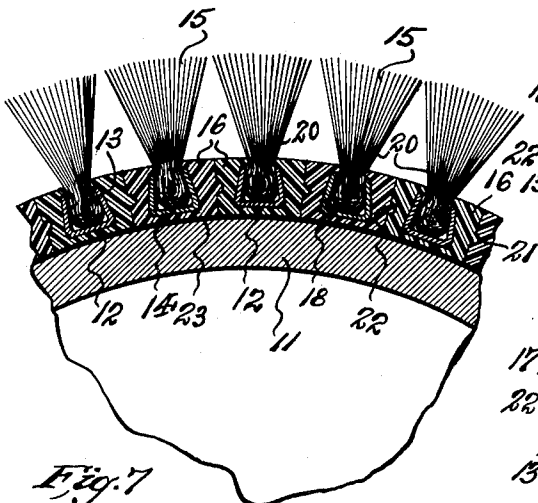
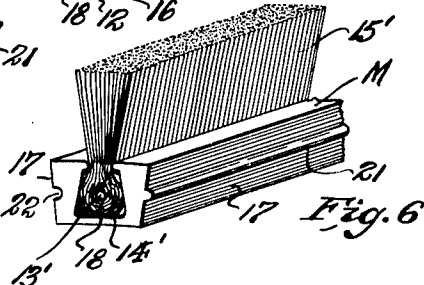
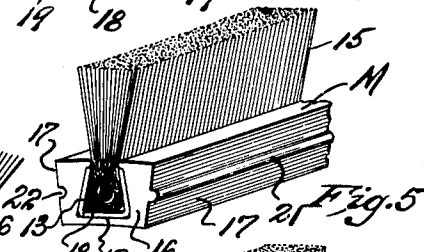
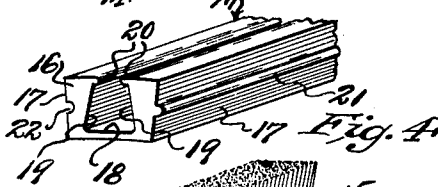
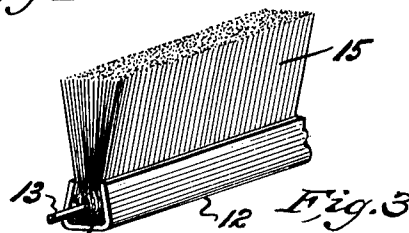
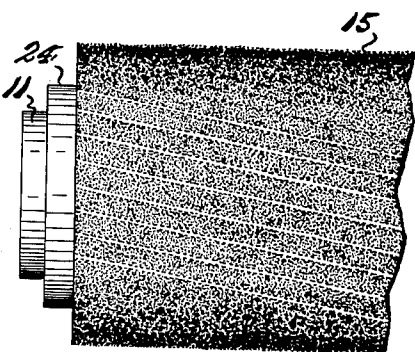
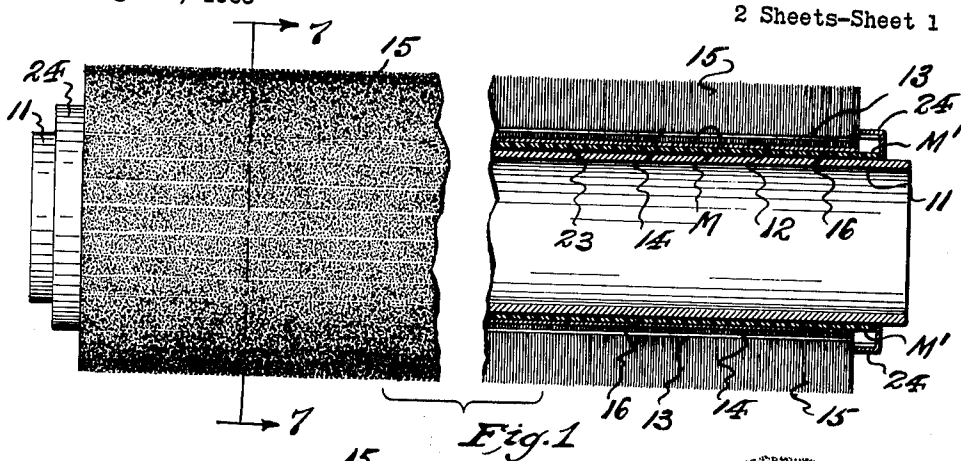


