Sept. 16, 1952 L. W. SIMMS 2,610,345

BRISTLE AND HANDLE RETAINING UNIT FOR BRUSHES

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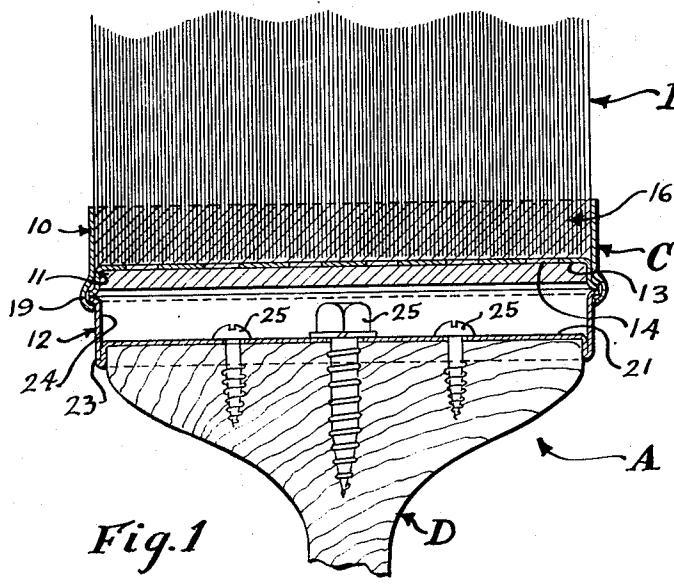


Fig. 1

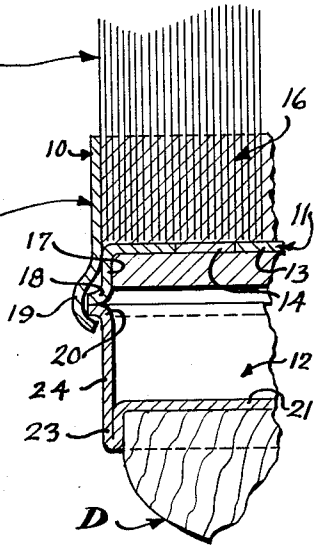


Fig. 2

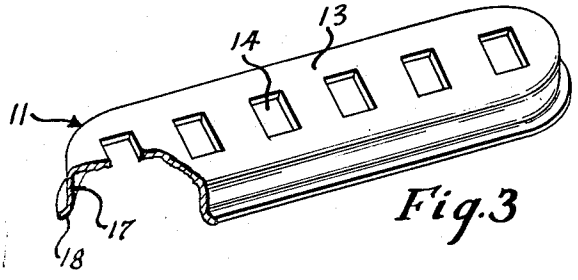


Fig. 3

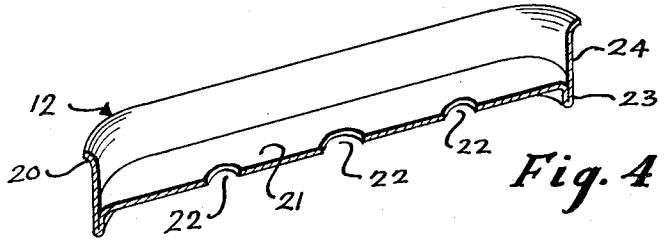


Fig. 4

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BRISTLE AND HANDLE RETAINING UNIT FOR BRUSHES

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1 Claim. (Cl. 15—171)

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This invention relates to brushes of the paint brush type, and more particularly to brushes of the paint brush type of the general character disclosed in my application Serial No. 560,763, now Patent No. 2,508,931, May 23, 1950.

In my above mentioned pending application I described a new type of brush construction comprising a combined bristle and handle securing unit which was designed particularly for use with plastic handles.

I have now found that by using an improved type of combined bristle and handle securing unit employing a new type of bristle securing element, it is possible to considerably simplify the construction of this type of brush and I have further found that when using such a modified type of combined bristle and handle securing unit it is possible where necessary to use wood or other non-mouldable substance as a handle material instead of plastic, and yet retain the inherent advantages of the type of brush described in my above mentioned pending application.

