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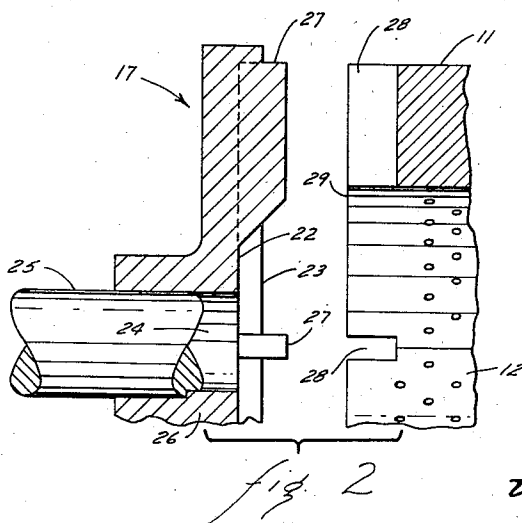
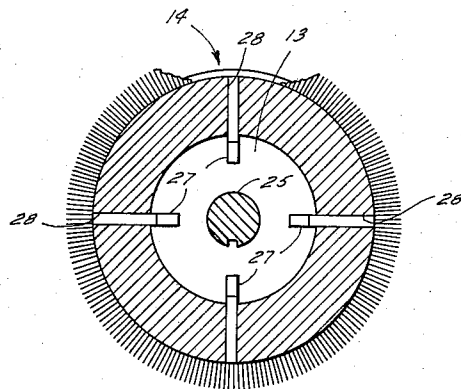
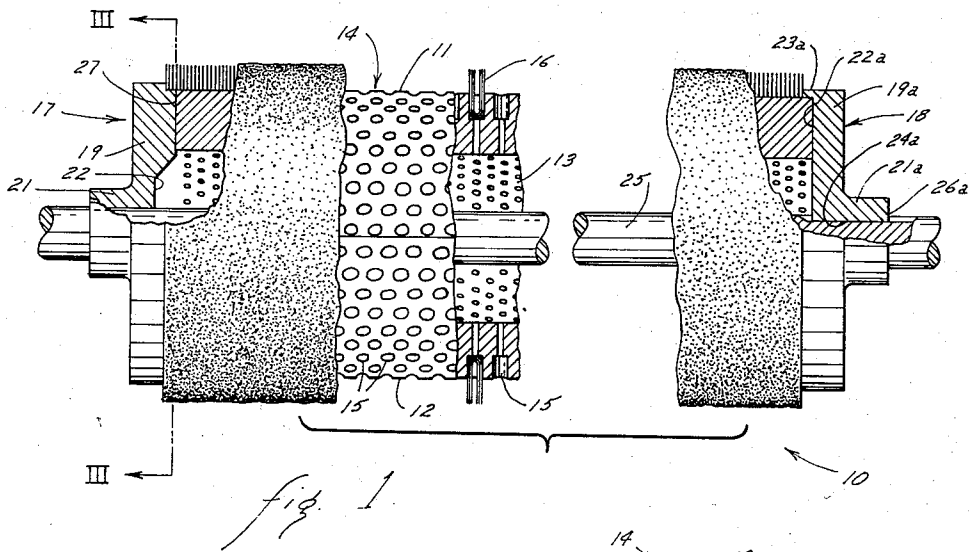
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2,885,705

