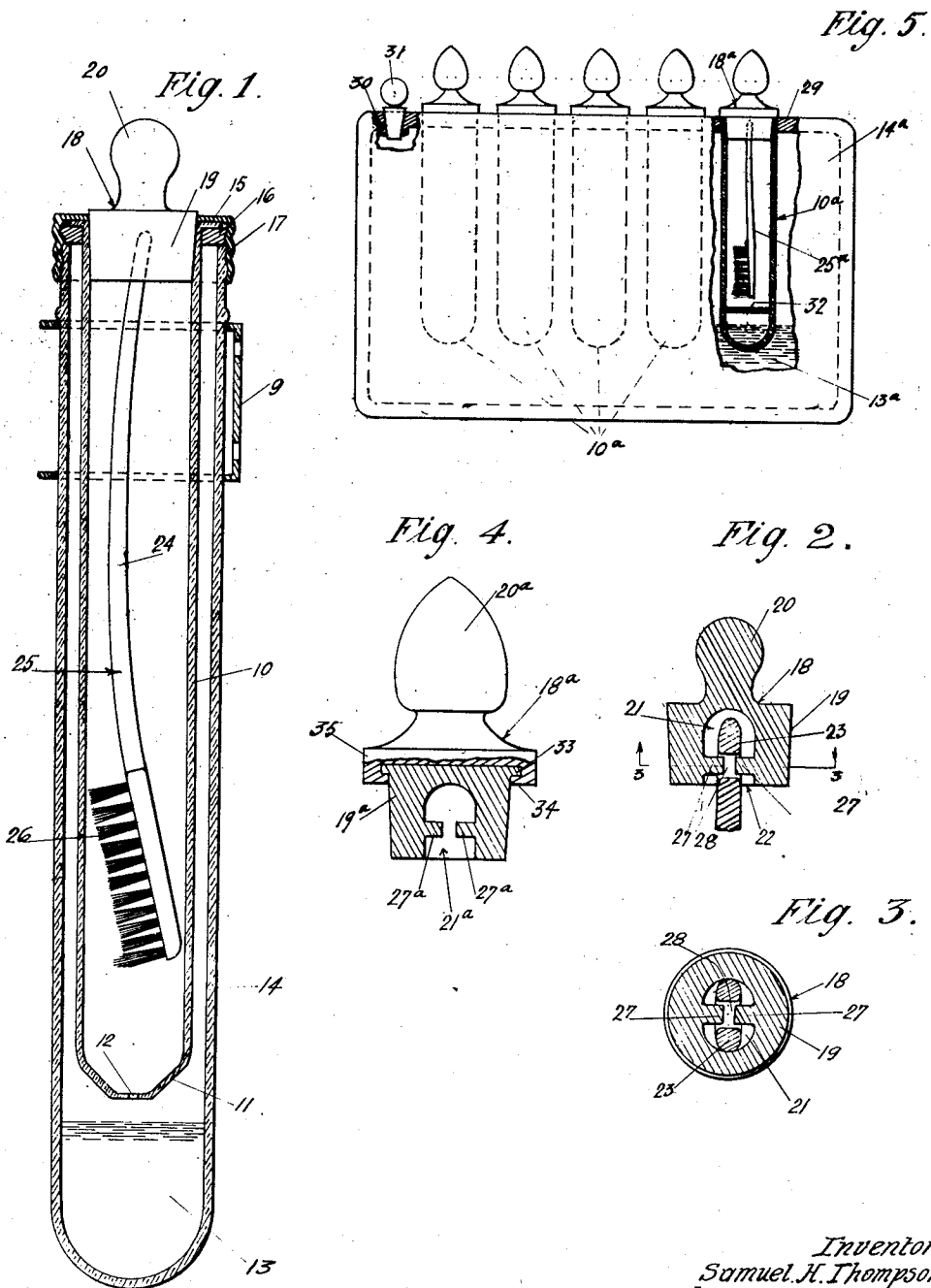
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TOOTHBRUSH HOLDER

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UNITED STATES PATENT OFFICE.