It is the object of my invention to provide an improved brush construction of the type described in my Patent No. 2,508,931, which is simplified in construction.

It is another object of my invention to provide a brush of this kind in which wood may be used for a handle material without detracting materially from the advantages of brushes made according to my above mentioned pending application.

It is a further object of my invention to provide a simple, convenient method of securing a wooden brush handle without any visible nails or rivets, in such a manner that the handle is secured against any tendency to warp, twist out of alignment, or pull away.

With these and other objects in view the invention generally comprises a combined bristle and handle securing unit including a ferrule into which the butt ends of the bristles may be projected, a bristle securing element having a substantially flat apertured abutting surface for the butt ends of the bristles and fitted within the ferrule, a cementitious material penetrating the bristles, and flowing through and around the edges of the apertures in the bristle securing element and holding the bristles solidly in position, a handle seating element abutting against the bristle securing element within the ferrule, means for securing a handle on the handle seating element, and means in connection with the ferrule for jointly securing the ferrule, bristle securing element and handle seating element together. The handle securing element is specially shaped

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to provide a peripheral socket for the wooden handle, and to accommodate the handle securing means.

One embodiment of my invention is illustrated by the accompanying drawings in which,

Fig. 1 is a fragmentary longitudinal section of a paint-type brush according to my invention;

Fig. 2 is a fragmentary longitudinal section of the same brush taken at right angles to the section in Fig. 1;

Fig. 3 is an enlarged fragmentary perspective view of the bristle securing element;

Fig. 4 is an enlarged fragmentary perspective view of the handle seating element.

Referring more particularly to the drawings,

A indicates generally a brush of the paint brush type constructed according to my invention.

B indicates the bristles or flag of the brush which may be of any type desired.

C indicates generally a combined bristle and handle securing element according to the invention, while D indicates a handle which may be made from wood, plastic, or any suitable composition.

The combined bristle and handle securing element consists preferably of a ferrule 10, a bristle securing element 11 slidably fitted within the ferrule, and a handle seating element 12 abutting against the bristle securing element 11, within the ferrule 10.

The bristle securing element 11 is formed with a flat apertured surface 13 which contains a number of holes 14. When assembled, the surface 13 provides an abutment for the butt ends of the bristles B, and cementitious material which penetrates the bristles, and the holes 14 in the bristle securing unit 11 forms a body roughly indicated by 16 in Figs. 1 and 2, which embraces both the bristles and the bristle securing element, holding them firmly and positively together.

The bristle securing element is further formed with a peripheral wall 17, the free extremity of which is formed into a peripherally extending flange 18. The ferrule at its normally upper end is offset outwardly and enlarged as at 19 so that the peripheral flange 18 of the bristle securing element 11 may, when the element is slidably projected into the ferrule 10, be disposed within the confines of the ferrule. The handle securing element 12 is formed at its normally lower end with a peripheral flange 20 which is designed to be slid into the enlarged end of the ferrule and into abutment with the flange of the bristle securing element. Thus, by spinning

or rolling the enlarged offset portion of the ferrule into engagement with the abutting flanges of the bristle securing element 11 and the handle securing element 12, these elements and the ferrule are readily locked together as a complete rigid unit.

The handle seating element is formed with a flat portion 21 suitably provided with holes 22 for the handle securing means, and adapted to provide a seating for the bottom of the handle D. The periphery of the flat portion 21 is upset to provide a ferrule-like extension 23 which is adapted to slidably fit over the outside of the end of the handle D, and form a socket therefor. Extending from the ferrule-like extension 23 in the opposite direction is a peripheral side wall 24 terminating in the outwardly extending peripheral flange 20.

