Oct. 11, 1932. A. HANNAFORD 1,882,576

BOTTLE BRUSH

Filed Feb. 20, 1930

Fig. 1

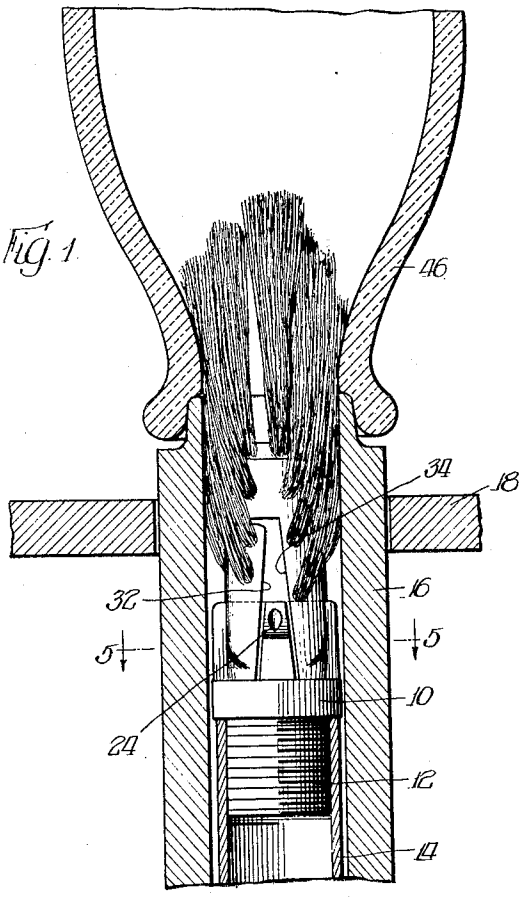


Fig. 3

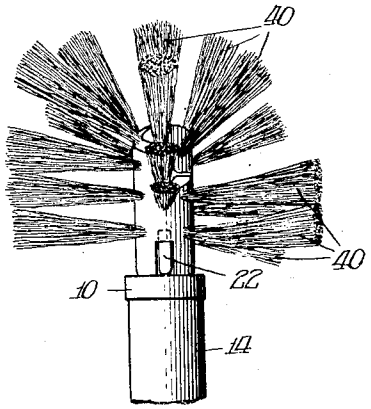


Fig. 4

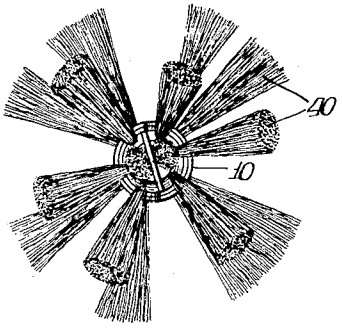


Fig. 2

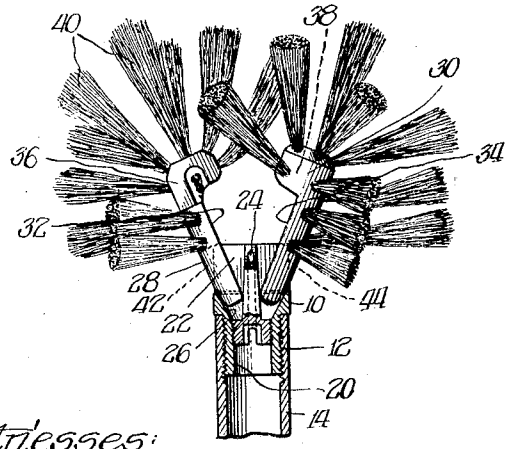
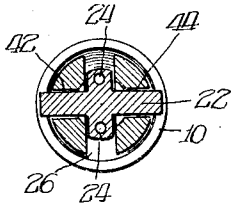


Fig. 5



Witnesses:
Howard Somervell
A. E. Burkhardt

Inventor:
Alfred Hannaford,
By Atkinson, Hurley, Byrnes & Knight Attys.

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UNITED STATES PATENT OFFICE

ALFRED HANNAFORD, OF CHICAGO, ILLINOIS

BOTTLE BRUSH

Application filed February 20, 1930. Serial No. 429,845.

This invention pertains to brushes, and more particularly to rotating brushes for cleaning bottles and the like.

In bottling works or dairies and the like, before the bottles can be filled, they must be thoroughly washed and scrubbed. In order to do a quantity of bottles, it is usual to place the same on a supporting table and advance them until they are over suitable apertures. A tube having a mouth conforming to the mouth of the bottle is then moved through the aperture, slightly raising the bottle. After this is accomplished, a rotary brush is pushed through the tube and into the bottle, the brush being revolved at a high rate of speed and water being supplied to the inside of the bottle. The principal difficulty with this method is that the entire bottom of the bottle cannot be reached by the brush. Also, with the use of a centrifugal spreading brush, there has as yet been no brush evolved which is sufficiently strong to resist breakage.

It is therefore an object of this invention to provide a centrifugal brush for cleaning containers, which is so constructed as to reach every part of the container.

Another object is to provide a brush made of a plurality of parts, readily assembled, easily cleaned, wherein the parts are not easily dissociated, and one in which the construction is very strong, though inexpensive to make and maintain.

With these and various other objects in view, the invention may consist of certain novel features of construction and operation, as will be more fully described and particularly pointed out in the specification, drawing and claims appended hereto.