Aug. 17, 1965

E. F. HARACZ
ROTARY BRUSH ROLL

3,200,430

Filed Aug. 22, 1963



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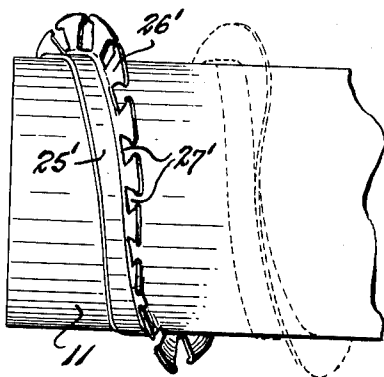
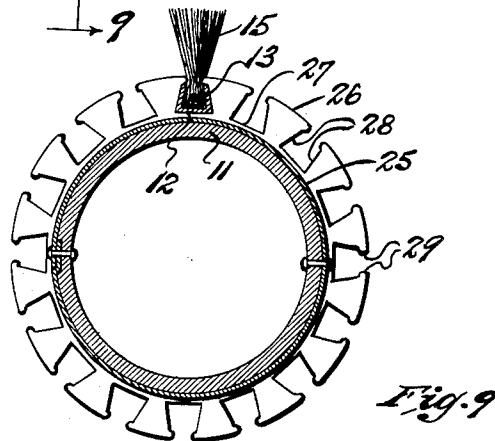
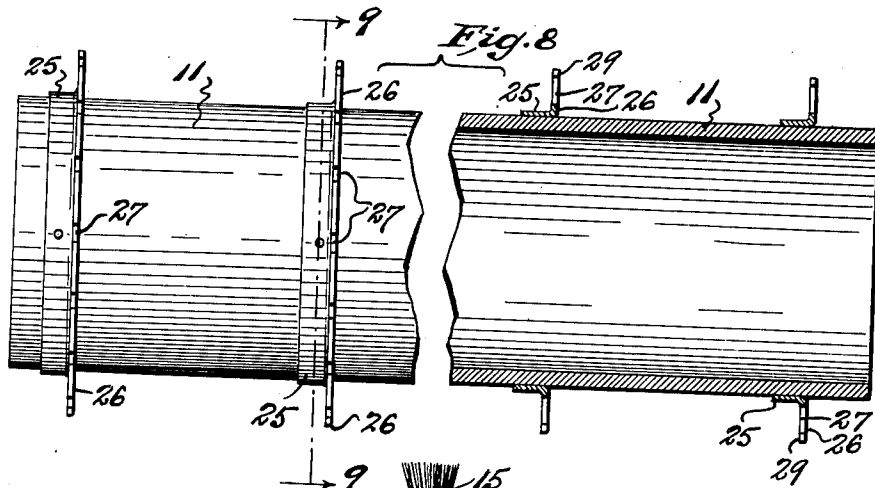
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ROTARY BRUSH ROLL

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2 Sheets-Sheet 2



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3,200,430

ROTARY BRUSH ROLL

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Filed Aug. 22, 1963, Ser. No. 303,772

4 Claims. (Cl. 15—183)

This invention relates to improvements in rotary brush rolls adapted to be mounted in connection with actuating mechanisms and, as so actuated, being adapted to effect various desired purposes. For example, the rotary brush rolls, according to this invention, are especially well adapted for use in dulling machines, wherein one or more of said brush rolls are caused to brush against glass, aluminum, decorative plastics, or other materials opposed thereto by fixed anvil rollers.

This invention has for an object to provide a construction of a rotary brush roll having novel means firmly and securely to support, upon and around its circumferential surface, a plurality of radial brush bristle units of a known standard conventional type.