CYLINDRICAL BRUSH ASSEMBLY

Filed Sept. 16, 1955

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

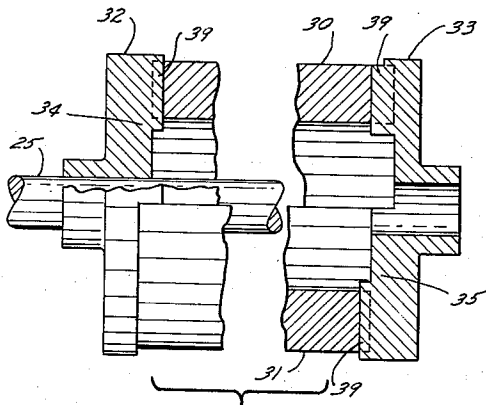


fig. 4

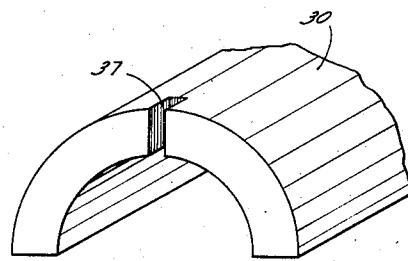


fig. 5

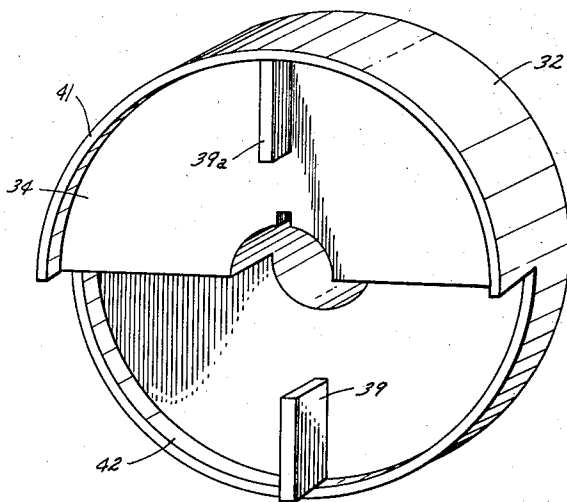


fig. 6

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CYLINDRICAL BRUSH ASSEMBLY

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1 Claim. (Cl. 15—179)

This invention relates in general to an assembly for a cylindrical brush and more particularly to a relatively large brush assembly which utilizes a bristle-supporting core divided into hemicylindrical sections.

It is common practice to divide the core of large cylindrical brushes into hemicylindrical sections and mount the bristles upon the core. It is necessary that suitable mechanism be provided for securing the two sections of said core together, as well as upon the shaft which supports and rotates the brush assembly. Such a mechanism must grip the sections firmly to prevent slippage thereof during rotation of the brush, but must be easy to remove when repairs are required.

Accordingly, a primary object of this invention is the provision of mechanism for securing the hemicylindrical sections of a large, cylindrical brush in position with respect to each other and for supporting the assembled brush upon a shaft for positive, non-slip rotation therewith.

A further object of this invention is the provision of a mechanism, as aforesaid, which is light in weight, simple to assemble and which can be easily disassembled to permit rapid removal of the brush sections for repair.

Other objects and purposes of this invention will become apparent to persons familiar with this type of equipment upon reading the following specification and examining the accompanying drawings, in which:

Figure 1 is a broken side elevation view of a cylindrical brush assembly embodying my invention, partially in central cross-section.

Figure 2 is an exploded fragment of Figure 1 shown in central cross-section.

Figure 3 is a sectional view taken along the line III—III of Figure 1.

Figure 4 is a broken side elevation view similar to Figure 1 showing a modification of the invention.

Figure 5 is an oblique view of the end portion of a hemicylindrical brush section for use with the modification.

Figure 6 is an oblique view of an end member for use with the modified form of the invention.

In meeting the objects and purposes set forth above as well as others related thereto, I provide a cylindrical brush assembly comprised of a pair of matched hemicylindrical brush sections engaged by and supported upon a pair of end members which are in turn mounted upon and rotatable with a shaft which extends through a co-axial opening in said brush.

For purposes of convenience in description, the terms "left," "right" and derivatives thereof will have reference to the brush assembly as appearing in Figure 1. The terms "inner," "outer" and derivatives thereof will have reference to the geometric center of the brush assembly and parts associated therewith.

Detailed construction

As shown in Figures 1 and 3, the brush assembly 10 includes a pair of matched, substantially identical hemi-

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cylindrical brush sections 11 and 12 which may be substantially conventional in construction. Each of said brush sections is provided with a lengthwise hemicylindrical recess, which recesses mate to define a cylindrical co-axial passageway 13 through the brush core 14 when the two sections 11 and 12 are placed together in operating position. The brush core 14 is provided with a plurality of radially disposed brush bristles openings 15, also in a substantially conventional manner, into which the bristles 16 are received.

The end members 17 and 18, which are mirror images of each other, are each comprised of a circular end plate 19 having a co-axial integral hub 21 extending from one side thereof. Since, in this embodiment, the end members 17 and 18 are identical, corresponding parts of the right end member 18 will carry the same numeral as the related parts on the leftward end member 17 with the addition of a suffix "a". The inner, opposing faces 22 and 22a of the end plates 19 and 19a, respectively are provided with co-axial annular rings 23 and 23a adjacent their respective peripheries, which rings extend toward each other. Each end member is provided with a co-axial shaft opening 24 and 24a through which the shaft 25 is slidably received. Suitable means, such as the key 26 and 26a are provided for securing each said end member upon the shaft 25, in a substantially conventional manner.

A plurality, here four, of impelling bars 27 are integral with, radially disposed upon and equi-distantly spaced about the faces of said end plates. The bars 27 extend radially from near said shaft opening 24 to the annular ring 23 (Figure 2) and extend axially inwardly further than said annular ring 23. Both ends of the brush core 14 are provided with a plurality, here four, of radially disposed bar slots 28. Said bar slots are equi-distantly spaced about the end of said brush core and of such size and shape as to snugly receive the full extent of the impelling bars 27 (Figure 2) when the end 29 of the core is abutting the inner face 22 of the adjacent end plate 19. In this position of the end plate, the annular ring 23 snugly embraces the adjacent portion of the periphery of the brush core 14, thereby holding the brush sections 11 and 12 in operating position with respect to each other. The bar slots 28 preferably but not necessarily extend from the passageway 13 through to the outer periphery of the brush core 14. In the interest of greater strength and ease of assembly, two of the four slots at each end of the brush core 14 are disposed at the junction of the brush sections as shown in Figure 2.

