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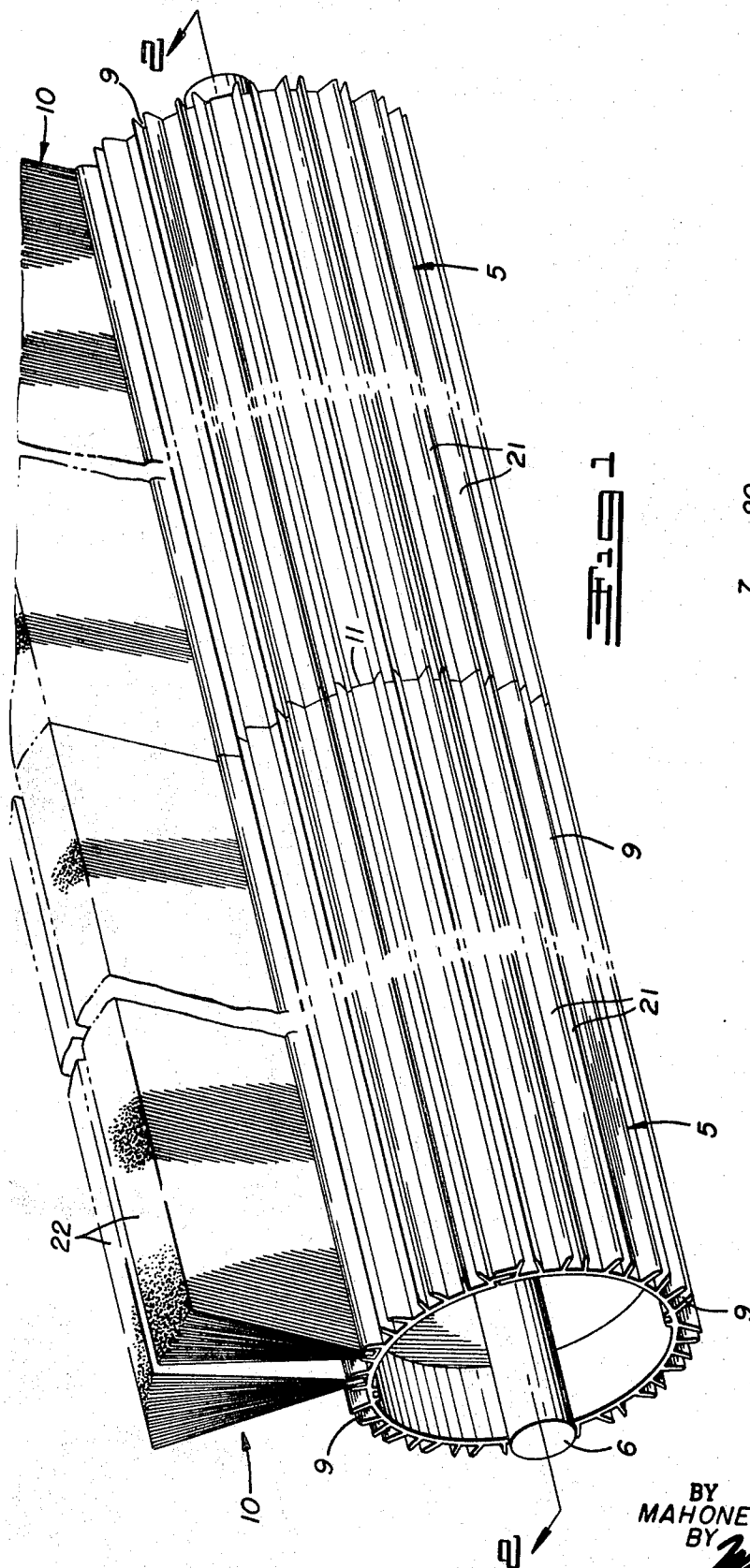
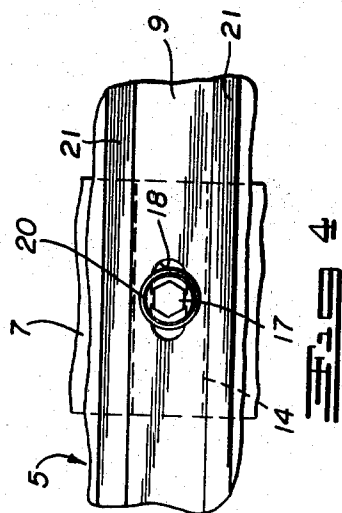
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SEGMENTAL CYLINDRICAL BRUSH ASSEMBLY

