Dec. 20, 1955 C. H. OSGOOD 2,727,267

ROTARY DISHWASHER BRUSH

Filed May 4, 1950

Fig. 1.

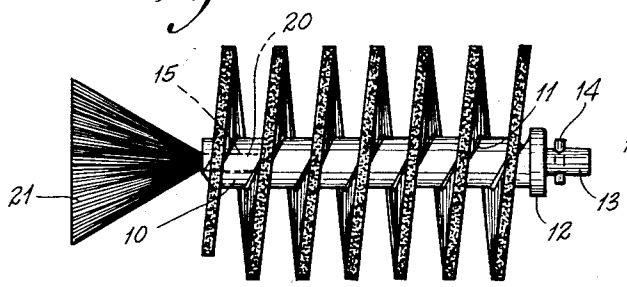


Fig. 2.

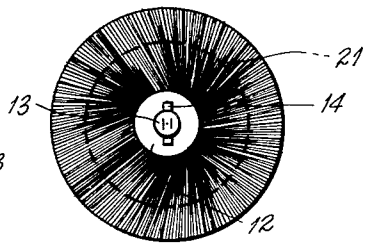


Fig. 3.

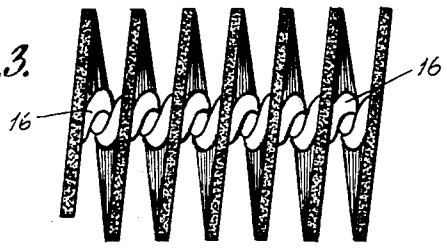


Fig. 4.

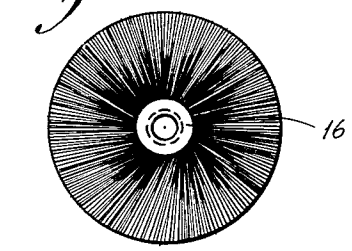


Fig. 8.

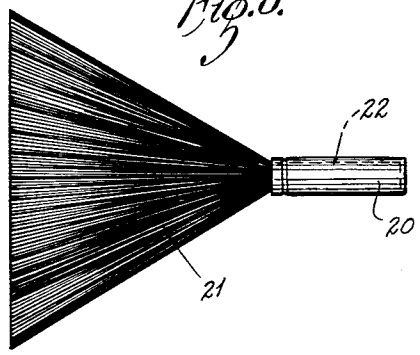


Fig. 6.

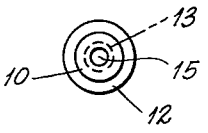
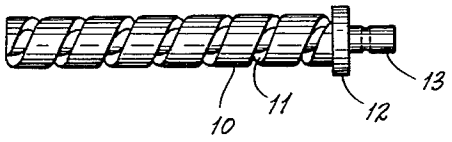


Fig. 5.



Fig. 7.



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ROTARY DISHWASHER BRUSH

Clarence H. Osgood, Stamford, Conn.

Application May 4, 1950, Serial No. 159,930

2 Claims. (Cl. 15—182)

This invention relates to an improved brush construction for rotary dishwashers, and more particularly to brushes in which the bristles are arranged in a generally cylindrical form to adapt the brush for high speed rotation in an apparatus for washing hollow dishware, such as table glasses and the like.

As will be understood, the major use of washers of this type is for cleansing glasses, tumblers, cups and the like in public places such as soda fountains where liquids are dispensed in these containers. In order to maintain a supply of the containers the rotary dishwasher type is required to operate rapidly and to thoroughly cleanse the containers after each use. Sanitary regulations in many communities require absolute cleanliness of containers in which liquids or food are dispensed to the public, and where the brushes have the bristles permanently attached to the spindle or where the spindle is not removable it is difficult to maintain the brush element in satisfactory condition for sanitary cleansing of the articles.

It is highly desirable, therefore, that a brush for this use be easily disassembled in order that it may be frequently cleaned and sterilized and conveniently reassembled even by unskilled operators.

It is a primary object of the invention, therefore, to provide a brush of this type which will be of simple construction, easily disassembled and re-assembled, and the elements of which may be readily cleaned and which will be durable for the high speed use as required in apparatus of this type. Other advantages of the construction will readily appear from the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is a side elevation of the assembled brush;

Fig. 2 is an end elevation viewing the inner end of the brush that is attached to a driven shaft of the washer apparatus;

Fig. 3 is a view of the brush element with its mounting removed from the spindle;

Fig. 4 is an end view of the same;

Fig. 5 is an end view, on an enlarged scale, of the bristles of the brush in their mounting and removed from the spindle;

Fig. 6 is an outer end view of the spindle with the supplementary brush removed;

Fig. 7 is a side elevation of the spindle with the brush bristles and their mounting removed; and

Fig. 8 is a view, on an enlarged scale, of the supplemental brush that fits into the outer end of the brush spindle.

In the embodiment of the invention as illustrated the brush structure includes a spindle **10** having a spiral groove **11** which is formed in its periphery. The inner end of the spindle is provided with an annular flange **12**, and an extension **13** having a pin **14** therethrough which provides one element of a bayonet connection whereby the spindle of the brush may be readily mounted on the end of a drive shaft of the apparatus and disassembled therefrom. The outer end of the spindle **10** is provided

with a socket **15** to receive the mounting of a supplemental brush.

