J. J. HEYWANG, JR. & M. SLATER.

EXPANDING BRUSH.

APPLICATION FILED NOV. 30, 1908.

925,909. Patented June 22, 1909.

Fig. 1.

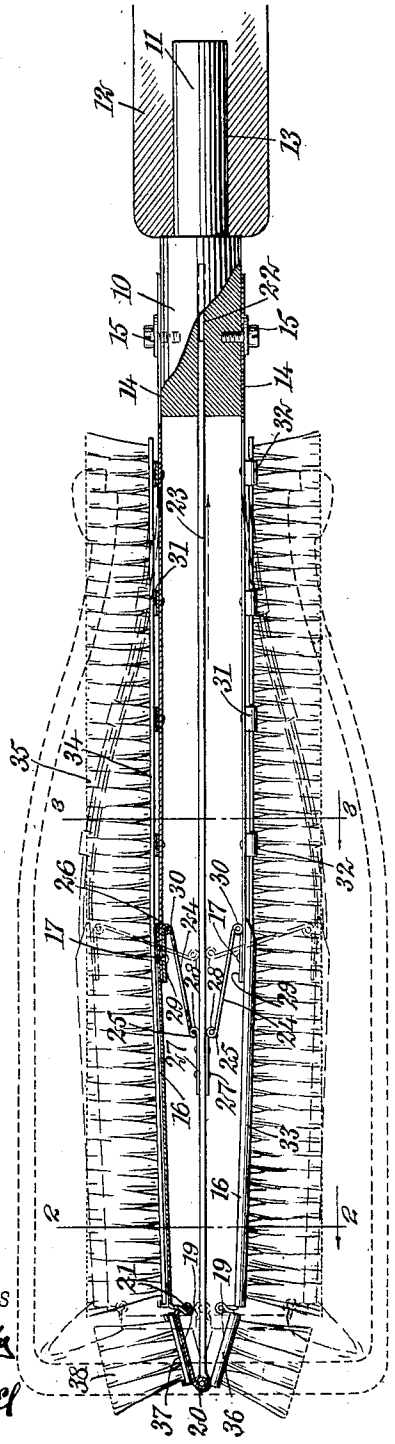


Fig. 3

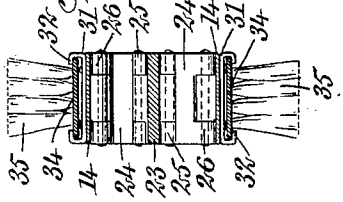
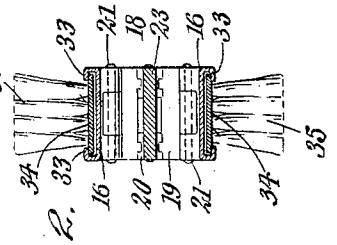


Fig. 2.



WITNESSES

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EXPANDING BRUSH.

No. 925,909. Specification of Letters Patent. Patented June 22, 1909.

Application filed November 30, 1908. Serial No. 465,399.

To all whom it may concern:

Be it known that we, JOHN J. HEYWANG, Jr., and MINARD SLATER, both citizens of the United States, and residents of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Expanding Brush, of which the following is a full, clear, and exact description.

This invention relates to expanding brushes especially useful in cleansing receptacles such as bottles or the like, and more particularly to an expanding brush which comprises flexible strips secured at opposite sides of a head and adapted to be rotated by a spindle or other suitable mechanism, the strips being normally substantially parallel and tending to maintain the normal position, extension strips secured at the ends of the first strips, and a hinge joining the outer extremities of the extension strips, a controlling slide intermediate the strips and secured to the hinge, links connecting the slide and the strips, so that a movement to extend the end hinge actuates the slide to move the strips apart, so that when the brush is inserted in a receptacle the engagement of the end hinge with the bottom of the receptacle expands the brush to bring the bristles carried by the strips into operative engagement with the sides of the receptacle, the flexible strips accommodating themselves to the shape of the receptacle.