Filed Aug. 21, 1968

2 Sheets-Sheet 1



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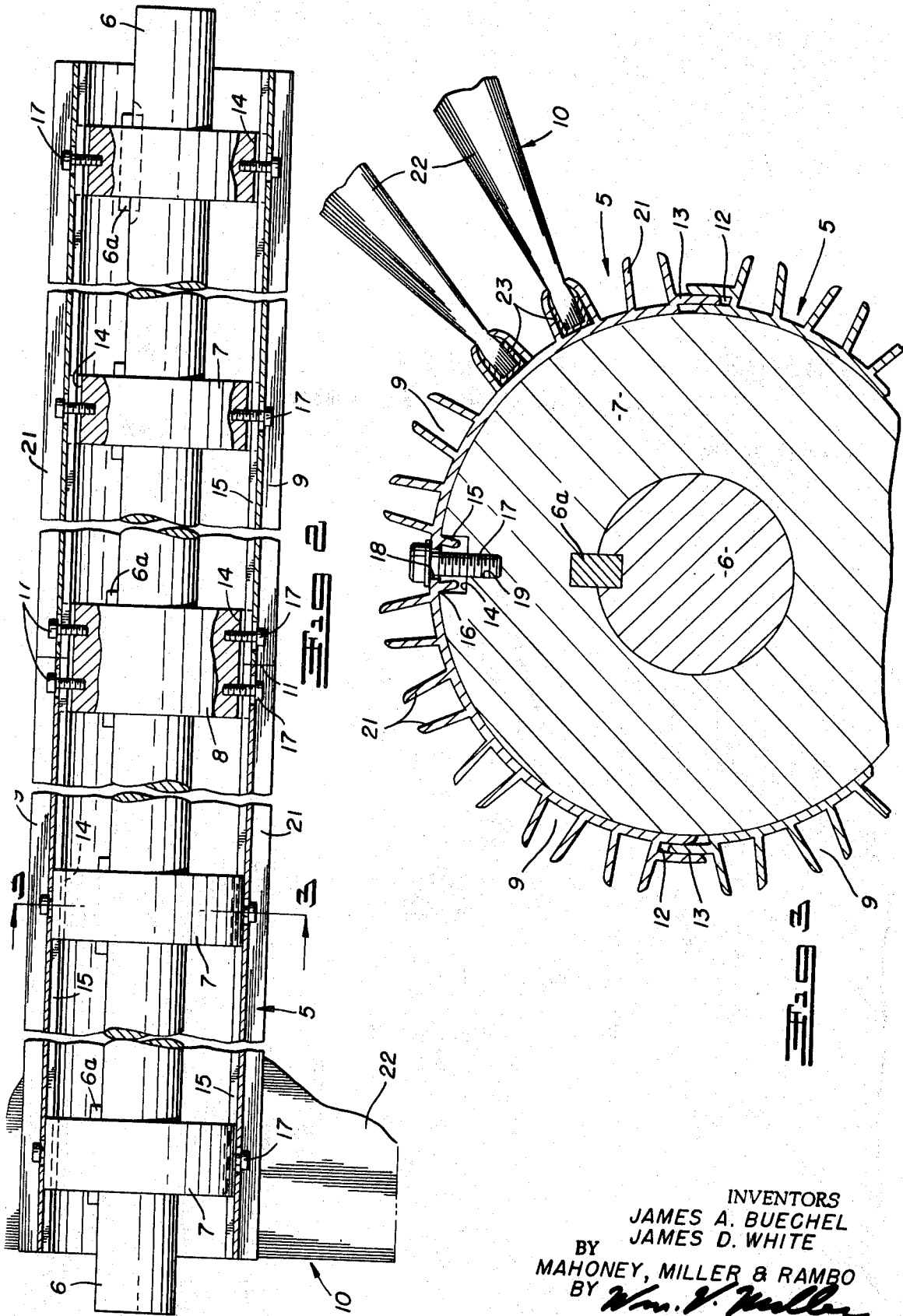
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SEGMENTAL CYLINDRICAL BRUSH ASSEMBLY
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3 Claims

