

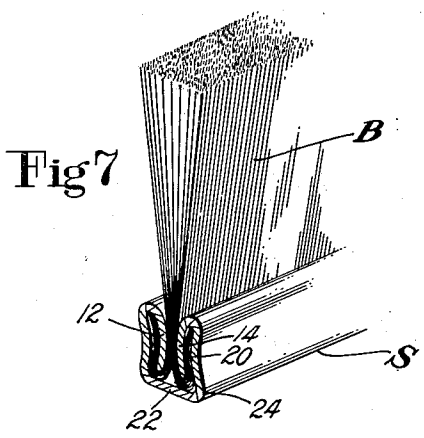
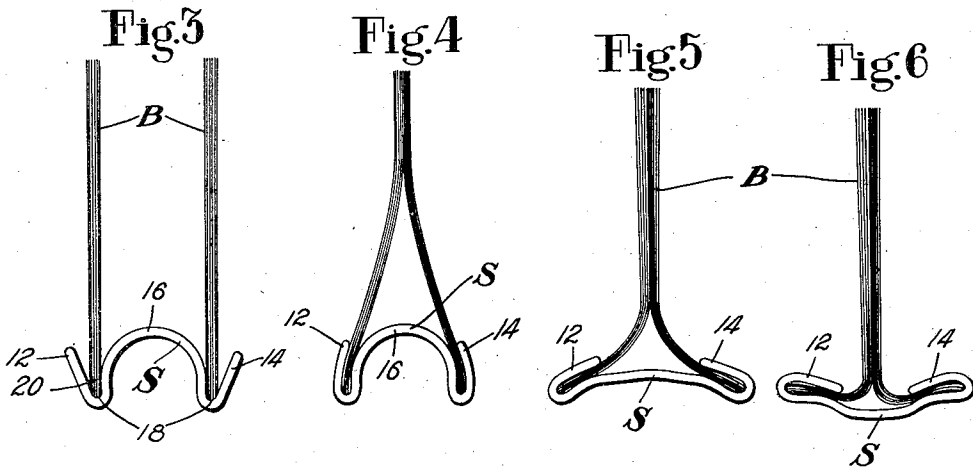
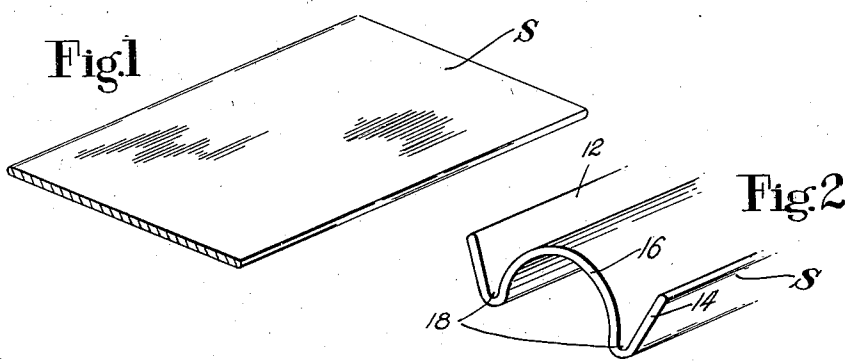
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BRUSH STRIP

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BRUSH STRIP

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This invention relates to brushes formed as elongated strips which may be shaped as desired or wound upon a hub and is herein shown as embodied in a strip brush of the type which is self-sustaining.

It has long been common to provide strips of brush material of indefinite length which can be stored and from which sections can be removed to make up brushes of various types, shaped according to the ultimate purpose for which they are to be employed. In the making of rotary brushes in which this strip material is wound edgewise about a core, the rows of bristles are commonly retained between paper or cloth strips by adhesive, stitching or the like and, after the strip material has been assembled upon the core, it is clamped between end flanges to hold it in radial relation to the brush core. In other instances, in which backing strips of self-sustaining material, such as malleable metal, are employed, it is not always necessary to provide a supporting member other than the backing strip itself.

One important requirement of such brush strips is that the individual bristles shall be tightly held by the backing strip so that they will not become loosened in use. Still another important requirement is that the portions of the bristles extending outwardly from the backing strip shall be able to "breathe" freely by having an opportunity to slightly interchange their individual positions without becoming radically displaced with respect to the backing strip. Still another desirable feature is the protection of the bristles from undue crystallization at one point in their lengths, in the case of wire bristles, or wear at one point by contact with the edges of the backing strip as will be the case where the flexing of the bristle takes place always about a fixed point and where no provision is made for smoothing the edge of the strip to prevent cutting the bristles.

With these features in mind, an important object of the invention is to provide an improved brush construction embodying one or more of these various desirable features and which at the same time may be made quickly and cheaply.

In accordance with this object, the illustrated construction embodies a self-sustaining backing strip having its margins intumed to grip respectively against the adjacent portions of the strip the inner ends of two rows of bristles. This strip has a channel-shaped cross section, and another portion of the bristles extending outwardly of the channel is gripped between the opposed faces

of the intumed margins and is capable of flexing across the rounded edges of the channel provided thereby.