More particularly, a further object of this invention is to provide a brush roll of novel construction which is adapted to be produced from such inexpensive materials that, when so worn in use as to require replacement, the brush roll as a whole is expendable, i.e. may be economically removed in its entirety from its actuating mechanism and thrown away, subject to replacement by a new brush roll of like character, rather than removing the brush roll structure from the operating mechanism and then dismantling the same, and thereupon merely replacing the bristle brush units thereof; all of which requires much expenditure of time and labor, and consequent long interruption of use of the mechanism by which the brush roll structure is actuated.

The above stated and other objects will become apparent from a reading of the following description of illustrative embodiments of this invention in connection with the accompanying drawings thereof, in which drawings:

FIG. 1 is a side elevational and part longitudinal sectional view of one embodiment of a brush roll according to this invention, with the brush bristle units mounted to extend parallel to the axis of the same;

FIG. 2 is a fragmentary side elevational view of the brush roll, with the brush bristle units mounted in spiral or diagonal relation to the axis of the same;

FIG. 3 is a fragmentary end view, in perspective, of a brush bristle unit employed in a brush roll structure according to this invention;

FIG. 4 is a fragmentary end view, in perspective, of one form of a brush bristle mounting member of the brush roll structure;

FIG. 5 is a fragmentary end view, in perspective, of the brush bristle mounting member of FIG. 4 having a brush bristle unit of FIG. 3 assembled therewith and supported thereby;

FIG. 6 is a fragmentary end view, in perspective, of the brush bristle mounting member with a modified arrangement of brush bristle unit assembled therewith;

FIG. 7 is an enlarged fragmentary cross-sectional view of the brush roll of FIG. 1, taken on line 7—7 in said FIG. 1;

FIG. 8 is a side elevational view, in part longitudinal section, showing a modified form of brush bristle unit mounting means of a brush roll structure within the scope of this invention, the brush bristle units being omitted;

FIG. 9 is a cross-sectional view of the same, taken on line 9—9 in FIG. 8, and showing one brush bristle unit in place; and

FIG. 10 is a fragmentary side elevational view of a further modified form of brush bristle mounting means

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of a brush roll structure within the scope of this invention, the brush bristle units being omitted.

Like characters of reference are applied in the several views above described to indicate corresponding parts of the brush roll structure of this invention.

Referring first to FIGS. 1 to 7, inclusive, of the drawings, one embodiment of a brush roll according to this invention as shown therein, and of an expendable or throw-away type, comprises a cylindrical tubular core 11 having open ends, the same being preferably made of paper or other inexpensive material. A plurality of circumferentially spaced longitudinally extending brush bristle units are adapted to be mounted upon and around the external surface of the core 11, with their bristles projecting radially therefrom. Said units are supported by mounting members which are affixed to said core, all as hereinafter more particularly described. The mounted brush bristle units may extend endwise parallel to the axis of the core 11 (as shown in FIG. 1), or in spiral or diagonal relation to the axis of said core (as shown in FIG. 2), the latter arrangement being preferable for many uses of the brush roll in practice.

A known and conventional form of commercially available brush bristle unit, suitable for use in the production of a brush roll according to this invention, is shown in FIG. 3. This brush bristle unit comprises a bristle holder provided by a backing member 12 of suitable length and of U-shape in cross-section, thus providing an upwardly or outwardly open channeled formation, made of metal or other suitable rigid material. Extending longitudinally through the interior of the backing member 12 is a binder wire 13. Brush bristles 14 are folded around the binder wire 13 within the interior of the backing member 12, with the free end portions 15 thereof projecting outwardly through the open top of the latter. The side walls of the backing member are bent inwardly, one toward the other, thereby to grip the bristle folds, and thus to secure the bristles against outward escape or displacement from the backing member.

