Feb. 7, 1939. H. CAVE 2,146,624

BRUSH

Filed Jan. 2, 1935

Fig. 1.

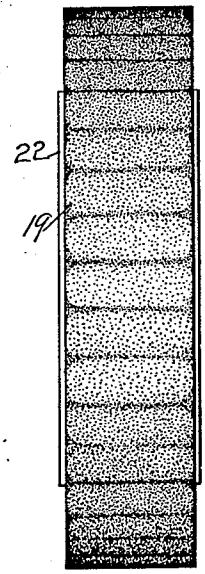


Fig. 2.

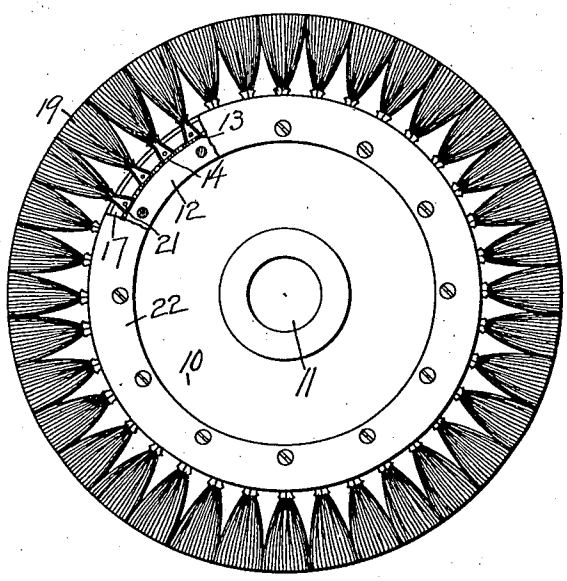


Fig. 3.

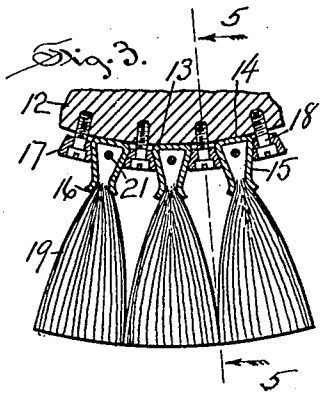


Fig. 4.

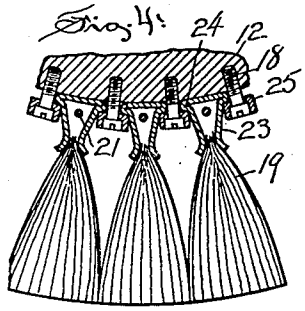


Fig. 5.

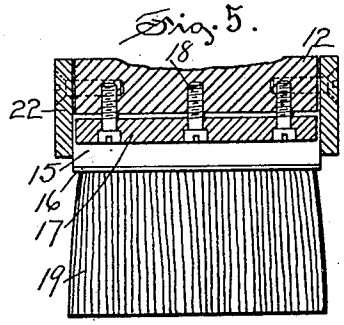
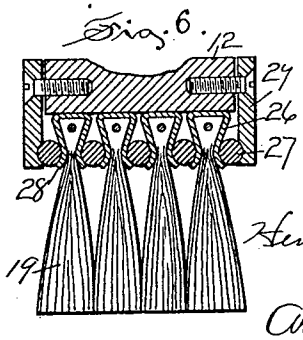


Fig. 6.



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UNITED STATES PATENT OFFICE

2,146,624

BRUSH

Henry Cave, Hartford, Conn., assignor to The Fuller Brush Company, Hartford, Conn., a corporation of Connecticut

Application January 2, 1935, Serial No. 81

11 Claims. (Cl. 15—183)

My invention relates to the class of devices above named, and an object of my invention, among others, is the production of a brush which is simple in construction, durable, and one which is particularly efficient in operation; and a further object of my invention is the production of a brush of this type having brush elements which may be readily removed and replaced.

One form of a brush embodying my invention and in the construction and use of which the objects herein set out, as well as others, may be attained is illustrated in the accompanying drawing in which

Figure 1 is an edge view of my improved brush.

Figure 2 is a side view with parts broken away to show construction.

Figure 3 is a view on enlarged scale of a fragment of my improved brush illustrating the construction thereof.

Figure 4 is a similar view illustrating another means for securing the brush elements together.

Figure 5 is a view in section on a plane denoted by the dotted line 5—5 of Fig. 3.

Figure 6 is a view of a fragment of a brush illustrating still another way for securing the brush elements in place.

My invention is not limited to a brush having a body of any particular type for supporting bristles or other brush material, but as it is readily adapted to a structure in which the body for supporting the base for the bristles or other brush material is a rotary object, as a wheel, such a structure has been selected by me for the purpose of illustrating my invention herein. However, this is not to be taken into consideration when determining the scope of the invention except where said invention is definitely limited by the claims herein, as it will be apparent that the round supporting surface of the wheel may be readily developed into a flat or other shaped surface for supporting the bristles or brush material. Therefore, wherever a term especially applicable to a wheel is used herein it may be considered as equally applicable to a body of any other shape for the purpose in hand.