In assembling the brush the butts of the bristles B may be inserted within the ferrule 10 and including a suitable spacer or wedge where desired, and the bristle securing element 11 is then projected into the open end of the ferrule until the abutting surface 13 engages the butts of the bristles B. A suitable cement is then poured into the open end of the ferrule so that it will pass through the openings 14 and into the butts of the bristles, and, as indicated at 16, will partially imbed the bristle securing element so that the bristles and said latter element are firmly locked together.

The handle D may be attached to the handle seating element 12 by suitable securing means such as longitudinally disposed screws 25 which hold the handle firmly in the socket formed by the peripheral ferrule-like extension 23 and the surface 21.

It is but a simple operation to project the handle seating element with its attached handle into the open end of the ferrule 10 until the flanges of the bristle securing element and handle seating element are in abutment with one another, whereupon the enlarged portion of the ferrule 10 is suitably clinched, such as by spinning or rolling it around the dual projecting flanges 18 and 20 formed respectively on these elements. In consequence, therefore, the three elements, namely, the ferrule 10, the bristle securing element 11, and the handle securing element 12, are locked together as an inseparable rigid unit to produce a substantially unitary brush member which incorporates a solidly attached handle.

Alternatively, in securing the bristles within the ferrule 10, the latter may be slipped over the bristles and the flag end of the bristles may be dipped in a suitable adhesive which will temporarily set them. The ferrule may then be slipped down on the stiffened bristles and the then projecting butt ends of the bristles may be dipped in a suitable cement up to a desired level. This method provides for a uniform infiltration of cement since the cement will naturally seek its own level in the dipping operation, and after this operation has been carried out the ferrule is moved back to encase the butt end of the bristles. The bristle securing element 11 may then be inserted and cement poured in the open end of the ferrule to the desired level.

The construction described provides a very strong and durable structure which, due to the combination of elements employed, presents a reinforced ferrule structure which will not tend to bow. Thus, this eliminates the use of nails or rivets often employed to offset bowing tendencies in the usual type of ferrule, while also eliminating the necessity of visible nails, rivets, or the like for securing the handle. The elimination of nails or rivets produces an improvement in appearance which is an advantage. Of perhaps greater importance are two further advantages. On the one hand, nails or rivets, as in the first instance, tend to make splits in the bristles resulting in a brush fingering during use. On the other hand, such nails or rivets are apt, in many cases, to cut the bristles off in the path of the rivets, thus weakening the setting and allowing the bristles to come out at such points. Likewise, the nailed handles sometimes split as the nails are passed through them, and serious disadvantages of this kind are completely eliminated according to the present invention.

Finally, several further advantages are produced. In one instance, the necessity for a relatively deep penetration of the bristle butts into the ferrule is eliminated as the bristles may be set firmly without the necessity of deep penetration, and a suitable overall depth for the bristle setting compound and wooden handle. This permits the use of shorter bristles obtained at a lower cost while maintaining a fine quality of brush, which is of particular importance in the use of nylon bristle. Moreover, the shortening of the depth of the ferrule permits the hand of the operator to be nearer to the bristles, which is an important factor in keeping a balance and in lessening the leverage that an operator has to use in applying paint.

The sturdy construction of the bristle and handle securing unit lends itself to the use of nylon bristle which ordinarily is harder to hold in setting than ordinary bristles. The strong assembly of this securing unit produces a safety margin against dislodgement of these bristles.

What I claim as my invention is:

In a brush, a ferrule, a cupped bristle securing element within said ferrule with its bottom surface extending across said ferrule to form a bristle locating surface, bristles banded by said ferrule with their butt ends located by said bristle locating surface, a cementitious material within said ferrule and engaging said cupped bristle securing element to secure the butt ends of said bristles within said ferrule, handle means, a cupped handle retaining means within said ferrule with its bottom surface extending across said ferrule to form a handle locating surface, said handle having an end flat surface that co-operates with the bottom of said cupped handle retaining means and means for securing said handle to the bottom of said handle retaining means, the edges of said cupped bristle securing element and the edges of said cupped handle retaining means each being outwardly flared and in abutment with each other, said ferrule being formed to lock said abutting outwardly flared flanged together.

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