

# United States Patent

[11] 3,601,838

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[54] **BRUSH CONSTRUCTION**  
5 Claims, 6 Drawing Figs.

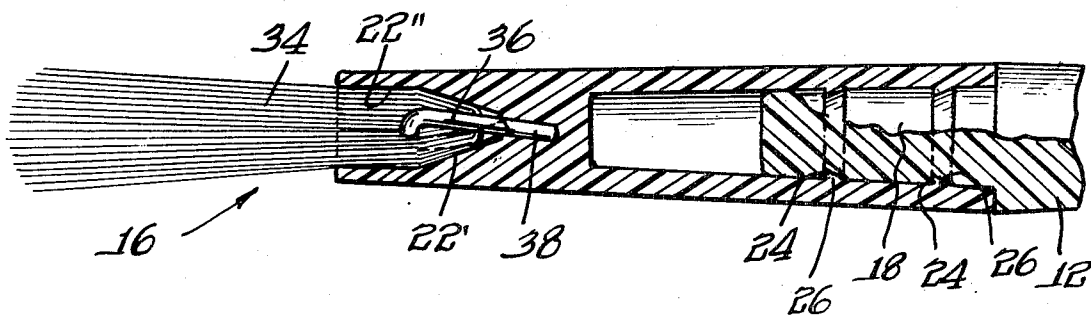
[52] U.S. Cl. .... 15/195,  
15/143  
[51] Int. Cl. .... A46b 3/16  
[50] Field of Search ..... 15/176,  
168-175, 202, 205, 190-196, 143-145

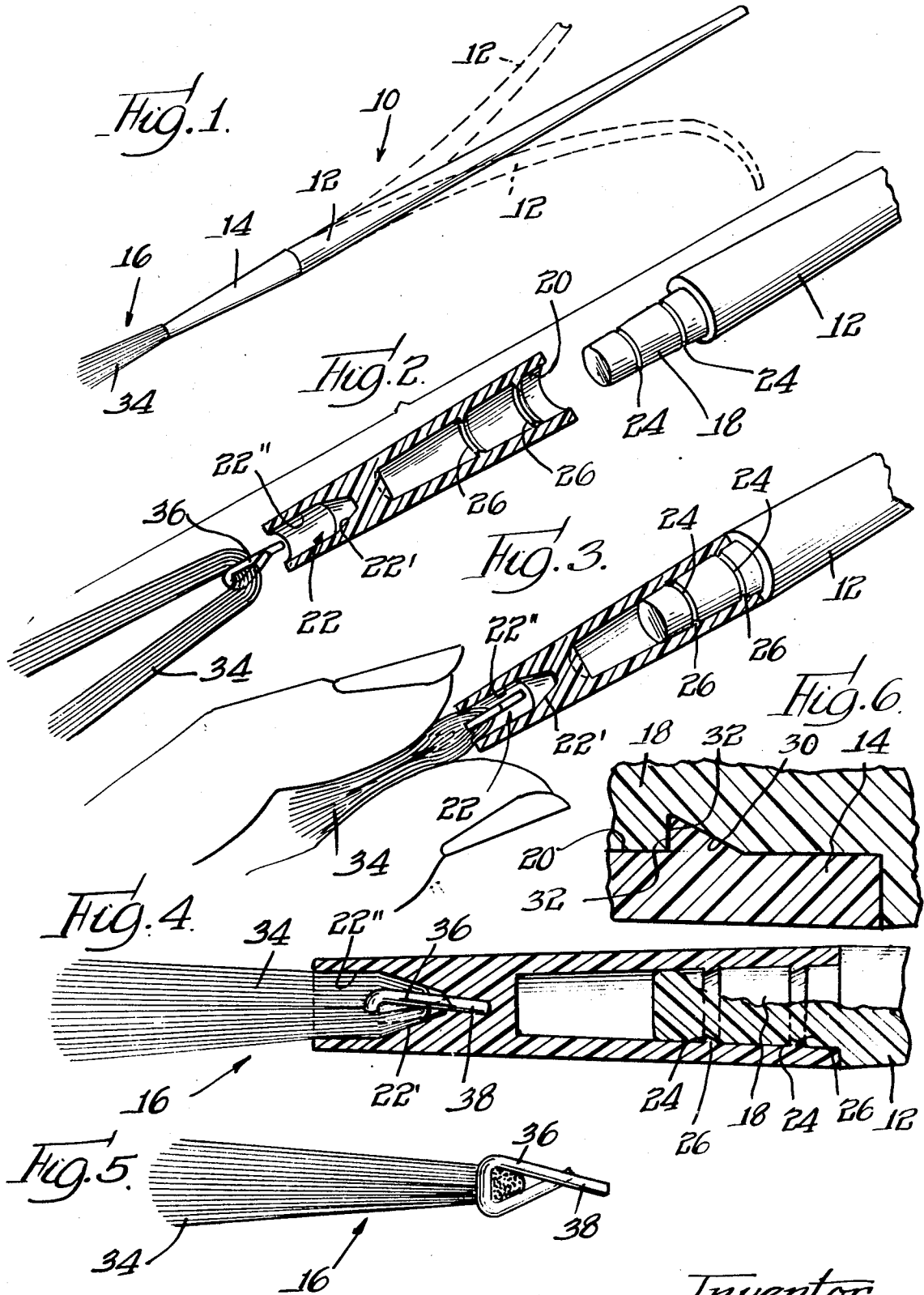
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**ABSTRACT:** A brush construction of a type specifically designed for children and employing a novel assembly arrangement that insures both safety and long life in the use thereof. The brush includes a body section having an end portion provided with an axial socket, and a bristle arrangement assembled therein. The bristle arrangement is comprised of a plurality of individual elongate bristle elements having a wire element twisted about the approximate midpoint thereof, whereby said elements may be doubled over upon themselves to provide a completed arrangement. The wire element has exposed, tinelike ends whereby when said arrangement is disposed in said axial socket, said tinelike ends will pierce the end wall of said socket to maintain the bristle arrangement in assembly.