The object of the invention is to provide a simple, inexpensive and efficient expanding brush, by means of which receptacles such as milk bottles or the like can be rapidly cleansed interiorly, which normally is of such form that it can easily be inserted through a narrow-mouthed receptacle such as a bottle, which when inserted can be expanded to engage the sides of the receptacle, which accommodates itself to the shape of the receptacle, and which can be easily connected with any suitable mechanism for rapidly rotating the brush.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a side elevation of an embodiment of our invention, showing the same in a normal position with a part in cross section and indicating in dotted outline the brush expanded within a receptacle such as a milk bottle; Fig. 2 is a cross section on the line 2—2 of Fig. 1; and Fig. 3 is a similar view on the line 3—3 of Fig. 1.

Before proceeding to a more detailed explanation of our invention, it should be clearly understood that while we have chosen to designate the device as a brush we do not therefore limit ourselves to a device having bristles only, as the bristles can be replaced by fabric swabs or tufts of material answering a purpose similar to that of the bristles. While the device is particularly useful in cleansing milk bottles and like vessels, it can also be advantageously employed for other purposes in which it is necessary to introduce a cleansing implement into a narrow-mouthed receptacle or casing, and where it is necessary to have the implement expand after entering the receptacle, to bring the bristles or other cleansing tufts into direct and operative engagement with the walls of the receptacle. The brush can be advantageously employed by attaching it to a spindle which can be rapidly revolved so that the brush itself, after insertion into the receptacle, is similarly actuated to free the receptacle from adhering dirt—with the aid of water or other cleansing agent.

The brushes which we employ have flexible backs and are removable, so that when necessary they can be replaced without difficulty. The flexibility of the brush backs permits the brushes to accommodate and adjust themselves to the shape of the receptacle. This is of course true of the flexible parts of the brushes, and such accommodation is particularly necessary in cleansing bottles at the inside, between the neck and the body, where the latter curves inwardly to the neck.

We wish to emphasize that we do not limit ourselves to certain of the details of construction illustrated for example, herewith, as these details can be varied in accordance with special conditions and individual preference without departing from the underlying spirit of the invention.

Referring more particularly to the drawings we provide a head 10, preferably of circular section and having a constricted stem 11, by means of which the head can easily be operatively connected with mechanism

for rotating the brush. For example, the stem may be inserted in a suitable recess 13 of a spindle 12. At opposite sides, the head carries flexible strips 14, which are normally substantially parallel and extend from the head, at the side opposite to the stem. The strips are secured in position by means of screws 15, or any other suitable means. Extension strips 16 are secured at the extremities of the flexible strips, by means of rivets 17 or the like. The extension strips at the outer ends are connected by the end hinge 18, which comprises leaves 19 having a hinge joint 20, and each having a pivotal connection 21 with one of the extension strips. The head has a longitudinal slot 22 which movably receives the end of a controlling slide 23. The latter has the outer end secured at the joint 20 to the end hinge 18 and is thus controlled by the end hinge. Links 24 are arranged respectively between the slides and the opposite flexible strips and each have a hinge connection 25 with the slide. At the ends remote from the slide the links each have a hinge connection 26 with the flexible strips at the extremities thereof remote from the head. The various hinge joints referred to heretofore may be of any suitable form permitting the respective members to swing freely with respect to each other. For example, the slide has hinge members 27 riveted thereon, which coöperate with sleeves 28 formed at the ends of the links to form the hinge connection. Similarly, hinge members 29 are held in place at the ends of the flexible strips by means of the rivets 17 and coöperate with hinge sleeves 30 at the adjacent ends of the links which form the connections. The flexible strips have riveted thereon at separated points, clips 31 having at the opposite ends inwardly turned flanges 32. The edges of the extension strips are inwardly disposed to form undercut flanges 33.