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TOOTHBRUSH HOLDER.

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To all whom it may concern:

Be it known that I, SAMUEL H. THOMPSON, a citizen of the United States, residing in the city of Los Angeles and county of Los Angeles, State of California, have invented a new and useful Improvement in Toothbrush Holders, of which the following is a specification.

This invention pertains to holders for suspending articles within containers, and may be applied with particular advantage to tooth brush sterilizers and retainers. In view of its peculiar adaptability to such a use, I have illustrated and will describe my invention as embodied in a tooth brush sterilizer, but this is not to be construed as a limitation on the invention.

In United States Letters Patent Nos. 1,278,789 and 1,419,593 on tooth brush sterilizers and retainers, issued to me on September 10, 1918, and June 13, 1922, respectively, I have illustrated different types of brush containers, and certain of the drawings of said patents have been incorporated in the drawings of the present application in order to illustrate clearly the adaptability of the invention.

All sterilizers of the general type illustrated have the common characteristic of including tubular brush containers, there ordinarily being corks or stoppers for hermetically sealing the tube mouths through which the brushes are inserted and withdrawn, the stoppers protecting the brushes from atmospheric contamination and preventing or retarding the escape of vapors from sterilizing agents which may be contained in or have access to the tube.

Containers of this type are of relatively small inside diameter, usually being only sufficiently large to comfortably admit a brush. Otherwise, their bulk would be objectionable. Due to this condition, it is rather difficult to withdraw a brush from its container, especially in case the brush has a comparatively short handle so its end lies considerably below the tube mouth. It is practically impossible to grasp the brush handle by inserting one's fingers in the tube mouth, so the usual procedure is to tilt or turn the tube end for end, a procedure which

is not only bothersome and time consuming, but is liable to result in the brush escaping the grasp of the user and dropping to the floor.

Furthermore, in lowering the brush into the container, it is necessary to release one's grasp on the handle before the lower end of the brush comes to rest on the tube bottom, and since such tubes are ordinarily of glass or other frangible material, the unchecked drop of the brush often results in breaking out the tube bottom.

Therefore it is the principal object of the invention to provide means for removably attaching the brush handle to the cork or stopper of the container, whereby the brush may be lowered into and withdrawn from the tube with minimum effort and with none of the inconveniences and undesirable results mentioned above. A single stopper may be used for suspending brushes having handles of varying size, within certain limits.

The brush handle is held against longitudinal movement within the tube, thereby eliminating the danger of the brush intermittently impacting with the bottom of the tube in the event the sterilizer is being transported.

Furthermore, by the use of my device it is possible to hold the brush so its bristles are suspended above the tube bottom, and in certain instances, held out of contact with or submerged in a disinfecting agent contained within the tube.

A more complete understanding of my invention will be had from the following detailed description, reference being made therein to the accompanying drawings, in which

Figure 1 is a vertical section of a tooth brush sterilizer and retainer, showing my improved holder in connection therewith.

Fig. 2 is a vertical section through the holder showing a fragment of a brush handle suspended thereby.

Fig. 3 is a transverse section on line 3—3 of Figure 2.

Fig. 4 is an elevation, partly in broken away section, of a modified form of holder; and

Fig. 5 is an elevation of a different form of sterilizer, the forward wall of the receptacle being broken away to expose one of the individual brush containers therein, the modified type of holder, as illustrated in Figure 4, being incorporated with each individual container.

First I will briefly describe the sterilizer illustrated in Figure 1. The brush container 10 is in the form of a tube 10, preferably of glass for sanitary reasons, the tube bottom 11 being apertured at 12 to admit vapors from a disinfecting or sterilizing fluid contained in the tubular receptacle 14.

Annular flange 15 on tube 10 provides means for suspending the container within tube 14. The under side of the flange engages a washer 16 which is supported by the top edge of tube 14. A screw cap 17 is threaded on tube 14 and serves to firmly retain the two tubes in assembly, and with washer 16 provides a tight joint for preventing the escape of vapors from between the tubes. A bracket 9 provides convenient means for suspending the sterilizer from a wall hook or within a cabinet.