From another viewpoint, the invention resides in an improved method of making a brush strip in accordance with which one margin of a strip is intumed and a row of bristles is gripped beneath said margin. The other margin of the strip having been intumed to provide a rounded edge, the strip is then bent to form a channel and to bring the intumed margins against the row of bristles thereby again to grip them with the bristles extending outwardly from the channel. Preferably, and as illustrated, two rows of bristles are employed, the inner ends of which are clamped beneath the respective intumed margins of the strip.

In accordance with these and other aspects of the invention, a typical brush strip will be described in the following specification and shown in the accompanying drawing, in which

Fig. 1 shows a flat backing strip;

Fig. 2 shows the strip after its preliminary bending to provide marginal grooves;

Fig. 3 shows the insertion of rows of bristles in the marginal grooves;

Figs. 4, 5 and 6 indicate successive steps in the process of again gripping the bristles between opposed faces of the intumed margins of the backing strip by the progressive bending toward each other of said margins to form a channel-shaped structure; and

Fig. 7 shows in section one end of the completed brush strip.

Although it will be understood that various strip materials may be employed which will render the final product sufficiently rigid so that it will be self-sustaining and which at the same time will be ductile so that the completed strip may be bent to shape or wound in annular form to provide a brush of any desired shape, a particular strip S, which is illustrated in Fig. 1, is made of some such material as mild steel. The margins 12 and 14 of this material are bent toward the body and preferably the inner portion 16 is at substantially the same time bent in the reverse direction to give the strip a cross-sectional conformation resembling the letter W with spaced grooves 18 ready to receive the brush material. For ease of description, the brush material B is termed "bristles." It will be understood that not only true bristles derived from animals may be employed but that any other bristle-like substance such as animal hairs, vegetable fibers, wire and the like may be substituted

in accordance with the use to which the brush is to be put.

In accordance with the next step of the brush-making method, bristles B may be inserted in one or both of the grooves 18 of the strip to form only one row or preferably two rows, as illustrated in Fig. 3, and the margins 12 and 14 intumed or bent farther to grip the ends of the bristles which are within the grooves, as shown in Fig. 4. It will be understood that the invention is equally applicable to the utilization of doubled bristles in which the folded ends (not shown) are placed in the grooves 18 instead of the butt ends. After this, a fold is formed in the inner portion 16 of the strip adjacent to the margins, in successive stages such as have been shown in Figs. 5 and 6, carrying with it the intumed margins to produce a channel within which the intumed margins are located as shown in Fig. 7. The bodies of the bristles mingle somewhat and are again gripped this time between the opposed originally outside faces of the intumed margins 12 and 14, the rounded outer portions of which form the edges of the channel. This creates a strip construction in which the outwardly extending portions of the bristles B are free to "breathe" or bend laterally between the rounded intumed margins which, as a result of the process employed, flare away from one another and avoid the gripping of the bristles along a sharp line or between rough edges against which the bristles might be cut as the brush is flexed in use. The butt ends 20 of the bristles are tightly gripped beneath the intumed margins and, by reason of this fact and the further fact that the bristles are reversely curved about the edges of the intumed margins and are again gripped between the opposed faces of the intumed margins, the bristles are held so securely that it is almost impossible for the bristles to loosen or be pulled out.

It will be understood that the base 22 of the strip S does not necessarily have the particular conformation which is shown in Fig. 7, and that shapes which will facilitate the clamping of the strip upon any support to which it is applied may be employed. For example, the corner 24 of the channel strip S may be bent to provide a more pronounced bead or shoulder than that shown, to aid in holding the strip beneath overhanging clamping members, if desired.

Having thus described my invention, what I

claim as new and desire to secure by Letters Patent of the United States is:

1. A brush construction comprising a channel strip having intumed margins beneath an inner face of at least one of which there are gripped the adjacent ends of a row of bristles, another reversely directed portion of said bristles being gripped between the opposed outer faces of said intumed margins and capable of flexing across the rounded channel edges provided thereby.

2. A brush construction comprising a channel strip having both margins intumed within the channel, and rows of bristles the inner ends of which are reversely curved away from each other and are gripped beneath said respective margins, the bodies of said rows mingling as they extend out of the channel.

3. The method of making a brush strip which consists in bending inwardly one margin of a metal strip to form a groove, gripping a row of bristles in said groove by said intumb margin, the other margin of the strip being intumed to provide a rounded edge, and folding said strip and the bristles to make a channel from which the bristles extend outwardly and to bring the intumed, rounded margins of the strip into gripping relation to another portion of the row of bristles.

4. The method of making a brush strip which consists in gripping the inner ends of rows of bristles beneath the intumed margins of a strip of self-sustaining material, and folding said margins toward each other and toward the bodies of the bristles to form a channel and to grip the bristles between said margins with the inner ends of the bristles reversely curved within the channel away from each other.

5. The method of making a brush strip which consists in bending the opposed margins of a metal strip toward the body of the strip, bending the body of the strip in the reverse direction to provide a shape similar to the letter W, inserting the ends of two rows of bristles in the grooves thus provided in said strip, bending the margins farther toward the body of the strip to grip the bristles therein, and folding the strip along its mid-portion to form a channel strip from which the bristles project and to carry the opposed intumed margins into gripping engagement with the body of the bristles.

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