In the drawing, which illustrates an embodiment of the device and wherein like reference characters are used to designate like parts—

Figure 1 is a fragmentary sectional elevation showing a container supported and about to receive a centrifugal brush which is the subject matter of this invention;

Figure 2 is a sectional elevation of the brush in expanded position;

Figure 3 is a sectional elevation of the brush in contracted position, the same being taken substantially at right angles to the view shown in Figure 2;

Figure 4 is a top plan view of the brush shown in Figure 3; and

Figure 5 is a sectional top plan view through the brush element securing means, the same being taken substantially in the plane as indicated by the plane 5—5 of Figure 1.

In the embodiment of the invention shown, the brush assembly per se includes a bored base member 10, threaded as at 12 for engagement with corresponding threads on the rotating brush supporting tube 14 which is adapted to operate in the bottle supporting tube 16. The tube 16 and tube 14 are adapted to have reciprocatory movement with respect to the bottle support 18. The base member 10 is internally threaded at 20 for receiving corresponding threads of a cross-head which is a substantially T-headed bolt 22, said bolt being provided with apertures 24 communicating with the tube 14 whereby water or other cleaning fluid can be passed through tube 14 and into the container to be cleaned.

The upper portion of the base member is outwardly sloped or beveled as at 26, and portions of the brush holding members 28 and 30 are received between these beveled portions and the T-bolt 22. The members 28 and 30 are complementary members and are disposed to form a circular bristle retaining means when assembled as shown in Figure 4. These members are formed with flat portions 32 and 34 and other flat portions 36 and 38 disposed substantially at right angles to the portions 32 and 34 and forming substantially L-headed members. The bristle groups 40 are secured in the members 28 and 30 in such a manner that the curved sides are adequately supplied, and the L-heads are provided with groups as shown so that when the members 28 and 30 are expanded, as shown in Figure 2, certain groups in one head overlap groups in the other head as the brush is revolved, thus insuring a complete cleaning of the bottom of the container to be cleaned.

The sides of the members 28 and 30 are slotted, as shown at 42 and 44, for the recep-

tion of the arms or T-head of the crosshead 22, the slots being somewhat larger than the head of the bolt whereby relative movement is permitted between the members 28 and 30 and the base 10.

In operation, as the container 46 registers with the aperture in the support 18, the tube 16 is raised to engage inside the open mouth of the container whereby the container is slightly raised. During this operation, the brush has been slightly distorted by being withdrawn in the tube 16. The tube 14 is then raised and revolved at a high rate of speed, whereby as soon as the brush has cleared the tube 16, it is free to be expanded by centrifugal force. The so-called expanding causes the heads of the portions 28 and 30 to move outwardly around the T-head of the bolt 22 as a pivot whereby the sides and bottom of the container are adequately reached. As already explained, every part of the container is reached as the bristles of complementary portions 28 and 30 overlap. During rotation, liquid is forced out through the apertures 24 from the hollow tube 14 so it will be seen a thorough cleaning is effected.

After this operation, the brush is withdrawn in the tube 16, the tube 16 is lowered, and the cleaned container is moved along to make a place for subsequent containers.

It is to be understood that I do not wish to be limited by the exact embodiment of the device shown, which is merely by way of illustration and not limitation, as various and other forms of the device will of course be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

I claim:

1. In a brush, the combination of a base member, bristle holding members, and a shouldered member pivotally securing said base member and said bristle holding members.

2. In a brush, the combination of a base member, bristle holding members having angularly disposed complementary fitting surfaces, a portion of said members having slots therein, and a shouldered member pivotally securing said base member and said bristle holding members by means of said slots.

3. In a brush, the combination of a base member, bristle holding members having mutually overlapping head portions, a portion of said members having slots therein, and a shouldered member pivotally securing said base member and said bristle holding members by means of said slots.

4. In a brush, the combination of a base member, bristle holding members having angularly disposed complementary fitting surfaces having bristles therein and means for pivotally securing said base member and said bristle holding members.

5. In a brush, the combination of a base member, bristle holding members having mutually overlapping head portions having bristles therein, and means for pivotally securing said base member and said bristle holding members.

6. In a brush, the combination of a base member, bristle holding members, a portion of said members having slots therein, and a shouldered member pivotally securing said base member and said bristle holding members by means of said slots, said shouldered member having means therein for permitting passage of fluid from a portion of said base member to said bristle holding members.

7. In a brush, the combination of a base member, said member having securing means on the outside thereof and having a bore therethrough, a portion of said member in said bore having securing means thereon, the upper portion of said member in said bore being beveled, a pair of brush members, a shouldered member securing said brush members to said base member, said shouldered member having securing means thereon adapted to cooperate with said second named securing means whereby said bore is closed.

8. In a brush, the combination of a base member, said member having securing means on the outside thereof and having a bore therethrough, a portion of said member in said bore having securing means thereon, the upper portion of said member in said bore being beveled, a pair of brush members, said brush members being substantially L-shaped having angularly disposed complementary cooperating surfaces, a shouldered member pivotally securing said brush members to said base member, said shouldered member having securing means thereon adapted to cooperate with said second named securing means whereby said bore is closed, said shouldered member having apertures therethrough whereby passage through said bore may be effected.

Signed at Chicago, Illinois, this 18th day of February, 1930.

ALFRED HANNAFORD.