A removable stopper or cork, generally indicated at 18, is adapted to close the mouth of tube 10 for preventing or retarding the escape of sterilizing vapors therefrom, and to protect the brush within the container from atmospheric contamination.

Preferably, though not necessarily, body member 19 and knob or handle 20 of stopper 18 are integral and made of rubber or like material having a desirable degree of flexibility and resiliency.

Body member 19 tapers downwardly, as is usual with stoppers, and is provided with a central, downwardly opening recess 21 through the mouth 22 of which the end 23 of tooth brush handle 24 is adapted to pass. Recess 21 may be of circular, oblong, elliptical or other cross section, although the elliptical contour illustrated in Figure 3 is preferable. When the stopper is designed to hold a tooth brush having a handle of a given size the recess, or mouth, thereof, is of slightly less lateral extent than the width of the handle. Then when the handle end is thrust into the recess, the recess mouth and defining walls first yield to allow such insertion and then, due to the resiliency of the body member, frictionally grasp and retain the handle so brush 25 may be lifted bodily with the stopper and then lowered into the container as in Figure 1. As the stopper is thrust downwardly into the tube 10, the wedge action between the tube and the taper of body 19 serves to thrust the recess defining walls more firmly against the brush handle, thus eliminating any likelihood of the brush handle being loosened from the stopper, even though shaken or jarred. In certain of the appended claims,

handle 25 is referred to as the suspension member for brush.

It is obvious that when the stopper is pulled from the container, the brush is lifted with it, and after the brush is fully withdrawn from tube 10, the stopper or holder may be slipped off the handle 24, so said holder will not interfere with the user's hand while manipulating the brush.

By this method of suspension, I not only provide means for the easy insertion and withdrawal of the brush with respect to the tube, but, by holding the fully inserted brush from longitudinal movement with respect to the tube, I eliminate the danger of the tube bottom being broken out by repeated impact of the bristle end of the brush therewith during transportation of the container. The holder also provides means for retaining brush bristles 26 a predetermined distance from the tube bottom and above the fluid level in receptacle 14.

As it is desirable that the stopper fit the handles of all brushes irrespective of their size, within reasonable limits, I provide means on body member 19 for engaging brush handles which may be too small to be frictionally retained by the recess mouth or defining walls. Such means consists of flexible and resilient lugs 27, which may or may not be integral with body member 18, extending inwardly from opposite sides of recess 21. When the end of the tooth brush handle is thrust into recess 21, these lugs yield to allow the passage of said end therebetween, the ends of the lugs preferably being spaced apart slightly, whereby they more readily allow such passage. As soon as aperture 28, usually provided in every brush handle, registers with lugs 27, these lugs spring into the aperture as shown in Figure 2. The lugs are sufficiently stiff to bear the weight of the brush without yielding downwardly to such an extent as would release the handle from proper engagement and coaction therewith, and yet the lugs are sufficiently flexible to enable the user to easily connect and disconnect holder and brush.

When the brush is lowered into the container, the inwardly directed pressure on body 19, which pressure is created by the wedge action between the taper of the body and the tube mouth, forces the lugs more closely together, reducing the chance of the accidental separation of the brush from its holder. In certain instances, I may utilize but a single holding lug extending such a distance towards the opposite defining wall of the recess that the space between said wall and the end of the lug is less than the thickness of the brush handle.

In Figure 5 I have shown a type of sterilizer wherein a plurality of individual brush containers 10* are suspended from the

top 29 of a common receptacle 14^a. Disinfecting or sterilizing fluid 13^a is admitted to the receptacle through opening 30 which is normally closed by plug 31, and the apertured ends of tubes or containers 10^a dip into this fluid. The vapors from fluid 13^a rise through the tube and around brush 25^a after first passing through the apertured partition plate 32 in container 10^a. This partition is ordinarily utilized for supporting the brush above the fluid level but may be dispensed with when my brush supporting device is used. Of course, the double tube structure of Figure 1 may be substituted for the single tubes of Figure 5, the two forms being shown merely to illustrate applications of the invention to different types of sterilizer.