We employ elongated brushes having backs 34 to which the bristles 35 are secured. The backs are arranged to lie adjacent to the strips and to be received by the flanges 33 and 32 which serve to hold the brushes removably in place. The end members have the edges inwardly disposed to form undercut flanges 36, adapted to receive brush backs 37 carrying bristles and 38 forming the end brushes. It will be understood that these brushes can be easily slid into and out of position upon the strips and end pieces and can therefore be replaced without difficulty when necessary.

The flexible strips 14 tend normally to remain parallel and adjacent as is shown in Fig. 1, thereby holding the hinge leaves contracted and the links at acute angles with the slide. When the brush is inserted in the receptacle, the hinge is forced into engagement with the bottom of the receptacle, whereby the leaves are extended and the slide is moved into the slot 22. This movement of the slide is transmitted to the flexible strips through the links, and the brush is thus expanded as indicated in dotted outline in Fig. 1. It will be understood that the leaves also act as links to separate the extension strips, that is, to cause them to move apart, a function like that performed by the links. When it is desired to remove the expanded brush from the receptacle, it is necessary merely to draw the same outward through the mouth of the receptacle, the engagement of the flexible strips at the mouth of the bottle forcing them together, to bring the parts to their normal positions as shown in Fig. 1.

The flexible strips can be fashioned from any suitable material such as spring metal, while the remaining parts including the extension strips and the end members, consist preferably of stiff material such as metal or the like.

Having thus described our invention, we claim as new and desire to secure by Letters Patent;—

1. A device of the class described, comprising a head, flexible members carried thereby, links connecting said members, foldable jointed leaves, a slide connected with said leaves and said links, whereby when said leaves are extended said flexible members are moved apart, and brushes carried by said members and said leaves, said members tending normally to contract said leaves.

2. A device of the class described, comprising a head, flexible members carried by said head, a hinge connecting said members, a slide controlled by said hinge, and links connecting said slide and said members.

3. A device of the class described, comprising a head, flexible strips extending from said head, extension strips secured to said first strips, hinge leaves each secured to one of said extension strips and to each other, a controlling slide secured to said leaves, links connecting said slide and said strips, and brushes carried by said strips and said end base members.

4. A device of the class described, comprising a head, flexible strips secured at opposite sides on said head and normally substantially parallel extension strips secured at the ends of said first strips, jointed leaves connecting the outer extremities of said extension strips, a controlling slide intermediate said strips and secured to said leaves, and links connecting said slide and said strips, whereby a movement to extend said leaves actuates said slides to separate said strips, said strips carrying brushes.

5. A device of the class described, comprising a head having a slot, flexible strips secured at opposite sides of said head, extension strips secured at the ends of said first strips, a hinge having jointed connections with said extension strips, a controlling slide

secured to said hinge and movably arranged in said slot, links connecting said slide and said strips, and flexible brushes mounted upon said strips.

6. A device of the class described, comprising a head, flexible members carried thereby and tending to remain normally parallel and in juxtaposition, said head constituting a common support for said members, extension members secured at the ends of said first members, hinged leaves connecting said extension members, a controlling slide having a jointed connection with said leaves, links connecting said slide and said first members, said members having undercut flanges at the edges, and brushes having the backs removably engaging said flanges.

7. A device of the class described, comprising a head, flexible strips secured at opposite sides of said head, extension strips secured at the extremities of said first strips, a hinge consisting of jointed leaves connecting the ends of said extension strips, a controlling slide secured to said hinge, links connecting said slide and said strips, said flexible strips having clips presenting inwardly disposed flanges, said extension strips having the edges formed into inwardly disposed flanges, said clips of each of said flexible strips being spaced apart, and brushes having flexible backs adapted to engage said flanges of said clips and of said extension strips, said hinge leaves having removable brushes.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN JACOB HEYWANG, JR.
MINARD SLATER.

Witnesses:
EVERARD B. MARSHALL,
ORSONS MUNN.