The mounting members M, as shown more particularly in FIG. 4, each comprise a longitudinal body portion 16 which is, preferably, laterally tapered from its outer top surface toward its inner bottom surface, thereby to provide inclined side surfaces 17. Extending longitudinally through the body portion 16 is an outwardly open channel 18 having convergent inclined sides 19. This channel 18 is sized to conform in cross-sectional shape to the cross-sectional shape of a backing member 12 of a brush bristle unit, so that the latter can be slid endwise into and through said channel 18, whereby to seat said unit therein in retained assembled relation to the mounting member, as shown in FIG. 5. Further to secure the unit against outward or radial displacement from the mounting member M, the outer marginal edge of the channel sides 19 terminate in inwardly projecting retaining ribs 20 which overhang the free edges of the side walls of the backing member 12 of the brush bristle unit, when the latter is assembled within the mounting member. For purposes later herein to be described, one exterior side of the body portion 16 of the mounting member is provided with a longitudinally extending, outwardly projecting interlocking tongue 21, and the opposite exterior side of the body portion 16 is provided with an indenting interlock groove 22, which conforms to and receives the interlocking tongue of an adjoining mounting member, when said mounting members are assembled in side by side relation upon and around a brush roll core 11, as will subsequently be described. At least the bottom surface of the body portion 16 of each mounting member M is preferably concavely curved transversely so as to conform to the curvature of the external surface of

the brush roll core 11, when the mounting members are attached thereto.

The mounting members M may be and are preferably formed by extending the material thereof through a shaping die. Ordinarily, said mounting members are provided in suitable lengths from relatively inexpensive material, such e.g. as plastic material, aluminum, or the like.

It may here be pointed out that the brush bristle unit may be modified to omit the backing member 12 so as to comprise a brush bristle fold 14' around a binder wire 13', and adapted to be directly enclosed and bound within the channel 18 of the body portion 16 of a mounting member M, with the free end portions 15' of the bristles projecting radially outward from the top of the mounting member (see FIG. 6).

Although the mounting members as shown are each provided with a single channel 18 for reception of a brush bristle unit, it will be understood that said mounting members may, if desired, be of such width as to provide more than one brush bristle unit seating channel 18.

To assemble the brush bristle unit equipped mounting members M with the brush roll core 11, said mounting members (as shown in FIGS. 1, 2, and 7) are arranged side by side around said core in longitudinal extension therealong. Any suitable means can be used to secure the mounting members in place upon said core. A suitable method of so securing the mounting members is by means of an intervening coating or layer 23 of a suitable high strength adhesive of cement, such e.g. as an epoxy resin (see FIG. 7). In the side by side disposition and assembly of the mounting members, when the latter are provided with interlocking tongues 21 and grooves 22, the tongue and groove elements engage between adjoining mounting members, thus interlocking the same together against outward radial displacement from the core 11, in the event of failure at any point of the adhesive bond between said mounting members M and brush roll core 11.

As shown in FIG. 1, the mounting members M can be provided in length exceeding the lengths of the contained brush bristle units, whereby to provide end portions M' extending beyond the ends of the contained brush bristle units. In such case, annular end collars or caps 24 can be affixed to the core 11 so as to embrace said end portions M', whereby further to secure the mounting members in assembled relation to the core 11, while at the same time abutting the ends of the contained brush bristle units so as to hold the latter against longitudinal shift or displacement relative to said mounting members.

Referring now to FIGS. 8 and 9, a modified construction of a brush roll, within the scope of this invention, is shown therein, the same being well adapted to provide an expendable or throw-away type thereof, which can, in its entirety, be conveniently and economically discarded, when so worn as to terminate its useful life. This modified brush roll structure also comprises the tubular cylindrical core 11 having open ends and adapted to be produced from paper or other relatively inexpensive material. The core 11, in this case, is provided with modified means for mounting the brush bristle units thereupon, the same comprising annular holder members adapted to be stamped out of sheet metal or other appropriate material. This modified holding means is formed to provide an annular base flange 25 having a radially projecting mounting flange 26 at a right angle thereto. The outer marginal portions of said mounting flange 26 are indexed by circumferentially spaced apart, outwardly open U-shaped slots 27, having convergent sides 28 and a size to conform in cross-sectional shape to the cross-sectional shape of a backing member 12 of a brush bristle unit. The outer ends of the slot sides 28 terminate in inwardly projecting keeper lugs 29 adapted to overhang the free edges of the side walls of the backing member 12 of an entered brush bristle unit, whereby to retain the latter against outward radial displacement.