In the accompanying drawing the numeral 10 denotes the body of my improved brush which in the particular form herein shown is embodied in a wheel having a central hole 11 for the reception of a spindle or shaft by means of which the brush may be rotated. The rim 12 of this wheel is cylindrical in form, its outer surface being such that bases 13 of brush elements may be set squarely upon such cylindrical surface to be secured thereto.

These bases are preferably composed of metal, the outer surfaces of the bottoms thereof being preferably straight from end to end, and they may be slightly curved crosswise to correspond to the curve of the outer surface of the rim 12. Said bases are of trough shape having grooves extending preferably from end to end and they may be formed from sheet metal bent to shape to create the bottoms 14 and sides 15. These sides are slightly curved outwardly at their outer edges to form lips 16, and they converge from the bottoms outwardly to form channels which are wider at the bottoms than at the mouths. Said sides are flat as to their outer surfaces to receive the flat edges of cleats 17. The edges of these cleats are tapered to fit the flat sides of the bases of the brush elements so that the latter may be secured firmly in place without looseness and therefore without danger of movement relatively to the rim 12. The cleats 17 may be secured to the rim in any suitable manner, screws 18 being shown herein as an effective means for accomplishing this purpose, the screws passing through holes in the cleats and being threaded into the rim as clearly shown in Fig. 3 of the drawing.

The brush material 19 may consist of fibers or bristles of any desired kind suitable for any particular purpose for which the brush is constructed.

A brush of this type is particularly adapted for use in polishing smooth surfaces, as the bodies of automobiles, articles of furniture and the like, and in such cases the brush material will be composed of soft fibers or bristles which will not scratch the surfaces being polished.

As a means for securely fastening the brush material in the channels in the bases, wires or rods 21 may be placed in the folds of the brush material which is doubled within the channels, the opposite ends of the fibers or bristles being extended outwardly and projecting beyond the mouths of the bases 13. While the cleats 17 will ordinarily be found sufficient to hold the brush elements in place in the structure shown in Figs. 1 to 3, yet as an additional means for securing said element from endwise movement, rings 22 may be secured to opposite sides of the rim 12, these rings being of a size in diameter to be located opposite the ends of the channels containing the bases 13 and prevent said bases from endwise movement.

In the structure shown in Fig. 4 the bases 23 of the brush elements are formed with lips 24 extending along opposite edges at the bottoms of the bases, the cleats 25 being formed to engage

the outer sides of these lips and thereby force the bases 23 into tight engagement with the supporting surface of a brush body, as the periphery of the rim 12 of the wheel, said cleats being preferably secured as hereinbefore described with respect to the cleats 17.

In the structure shown in Fig. 6 the bases 26 of the brush elements are formed as hereinbefore described with the brush material secured in the bases as hereinbefore set out, but said bases, instead of being straight and extending across the rim 12 from side to side are formed to closely fit the rim and extend therearound, as hereinbefore described, the bottoms of the bases being made to squarely fit the outer surface of the rim. These bases may extend spirally around the rim and be caused to snugly fit the rim in the winding operation, the opposite ends of the bases being secured to the body or rim in any suitable manner. As an alternative construction the bases may be formed as rings with the ends secured together in any suitable manner as desired, and with this construction clamping members 27, preferably of metal, are of a size to fit the grooves between the lips 28 and the straight sides of the bases 26, these members being preferably round in cross section, and holders 29 are secured tightly against opposite sides of the rim 12, as by means of screws, as shown in Fig. 6, said holders securely fastening the several brush bases in place on the rim 12.

The bases of the brush elements may be formed in various ways to provide means for securely fastening them in place and the shapes of the troughs and the sides creating those troughs may be variously formed and shaped without departing from the spirit and intent of the invention. In all of the forms herein described, as well as others contemplated by me, and which will not constitute a radical departure from the structures herein described, the appearance of the brush when embodied in the round type, will be substantially as shown in Fig. 1 of the drawing, whether the brush elements extend laterally across the face of the wheel or circumferentially thereabout.

I claim:

1. A brush comprising a body in the form of a wheel having seats on its peripheral surface to receive brush elements, each of said brush elements comprising a channeled base having a bottom shaped to fit and rest squarely on one of said seats and having tapered flat sides, fastening means for tightly engaging the flat sides of said bases to seat said bases tightly against said surface of the body to rigidly hold them in place and brush material secured within and projecting from the mouths of said channels, the sides of which are pinched together at their ends to hold said material in place.

2. A brush comprising a body in the form of a wheel having seats on its peripheral surface to receive brush elements, each of said brush elements comprising a channeled base extending crosswise of the periphery of the wheel and having a bottom shaped to fit and rest squarely on one of said seats and having tapered sides, fastening means for tightly engaging said sides to seat said base squarely against said seat and thereby rigidly fasten said brush element in place and brush material secured within and projecting from the mouth of said channel, the sides of which are pinched together at their ends to hold said material in place.

