Jan. 22, 1952 L. E. JONES 2,583,336

BRUSH ROLL CONSTRUCTION

Filed April 21, 1947

Fig. 1.

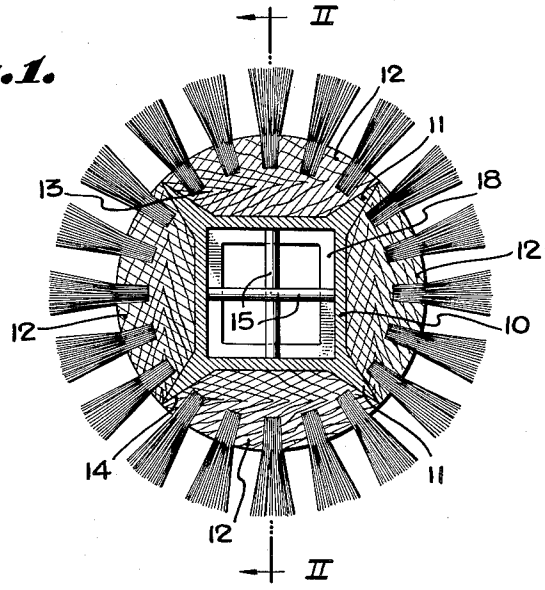
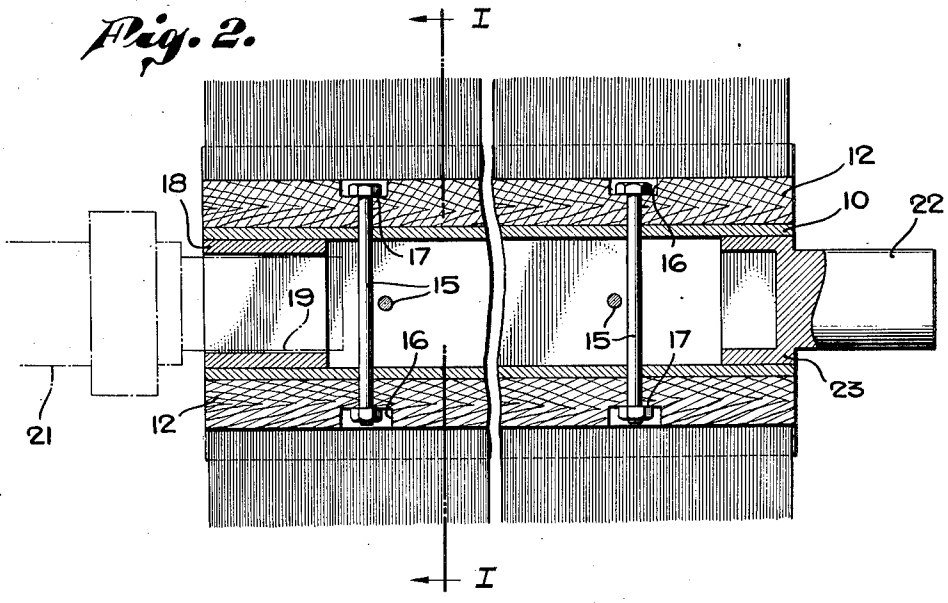


Fig. 2.



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BRUSH ROLL CONSTRUCTION

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3 Claims. (Cl. 15—183)

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This invention relates to brush construction, and more particularly to cylindrical-shaped brushes of the type that employ staves for mounting the brush bristles.

Brush rolls are extensively used in many industries and machines, among them fruit washing and polishing machines (as in the citrus industries), in textile mills, in vacuum cleaners, printing presses, steel mills, rubber factories, et cetera. In many instances the brush rolls are relatively long and flex or whip during rotation because of their small diameter with respect to their length. Difficulties have been encountered in making brush rolls with removable staves in which the tufts are mounted. In most instances the staves are mounted upon a hexagonal bar through which a steel shaft extends, the bar and staves being made of wood, but such construction is heavy and not strong since the shaft diameter must be kept small. Moreover, it is difficult to properly place and hold the staves in position.

The primary object of the present invention is to provide a brush construction wherein the body or core of the brush is so formed as to cause the staves to be automatically aligned and positioned during the assembly of the brush.

Another object is to provide in a brush construction a body consisting of a metallic extrusion of such shape as to permit the ready assembling or disassembling of staves thereon and to place the material at points which will assure rigidity, balance and perfect alignment while, at the same time, greatly reduce the weight of the brush.

Another object is to provide in a brush construction having the above characteristics a hollow body formed from a metallic extrusion of such shape as to permit the staves to be interchangeable one with the other, a novel means for clamping the staves on the body of the brush.