A plurality of the above described annular holder members 25-26 are mounted on and around the core 11, in suitably longitudinally-spaced apart relation, with their base flanges riveted, cemented or otherwise affixed to the external surface of said core 11, and with their slots 27 in more or less longitudinal alignment. When so mounted on the core 11, brush bristle units can be longitudinally slid into place through the aligned slots 27 of said holder members, so that their bristles project radially from the external circumference of the supporting core 11 (see FIG. 8).

Referring to FIG. 10, a further modification of the above described brush bristle unit mounting means is shown, wherein the base flange 25' and the holding flange 26' thereof are formed as a continuous element or strip adapted to be spirally wound around and secured to the core 11, with the slots or openings 27' of the convolutions thereof longitudinally aligned for the lengthwise reception and support of the brush bristle units therebetween.

The above described forms of brush roll construction are designed to provide an expendable or throw-away type of brush roll, and one such as will be adapted removably to be attached to actuating mechanism by the means and in the manner disclosed in my co-pending patent application, Ser. No. 216,837, filed August 14, 1962.

Although, so far as the brush bristle unit mounting means is concerned, the same are primarily designed for use in an inexpensive expendable or throw-away type of brush roll, it will, nevertheless, be understood that the described mounting means can be advantageously used in permanent types of brush rolls by applying the same to permanent mandrels, shafts or brush base cylinders of a machine desired to be equipped with brush rolls.

Although my invention has been illustrated and above described with respect to specific embodiments thereof, it will, nevertheless, be understood that it is intended to cover all changes and modifications of the embodiments shown which do not constitute departures from the spirit and scope of the appended claims.

I claim:

1. A brush roll comprising a cylindrical core, a plurality of longitudinal brush units each comprising a backing member having a generally U-shaped cross-section and a folding bristle assembly having its fold imbedded and secured in the packing member with the bristles projecting radially therefrom, and a plurality of longitudinally extending brush unit mounting members having a polygonal cross-section comprising a base, a top wider than said base, and at least two intermediate sides inclined inwardly from said top toward said base, each of said mounting members having at least one outwardly open channel of generally U-shaped cross-section extending longitudinally therethrough, said channel being adapted to receive and hold the backing members of the longitudinally extending brush units with the brush portions extending through said channel, said mounting members being secured to and around the external surface of said core in contiguous side by side relation with the base of the polygonal cross-section of each mounting member adjacent said core and with the inclined sides of adjacent mounting members in contact, whereby said longitudinally extending brush units are disposed in circumferentially spaced relation around the core with the brush portions thereof extending radially outward.

2. A brush roll according to claim 1, wherein the core is of tubular open ended formation.

3. A brush roll according to claim 2, wherein the mounting members exceed in length the lengths of their contained brush units, whereby to provide exposed free end portions of said mounting members, and annular caps affixed to the core in embracing relation to said free end portions of the mounting members and in abutting relation to the ends of brush units contained in said mounting members.

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4. A brush roll comprising a cylindrical tubular core having open ends, a plurality of longitudinal brush units, each brush unit comprising a backing member of substantially U-shape in cross-section and a folded bristle assembly having its fold imbedded and secured in the backing member with the bristles projecting radially therefrom, a brush unit mounting means comprising an elongated holder formation provided with a base flange and a radially projecting mounting flange, said base flange being spirally wound around and secured to said core, said mounting flange having openings to receive the backing members of longitudinally extending brush units, whereby to dispose said units in circumferentially spaced relation around the core, and means cooperative with said openings operative to prevent radial displacement of said brush unit backing members therefrom.

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CHARLES A. WILLMUTH, *Primary Examiner.*

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,200,430

August 17, 1965

Edward F. Haracz

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 46, for "packing" read -- backing --.

Signed and sealed this 19th day of April 1966.

(SEAL)

Attest:

ERNEST W. SWIDER

Attesting Officer

EDWARD J. BRENNER

Commissioner of Patents