ABSTRACT OF THE DISCLOSURE

A heavy duty brush assembly having readily replaceable segmental semicylindrical bristle carrying sections adapted to be removably attached to hubs keyed on a suitable drive shaft. The sections are mounted in pairs in suitable numbers axially of the shaft and having interengaging or interlocking longitudinally extending adjacent edges so that two opposed segmental sections embrace the hubs carried by the shaft. Suitable means is provided for removably attaching the segmental sections to the hubs so that they can be easily removed therefrom, after the bristles they carry become worn, and be replaced with other segmental sections carrying new unworn bristles.

This invention provides a brush assembly of the type indicated in which the hubs may be one-piece for better balance and the semicylindrical segmental bristle-carrying shell-like sections may be identical extrusions of metal, preferably aluminum, to facilitate manufacture thereof at low cost. Each segmental shell section has longitudinally extending ribs on its outer surface angularly spaced to provide outwardly opening channels adapted to receive brush strips which include support strips carrying bristles, the strips being held in the channels merely by crimping the external ribs thereover. The pairs of opposed segmental shell sections embrace the hubs and have their adjacent edges interfit for alignment. Simple fastening means, such as bolts, are extended through the shell sections into the hubs to hold them firmly but removably on the hubs.

In the accompanying drawings, a preferred embodiment of this invention is illustrated and in these drawings: FIG. 1 is a perspective view of a brush assembly embodying the present invention.

FIG. 2 is an axial sectional view taken along line 2—2 of FIG. 1.

FIG. 3 is an enlarged transverse sectional view taken along line 3—3 of FIG. 2.

FIG. 4 is a detail in elevation of the fastening means for the segmental shell sections.

With reference to the drawings, the segmental cylindrical brush assembly is illustrated generally in FIG. 1 as comprising pairs of opposed semicylindrical segmental metal shell sections, indicated by the numeral 5, which are disposed in embracing relationship to a mounting and drive shaft 6. For mounting the shell sections on the shaft, as indicated in FIG. 2, single width hubs 7 are keyed on the shaft 6 and are spaced axially thereof within each pair of opposed shell sections and a double width hub 8 is provided at the adjacent ends of axially adjoining pairs of shell sections. The shell sections have outwardly extending channels 9 which receive and hold the brush strips 10. The pairs of segmental shell sections 5 are used in any desired numbers contiguously axially along the shaft 6, contacting along one or more annular joints 11, the number of pairs depending on the length of the shaft or desired total length of the cylindrical brush. It will be noted from FIG. 1 that the channels 9 of the axially disposed sections 5 are in alignment.

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The shaft 6 may be of steel and will be mounted on the sweeper machine and be driven in a suitable manner. The hubs 7 and 8 will also preferably be steel and be in one-piece cylindrical form. As previously indicated, the hub 8, shown at the midpoint of FIG. 2, is twice the width or axial extent of the hub 7. Each hub is keyed in a fixed angular and axial position on the shaft 6 by means of a suitable key 6a, as indicated in FIG. 3.

The opposed segmental sections 5 of each pair are identical. This will facilitate manufacture and decrease cost and they are preferably formed from a single integral extrusion of aluminum, being severed into desired lengths from the extruded strip. Each section, as indicated, is of semicylindrical shape having a groove formation 12 on one of its longitudinal edges and a tongue formation 13 on its other longitudinal edge. When assembled around in the hubs on the shaft, the opposed longitudinal edges of the sections meet and the tongue 13 of one section extends into the groove 12 of the adjacent section. Thus, there is a tongue and groove interfit at each of the diametrically opposed joints provided at the meeting edges of the pairs of sections 5.