A further object is to provide in a brush construction a hollow metallic extrusion forming the body of the brush whereby the brush may be any predetermined length without the necessity of joints, connections or the like.

An object of the invention, also, is to provide novel means for facilitating the connection of a brush roll with a driving means or trunnion.

The above and other objects will be made apparent throughout the further description of the invention when taken in connection with the accompanying drawings wherein like reference characters refer to like parts. It is to be distinctly understood that the drawings are not definitive

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of the invention, but merely illustrate one form by means of which the invention may be effectuated.

In the drawings:

Fig. 1 is a transverse section through a brush roll taken along the line I—I of Fig. 2.

Fig 2 is a sectional view taken along the line II—II of Fig. 1.

Referring to the drawings, 10 indicates the body or core of the brush, which core is preferably a metallic extrusion of aluminum alloy or similar suitable material. The body 10 is hollow and it may be square or polygonal in internal section. The body 10 has radially disposed V-shaped fins 11 or projections extending longitudinally of the body, preferably along longitudinally extending edges of adjacent faces of the body, evenly spaced apart and adapted to receive staves 12 therebetween. These staves carry tufts of brushes of hair, wire, synthetic fiber and other suitable material. The staves are beveled at 13 in order to fit snugly against the cooperating slanting sides 14 of the V-shaped fins 11. Oppositely disposed staves may be bolted or otherwise connected to the body 10 by means of a rod or bolt 15 extending through the oppositely disposed staves 12 and the body 10. The staves may be recessed as shown at 16 to provide sufficient room for threaded nuts 17 for engaging the cooperating threaded ends of the rod 15.

In the form shown, any one of the staves may be bolted to the stave positioned on the opposite side of the body 10. It would be obvious that by tightening the nuts 17 on the rod 15 the oppositely disposed staves will be drawn into wedging contact between the cooperating opposing faces of the fins 11. Any required number of rods or bolts may be employed for clamping the staves on to the body and the brush may be of any required length without the necessity of joints. The fins 11 are positioned to provide balance and perfect alignment as well as to assure strength, rigidity and prevent warping of the brush. It will be noted that the effective radius of gyration is high.

The shape and position of the fins 11 lend themselves readily for centering the staves and permit the use of bolts for clamping the oppositely disposed staves on to the body. The staves may be, as illustrated in the drawings, of substantially one-quarter circle in cross section each and interchangeable one with the other.

It is only necessary to detach the nuts 17 from the rods in order to replace or substitute staves having new bristles or those of different charac-

teristics whereby the brush may be used for different operations.

By providing the body of a metallic extrusion, the interior may be square or polygonal in shape and adapted to receive a fitting 18 in one end thereof, the fitting 18 being used to receive a corresponding fitting 19, carried by the drive shaft 21. The fitting 18 may be pressed into the square opening in the body 10 and can be readily removed and replaced when the fitting becomes worn from use.

At the other end of the metallic extrusion or body 10 a trunnion 22, having an enlarged square inner portion 23, is assembled within the end of the hollow extrusion by pressing the portion 23 into the cooperating end of the metallic extrusion. This permits the portion to be readily mounted for rotation in a simple effective manner. It is to be understood, however, that the interior of the body may be of any required shape to receive like-shaped fittings.

The present brush is of particular utility in such industries as textiles, vacuum cleaners, steel mills, rubber factories, bakery machinery, box makers, printing presses and particularly adapted for use in washing and polishing fruits and vegetables. It is to be understood that any type of bristles may be employed such as wire, nylon or the like. The staves may be readily removed and other staves containing bristles of different characteristics substituted.

While only one form of the invention has been illustrated and described, it will now be apparent to those skilled in the art that various changes, additions, omissions, substitutions and modifications may be made in the exemplary form shown without departing from the spirit and scope of the appended claims.

I claim:

1. A brush roll construction comprising: a hollow metallic body of polygonal cross section having outwardly directed, longitudinally extending, generally V-shaped fins extending from corners of the body and integral therewith; a longitudinally extending brush-carrying stave mounted between each pair of adjacent fins, each of said staves including inclined sides arranged to rest against opposing side faces of said fins; a bottom parallel to the intermediate outer surfaces of the body and a cylindrical outer surface provided with a plurality of closely adjacent brush tufts; and means for holding said staves against said faces and outer surfaces to provide a substantially continuous outer brush surface to the assembly.

2. A brush roll construction of the character stated in claim 1 wherein the metallic body is a hollow metallic extrusion of substantially square cross section, and said means for holding the staves comprising bolts extending through said hollow body.

3. A brush roll construction of the character stated in claim 1 wherein a removable mounting fitting is disposed within one end of the hollow body.

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