J. FREUD.

CLEANER.

APPLICATION FILED MAR. 27, 1916.

1,200,602.

Patented Oct. 10, 1916.

Fig. 4.

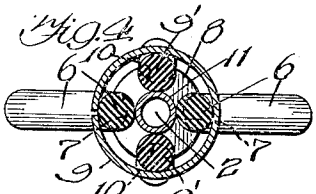


Fig. 5.

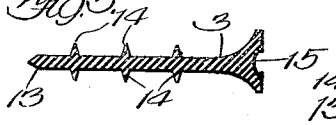


Fig. 6.



Fig. 1.

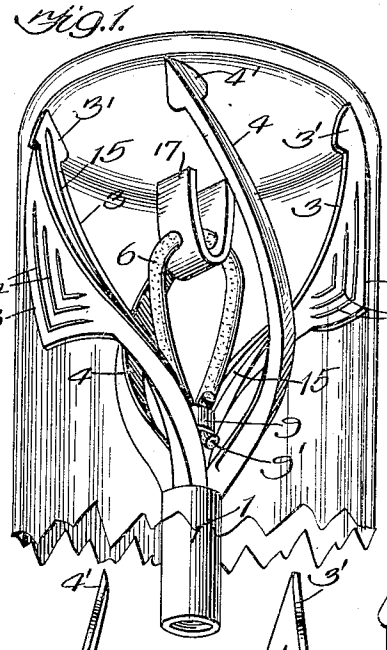


Fig. 7.

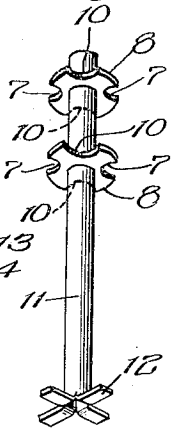


Fig. 2.

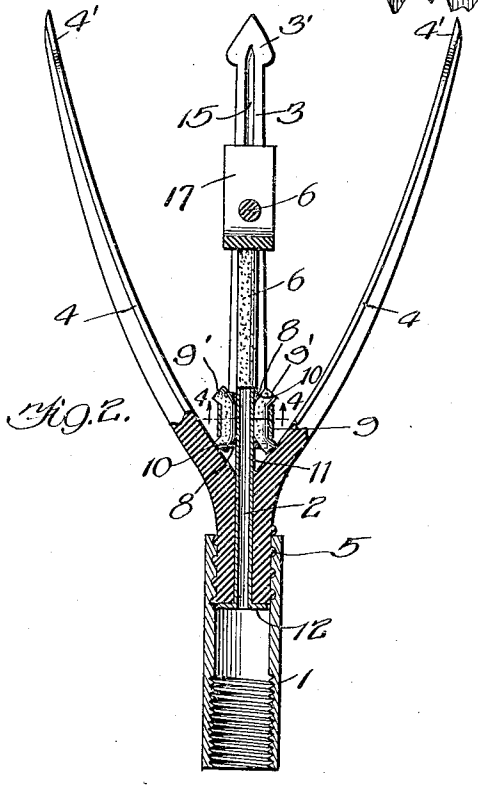
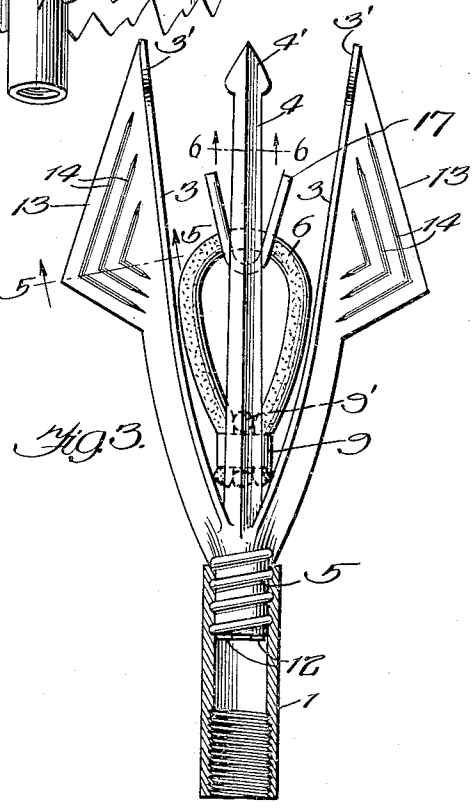


Fig. 3.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

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CLEANER.

1,200,602. Specification of Letters Patent. Patented Oct. 10, 1916.

Application filed March 27, 1916. Serial No. 86,848.

To all whom it may concern:

Be it known that I, JOSEPH FREUD, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Cleaners, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to brush structures and has a number of characteristics.

According to one feature of my invention the brush has a finger formation, preferably a number of fingers, provided with sharp scraping edges for cleaning engagement with a bottle or other container to be cleaned. Some of these fingers are desirably provided with blades which have scraping ridge formations and which are adapted to have intimate contact with the surfaces being cleaned. The brush structure also desirably includes a cleaning member in the form of a loop, upon which loop there is desirably provided another loop carried by the first adjacent the bight of the second. The brush cleaning member of loop formation desirably has its ends bound in connection with a supporting spider, the spider in turn being preferably rigidly secured upon a water conveying tube. The various cleaning members of the brush are desirably integrally formed with a base portion, all of which are preferably made of resilient cushioning material such as rubber.