Stopper 18^a may be similar to stoppers 18, or they may be made in accordance with the showing of Figure 4, where the ornamental knob 20^a is of porcelain or like material and cemented or otherwise suitably attached to body member 19^a. In the drawings I have illustrated the attaching means in the form of interlocking flanges 33 and 34 on members 19^a and tap 35, respectively. The description of body member 19, recess 21, lugs 27, and the coaction of these elements with the handle of brush 25, applies also to body member 19^a, recess 21^a, lugs 27^a and the coaction of these elements with the handle of brush 25^a, and therefore need not be repeated.

While I have illustrated and described specific embodiments of my invention, I do not wish to be limited to, except for such limitations as the appended claims may import.

I claim:

1. In a holder for suspending articles within an apertured container, a stopper for the aperture, said stopper comprising a body member of resilient material and having a downwardly opening recess, the normal wall to wall extent of the recess being less than a cross section dimension of a suspension member on the article; the stopper being adapted to yield outwardly to admit said suspension member to the recess, and then, by reason of the body resiliency, to frictionally engage said suspension member.

2. In a holder for suspending articles within an apertured container, a stopper for the aperture, said stopper including a downwardly tapering body member of resilient material and adapted to enter the aperture, there being a downwardly opening recess in the body member, the recess normally being smaller in cross section than the cross section of a suspension member on the article, and the recess defining walls being adapted to yield outwardly to admit said suspension member to the recess when the stopper is removed from the container aperture, and then to coact with the suspension

member in a manner whereby the suspension member is frictionally retained in the recess; the taper of the body member being adapted to coact with the container in a manner to press said defining walls against the suspension member positively and with added force when the article and body member are lowered through the container aperture.

3. In a holder for suspending an article having an apertured suspension member, a body member, and oppositely disposed, resilient and flexible lugs on the body member adapted to enter the aperture in a manner to removably hold the suspension member from separative movement with respect to the body member.

4. In a holder for suspending an article having an apertured suspension member, a body member having a downwardly opening recess to receive the suspension member, and resilient and flexible lugs on the body member and extending into the recess from opposite sides thereof, said lugs being adapted to enter the aperture in a manner to removably hold the suspension member from separative movement with respect to the body member.

5. In a holder for suspending an article having an apertured suspension member, a body member of resilient material and having a downwardly opening recess to receive the suspension member, and a resilient and flexible lug integral with the body member and extending into the recess, said lug being adapted to enter the aperture in a manner to removably hold the suspension member from separative movement with respect to the body member.

6. In a holder for suspending an article having an apertured suspension member, a body member of resilient material and having a downwardly opening recess to receive the suspension member, and resilient and flexible lugs on the body member and extending into the recess from opposite sides thereof, said lugs being adapted to enter the aperture in a manner to removably hold the suspension member from separative movement with respect to the body member.

7. In a holder for suspending articles within an apertured container, a stopper for the aperture, said stopper including a downwardly tapering body member of resilient material and adapted to enter the aperture, and oppositely disposed, resilient and flexible lugs on the body member adapted to coact with the article in a manner to hold it from separative movement with respect to the stopper; the taper of the body member being adapted to coact with the container in a manner to press said lugs more closely together.

8. In a holder for suspending a tooth brush within a tubular container which is open at its top, a stopper for tube opening,

said stopper including a body member having a downwardly opening recess to receive the apertured end of the brush handle, resilient and flexible lugs on the body member and extending into the recess from opposite sides thereof and adapted to enter the aperture in the handle in a manner to hold the handle from separative movement with respect to the stopper.

In witness that I claim the foregoing I have hereunto subscribed my name this 27th day of November 1923.

SAMUEL H. THOMPSON.