The bristles of the main section of the brush have their inner ends mounted in a base **16** which is U-shaped in cross section and developed into a spiral that is complementary to the spiral groove in the spindle. The mounting **16** may be of any suitable material but should have a sufficient flexibility to adapt itself to be mounted on the spindle by threaded engagement therewith and to be securely held in place.

The bristles extend radially from the mounting and are permanently set in the U-shaped channel formed therein.

The brush element, as a whole, is formed, as mentioned, in a spiral which is complementary in pitch to the groove in the spindle so that the entire mounting may be very conveniently associated with and removed from the spindle by screwing the spindle into the bristle mounting and, after the spindle and the brush mounting have been assembled, will be held in place in order to perform its function in the rapidly rotating operation of the washer.

In addition to the radial bristles forming the generally cylindrical section of the brush, there is provided a supplemental brush member which comprises a tubular base **20** into which a tuft of bristles **21** carried in a mounting **22** tubular in form and dimensioned to fit into the tubular socket **20**.

The bristles of the brush **21** arranged to form an inverted cone tuft are useful, in an apparatus of this type, to cleanse surfaces of the articles undergoing washing not reached by the cylindrically arranged bristles.

From the foregoing description, it will be apparent that the main body of the bristles may be very rapidly removed from the spindle merely by unscrewing the spindle from the base or mounting for the bristles and that the supplemental brush may be removed from the spindle. The spindle may be readily disconnected from the drive shaft of the washer apparatus.

While the material out of which the spindle is constructed is not material to the invention, it can conveniently be made either from metal or a plastic, and the support for the spiral radially extending bristles may be of any material that is suitable to provide a durable mounting therefor.

From the foregoing, it will be understood that the construction described accomplishes the general objectives of the invention in that the parts may be assembled and disassembled very rapidly even by unskilled operators, and that when the parts are disassembled they may be readily individually cleaned in order to keep the brush assembly in a sanitary condition.

In a co-pending application, Serial No. 159,929 filed May 4, 1950, there is disclosed a complete apparatus in which the brushes of the type described are employed for the purpose of thoroughly cleansing both the inside and outside of hollow ware by the rapid rotation of the brushes in opposite directions. The supplemental brush **21** is to be used for the purpose of scrubbing the bottom surfaces of hollow ware, which are not reached by contact with a contiguous pair of cylindrical brushes.

What is claimed is:

1. A brush of the kind described, comprising a generally cylindrical spindle having a deep spiral U-shaped groove extending from a first end of said spindle along a major portion of the distance to its second end, a flange disposed at right angles to the axis of said spindle having a diameter slightly greater than said spindle adjacent the end of said groove at the second end of said spindle, said second end of said spindle being of a reduced diameter and having a coupling element adapted to releasably connect it to a drive shaft, a bristle supporting member of U-shaped cross section formed in a spiral

complementary to and supported within the groove in said spindle, said supporting member being threadably removable from said spindle and a series of bristles having their inner ends seated in said supporting member and their outer ends extended radially to form a brushing surface cylindrical in curvature and forming a spiral around said spindle with a substantial spacing between the ends of said bristles.

2. A brush of the kind described, comprising a generally cylindrical spindle having a deep spiral U-shaped groove extending from a first end of said spindle along a major portion of the distance to its second end, a flange disposed at right angles to the axis of said spindle having a diameter slightly greater than said spindle adjacent the end of said groove at the second end of said spindle, said second end of said spindle being of a reduced diameter and having a coupling element adapted to releasably connect it to a drive shaft, a bristle supporting member of U-shaped cross section formed in a spiral complementary to and supported within the groove in said spindle, said supporting member being threadably removable from said spindle and a series of bristles having their inner ends seated in said supporting member and their outer ends extended radially to form a brushing surface cylindrical in curvature and forming a spiral around said spindle with a substantial spacing between the ends of said bristles, and a cylindrical shaped recess in said first end of the spindle and a tubular member removably disposed in the recess for supporting one end of a tuft of bristles within said member, said bristles having a substantially conical shape with the flat end forming the free end of the brush.

References Cited in the file of this patent

UNITED STATES PATENTS

335,052	Buchheit	Jan. 26, 1886
818,497	Whittemore	Apr. 24, 1906
1,167,923	Olson	Jan. 11, 1916
1,371,601	Braun	Mar. 14, 1921
1,388,680	Wiens	Aug. 23, 1921
1,922,752	Vogler	Aug. 15, 1933
1,963,044	Bickel	June 12, 1934
2,045,373	Scully et al.	June 23, 1936
2,177,740	Orndorff et al.	Oct. 31, 1939
2,214,684	Stinnett	Sept. 10, 1940
2,267,584	Cave et al.	Dec. 23, 1941
2,281,412	Cave et al.	Apr. 28, 1942
2,312,591	Rowland	Mar. 2, 1943
2,332,490	Rowland	Oct. 19, 1943