Operation

As evident from the above description, the brush assembly 10 is assembled by placing the end members 17 and 18 upon the shaft 25 so that their inner faces 22 and 22a are facing each other, and the impelling bars on each respective end member extend toward each other. A pair of cooperating brush sections 11 and 12 with the bristle tufts in place are then placed in position between the end members 17 and 18 so that said shaft 25 extends through the passageway 13 in the brush core 14. The passageway is somewhat larger in diameter than the shaft 25 to prevent any interference therebetween, and to assure a proper union of the brush sections 11 and 12. The end members 17 and 18 are then moved toward each other until their faces snugly engage the corresponding ends 29 of the brush core 14. In this position of the end plates the bars 27 will be snugly received into the bar slots 28 and the periphery of the core adjacent its ends will be snugly embraced by the corresponding annular rings 23 and 23a. The brush assembly is now ready for operation.

When it becomes necessary to remove the brush sections 11 and 12 for repairs, such as the replacement of one of the bristle tufts 16, the end members 17 and 18

are slid apart upon the shaft 25 so that brush sections can be easily removed. It will be observed that such removal of the brush sections 11 and 12 does not require the disengagement of the shaft 25 from its mountings as would be required if the end members 17 and 18 were secured to the brush sections and had to be removed therewith.

Modification

Figures 4, 5 and 6 show a modified form of the brush construction which is particularly useful for commercial automobile washing purposes. This modified form employs a pair of hemicylindrical brush sections 30, 31 which are provided as in the previously discussed embodiment with bristles and bristle receiving recesses (not shown). The brush sections 30 and 31 are similar to the brush sections in the previously described embodiment but in their assembled position the respective ends of each brush section are offset from the corresponding end on the other brush section. Thus, the ends of brush section 31 are positioned leftwardly as appearing in Figure 4 of the corresponding ends of brush section 30.

End members 32 and 33 are similar to the end members previously described but are formed so that one half thereof is raised relative to the other half so that the end members can engage and maintain the brush sections in their longitudinally offset relationship. Thus, raised semi-circular portions 34 and 35 are provided on opposite halves of the end members 32 and 33, respectively, to engage the ends of the brush sections and provided the desired offset mounting thereof. Semi-circular flanges 41 and 42 are formed on each half of the end members and extend inwardly to encircle the ends of the brush sections as in the previously disclosed embodiment.

The brush sections are each provided with a bar slot 37 intermediate the circumferential ends thereof (Figure 5). A pair of impelling bars 39 and 39a are integral with and radially disposed upon the faces of the end members. The impelling bar 39a is on the raised semi-circular portion of the end member and extends inwardly therefrom such that its inward edge is flush with the flange formed on the end member. The impelling bar 39 extends inwardly of the flange as in the previously described embodiment. The impelling bars fit in the slots 37 in the brush sections and the flanges encircle the brush sections as in the previously described embodiment.

Although particular, preferred embodiments of my in-

vention have been described above for illustrative purposes, it will be understood that variations or modifications thereof within the scope of such disclosure are fully contemplated unless specifically stated to the contrary in the appended claim.

I claim:

A cylindrical brush assembly comprising: a shaft; a pair of circular end plates each having a co-axial, circular opening through which said shaft extends, said plates having parallel opposing faces of equal diameter; a co-axial, annular ring integral with, and extending away from, the said opposing face of each plate adjacent to the periphery thereof; a plurality of equidistant, radially disposed bars integral with said opposing face of each plate, said bars extending radially from near said opening to said ring and extending axially and uniformly from said face a greater distance than said ring; a co-axial hub integral with each said plate remote from said face; means for positively, yet releasably, securing said hubs upon said shaft between its ends; a pair of hemicylindrical brush sections arranged in a cylinder having a co-axial opening through which said shaft is freely receivable, and from which said shaft is radially spaced at all points, said brush sections being of substantially the same radial thickness as said bars, the axial ends of said cylinder being snugly receivable within said ring, said end plates being at the extreme axial ends of said cylinder and providing the only support of said cylinder upon said shaft; means defining a plurality of equi-distant, radially disposed slots in both ends of said cylinder and equal in number to the number of bars for snugly receiving the full extent of said bars, two of said plurality of slots being disposed at the junctions of said sections, and all of said slots extending from the radially inner surface to the radially outer surface of said cylinder

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