The invention has a number of other characteristics and will be fully explained by reference to the accompanying drawing showing the preferred embodiment thereof and in which—

Figure 1 is a perspective view showing the application of the brush to the interior of a bottle; Fig. 2 is a view in elevation, partially in longitudinal section of the brush; Fig. 3 is a view in elevation of the brush; Fig. 4 is a view on line 4 4 of Fig. 2; Fig. 5 is a view on line 5 5 of Fig. 3; Fig. 6 is a view on line 6 6 of Fig. 3; and Fig. 7 is a perspective view illustrating a structural characteristic.

Like parts are indicated by similar characters of reference throughout the different figures.

The stock 1 is threaded at its lower end for attachment to a rotating spindle forming a part of a bottle washing machine, this stock being hollow for the passage of water therethrough. Instead of providing a lateral outlet for the stock I preferably convey the water through the passage 2 in the brush, though the invention is not to be thus limited. The brush is preferably formed of rubber or other soft resilient cushioning material and desirably has four main branches or fingers 3 3, 4 4, these finger branches springing out of a common base which preferably has a threaded formation 5 adapted for threaded engagement with the upper end of the stock 1. The brush desirably also has a supplemental branch 6 also formed of rubber and preferably of loop formation, the approached ends of the loop being clamped into the opposite notches 7 in each of two spiders 8 by means of a clamping ring or binder 9 which insures retention of the engagement between the ends of the brush strands 6 and the spiders. The short pieces of rubber 9^1 are clamped into opposite notches 10 in the aforesaid spiders 8 by means of the same binder 9, these portions 9^1 serving to prevent the strands 6 from becoming dislodged. The spiders are rigidly secured upon a tube 11 which affords the passage 2. The lower ends of the portions 9^1 and the ends of the loop 6 are brought into firm engagement with the base portions of the fingers 3, 4 as illustrated, this engagement being maintained by splitting and spreading the lower end of the tube 11 into retaining fingers 12.

The brush fingers 3, 4 terminate in arrow-headed formations 3^1, 4^1 whose sharp ends seek the corner portions of the bottle being cleaned, as clearly illustrated in Fig. 1, as do also the base portions of these arrow-headed ends. The fingers 3 are desirably enlarged at their upper portions into blades 13 that are desirably of substantially uniform thickness except for the presence of sharp ridges 14 projecting therefrom, each ridge having two angularly related branches each angularly disposed with respect to the finger blade carrying it and each inclined with respect to the brush axis to have washing action. The ridges of such formation enable the fingers to hold the water better and the sharp corners between branches of the ridges serve to secure better cleaning action. The opposing faces of the fingers 3 are desirably longitudinally grooved as indicated at 15. The unbladed portions of the

fingers 3 are triangular in cross section and the fingers 4 are substantially triangular in cross section, these latter fingers being provided with channels 16 in their sides. Each of the longitudinal edges of the fingers 3, 4, and each of the longitudinal edges bordering the grooves 15 is desirably flat or blunt, these broadened edge portions having sharp corners. All of these sharp edges and the sharp crowns of the ridges 14 are brought into intimate contact with the surfaces being cleaned and are adapted to conform to irregularities in such surfaces owing to the flexibility of the material, rubber, of which the brush is made. When the brush is revolved by the driving mechanism of the bottle cleaning machine the fingers assume spiral shape to have better scraping action and better scraping engagement with the surfaces being cleaned, the blades 13 tending to lie close to the bottle to bring the ridges 14 upon one side or the other of each blade substantially all into intimate contact with the bottle, the blades substantially assuming the curvature of the bottle. As the fingers are quite flexible they may be pushed closer to the bottom of the bottle than is illustrated in Fig. 1 whereby bottom portions of the bottle may also be properly cleaned. The looped branch 6 of the brush is also adapted for cleaning engagement with the bottle and in order that the central portions of the bottle bottom may be properly cleaned, this loop 6 threads a supplemental cleaning loop 17 adjacent the bight of this latter loop, the loop 6 being desirably circular in cross section whereas the loop 17 is of leaf formation. In action, the loop 17 will assume and maintain a central position on the loop 6 and will thoroughly clean the central portion of the bottle bottom. The loop 6 itself will also coöperate with the balance of the brush structure in cleaning the shoulder and neck portions of the bottle. The element 11 is a rigid body which prevents the base portion of the brush from collapsing and serves to make it firm to promote firm engagement between the base of the body and the stock.

While I have herein shown and particularly described the preferred embodiment of my invention I do not wish to be limited to the precise details of construction shown as changes may readily be made without departing from the spirit of my invention, but

Having thus described my invention I claim as new and desire to secure by Letters Patent the following:—

1. A brush structure having a cleaning member; a spider support therefor; and a binder for holding the cleaning member and spider in assembly.

2. A brush structure having a cleaning member; a spider support therefor; a binder for holding the cleaning member and spider in assembly; and a water conveying tube upon which the spider support is disposed.

3. A brush including a washing portion of loop formation and a second washing portion carried by the first and disposed near the bight of the first.

4. A brush including a washing portion of loop formation and a second washing portion of loop formation carried by the first adjacent the bight of the second.

5. A brush structure having a finger formed of resilient cushioning material and provided with a substantially flat blade extension, the blade extension carrying a ridge formed in two angularly related branches at least one of which is angularly disposed with respect to the finger and is inclined with respect to the brush axis.

In witness whereof, I hereunto subscribe my name this twenty second day of March. A. D. 1916.

JOSEPH FREUD.

Witnesses:
G. L. Cragg,
Etta L. White.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."