To hold each pair of sections 5 in interfitting relationship around the hubs 7 and 8 and to prevent axial movement thereon relative to the shaft 6, a bolt and slot arrangement is provided. Also, associated locking means is provided for preventing angular or rotative shifting of the interfitting sections relative to the hubs. It will be noted from FIG. 3 that each hub is provided with an outwardly opening longitudinally extending locating and locking groove 14 in its periphery. Each section 5 is provided on its inner curved surface midway of its longitudinal edges, with a pair of inwardly extending locking ribs 15 which extend longitudinally in parallel spaced relationship. Each rib is so disposed as to engage the outer corner 16 at each edge of the groove to accurately locate the section 5 angularly around the hub. It will be noted that the ribs 15 are not exactly radially disposed but converge slightly so as to more effectively slip and guide into the groove 14, it being understood that at the same time the longitudinal edges of opposed sections of a pair will be guided into interfitting relationship. To hold the opposed sections 5 in this interfitting relationship, the clamping bolts 17 are provided with each bolt passing through a slot 18 in the shell and extending longitudinally thereof, as shown in FIG. 4. Each bolt extends into a tapped socket 19 extending inwardly into the hub at the bottom or inner side of the groove 14. A washer 20 may be provided at the outer side of the slot 18 beneath the head of the bolt. It will be noted from FIG. 2 that two sets of bolts 17 are provided in cooperation with the middle hub 8.

The channels 9 on the shell sections 5 are formed by the production of the outwardly extending longitudinal ribs 21 which are an integral part of the extruded shell. These ribs 21 are spaced angularly around the shell and are disposed in longitudinally parallel but laterally converging relationship. Each channel 9 is adapted to receive a suitable length of brush strip 10 which consists of the outwardly extending longitudinal rows of bristles 22 suitably retained in a lightweight metal channel 23 also preferably of aluminum. To retain the brush strips 10 in the channels 9, it is merely necessary to crimp the opposed ribs 21 of each pair over the associated channels 23 at suitable longitudinal intervals.

It will be apparent from the above that the brush-carrying shell sections 5 can be readily mounted on the shaft 6 or be removed therefrom for replacement with ease. When the sections are mounted on the hubs which are supported on the shaft, they not only interfit with each other at their adjacent longitudinal edges but are

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locked from angular movement about the axis of the shaft. The shell sections can be made economically since they can be made from a single extrusion. The brush strips 10 can be easily mounted in the channels 9 of the shell sections by a simple crimping operation. With this shell structure it is possible to use one-piece hub members which will provide better balance than split hubs and associated clamps as used in the prior art.

Many advantages have been discussed and many others will be apparent.

Having thus described this invention, what is claimed is:

1. A brush assembly comprising a supporting shaft, a pair of identical semicylindrical, brush-carrying shell sections mounted in opposed relationship around said shaft and having longitudinally extending adjacent edges, said edges being provided with interfitting joint portions and comprising a tongue on the edge of one shell section and a groove on the edge of the other section, each section having a groove on one of its edges and a tongue on its other edge, said sections being reversed axially so as to provide the interfitting portions at the adjacent longitudinal edges of the respective sections, means for mounting the sections on the shaft, said means comprising hubs fitted on the shaft, and means for fastening the opposed sections to the hubs with their adjacent longitudinal edges in interfitting relationship and including interfitting locking means between each of said shell sections and the

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associated hub to prevent angular movement of the respective sections on the hub, said interfitting locking means including an outwardly opening, longitudinally extending groove having opposed walls with outer corners in the hub and a pair of inwardly projecting, and inwardly converging, extending ribs on each shell section intermediate its longitudinal edges for projecting into the groove and engaging said outer corners.

2. A brush assembly according to claim 1 in which said fastening means includes a clamping bolt extending through a slot in said shell section and threaded into a socket tapped into the inner side of said groove.

3. A brush assembly according to claim 1 wherein each of said shell sections is provided with pairs of outwardly-extending, channel-forming ribs disposed angularly of the exterior of the section, and brush strips disposed in said channels and held therein by crimped portions of the ribs.

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PETER FELDMAN, Primary Examiner