3. A brush comprising a body in the form of a wheel having flat seats on its peripheral surface to receive brush elements, each of said brush elements comprising a channeled base having a bottom shaped to fit and rest squarely against one of said seats and having tapered flat sides, said element extending crosswise of the periphery of said body, and cleats having tapered flat edges to fit the flat sides of said bases, means for forcing said cleats against the sides of the bases to force the latter into tight engagement with said seats on said peripheral surface to rigidly supports said elements, and brush material secured within and projecting from the mouths of said channels, the sides of which are pinched together at their ends to hold said material in place.

4. A brush comprising a body in the form of a wheel having seats on its peripheral surface to receive brush elements, each of said brush elements comprising a channeled base having a bottom to rest squarely against one of said seats and having tapered sides terminating in lips at the bottoms of said sides, cleats engaged with said lips between said bases, means for drawing said cleats into tight engagement with said lips and brush material secured within and projecting from the mouths of said channels.

5. A brush comprising a body having a brush element supporting surface having seats for brush elements, each of said brush elements comprising a channeled base having a flat bottom to rest squarely against a seat and having tapered sides converging outwardly, cleats tightly engaging said elements above the bottoms thereof to force them against said seats to rigidly hold them on said seats, said cleats when loose providing grooves into which said bases may be slid, brush material secured within and projecting from the mouths of said channels, and a retaining ring separately formed from said body and removably secured thereto with its peripheral edge overlapping said channels whereby the brush elements may be slid into place from one side of the base.

6. A brush comprising a body having brush element supporting surfaces, each of said brush elements comprising a channeled base having a bottom to fit and rest squarely against one of said supporting surfaces of the body and having tapered sides terminating in lips at the bottoms of said sides, cleats engaged with said lips between said bases, means for drawing said cleats into tight engagement with said lips and brush material secured within and projecting from the mouths of said channels.

7. A brush comprising a body having seats on its peripheral surface to receive brush elements, each of said brush elements comprising a channeled base having a bottom fitted to rest against said surface of the body and having tapered sides, fastening members to tightly engage the sides of said bases between them to force them tightly against said seats to rigidly support them, clamping members secured against the sides of said body in tight engagement with said fastening members to firmly secure said bases in place, and brush material secured within and projecting from the mouths of said channels, the sides of which are pinched together at their ends to hold said material in place.

8. A brush comprising a body having seats to receive brush elements, each of said brush elements comprising a channeled base having a bottom to fit and rest against one of said seats and having tapered sides converging toward their outer edges, holding means having tapered sides

tightly fitting and engaging the tapered sides of said elements above the bottoms thereof to wedge and hold said brush elements in place, brush material secured within and projecting from the mouths of said channels, and a retaining ring separately formed from said body and removably secured thereto with its peripheral edge overlapping said channels whereby the brush elements may be slid into place from one side of the base.

9. A brush comprising a body having a surface formed with seats to receive brush elements, each of said brush elements comprising a channeled base having a bottom to fit and rest squarely against a seat on said surface and having tapered sides converging towards their outer edges, holding means shaped to conform to said elements to provide open ended grooves on said body into which said brush elements may be slid and serving to hold said brush elements against said seats, brush material secured within and projecting from the mouths of said channels, the sides of which are pinched together at the ends of said elements to secure said brush material, and a retaining ring separately formed from said body and removably attached thereto with its peripheral edge overlapping said channels whereby the brush elements are held against sliding movement outwardly.

10. A brush comprising a wheel having at its periphery seats to receive brush elements, each of said brush elements comprising a channeled base having a bottom to fit and rest squarely against a seat on said periphery and having tapered sides converging outwardly, tapered fastening means shaped to conform to said elements to provide open ended grooves into which said brush elements may be slid and serving to hold said brush elements against said seats, means for securing said fastening means in place above the bottoms of said elements to hold them against said seats on said body, brush material secured within and projecting from the mouths of said channels, the sides of which are pinched together at their ends to hold said brush material, and a retaining ring separately formed from said body and removably attached thereto with its peripheral edge overlapping said channels whereby the brush elements are held against sliding movement outwardly.

11. A brush comprising a body in the form of a wheel having a peripheral surface formed with seats to receive brush elements, each of said brush elements comprising a channeled base having a bottom to fit and rest squarely against a seat and having tapered sides converging outwardly, tapered cleats shaped to conform to said elements to provide open ended grooves in said body into which said brush elements may be slid, means for securing said cleats to retain said brush elements against said seats, brush material secured within and projecting from the mouths of said channels, the sides of which are pinched together at their ends to hold said brush material, and a retaining ring separately formed from said body and removably attached thereto with its peripheral edge overlapping said channels whereby the brush elements are held against sliding movement outwardly.

HENRY CAVE.