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## BRUSH CONSTRUCTION

## BACKGROUND OF THE INVENTION

The present invention relates to and was designed primarily for children. More particularly, this invention pertains to an art brush that parents or educators may allow children to use without fear of injury to the child, or destruction of the brush during use or abuse by the child.

Prior art brush constructions normally comprise a rigid, wooden handle which has a bristle carrying metal ferrule crimped in surrounding engagement over an end thereof. While this particular construction is entirely satisfactory for adult usage, in many instances injury has resulted when same have been used by children in the lower age brackets.

In this regard it should be understood that a child will not always employ an art brush in a manner as would an adult. On the contrary, the child's extraordinary imaginative powers soon transform the brush into an article of play; or the handle may soon become the object of the child's masticative tendencies. In addition, a small child's dexterity often is not developed to such a degree that his young hands may hold the brush in the proper manner, nor is he able to use a brush with the finesse of an adult. All of these factors have, in the case of the above-mentioned prior art constructions, resulted in injury to the child. For example, the metal ferrule generally is formed from sheet stock rolled into a cylindrical form and thus has a seam running the length thereof. The edges of this seam, and the end edges of the ferrule present sharp metal corners that can be harmful to young hands. Also, the wooden handle portion presents still another source of injury, not only due to its rigidity, but also due to the fact that it is often painted, and not all manufacturers are willing to take the time, nor incur the expense, to assure the use of nontoxic paints.

In addition, looking now to the economic advantages, as opposed to the hereinbefore discussed safety features, the present invention provides an art brush of superior quality that can be manufactured and sold at a relatively low price. Prior to the present invention, prior art brushes in this category had been of questionable quality as to material used, construction, and actual performance. All of these objectionable features are eliminated with the present invention.

More particularly, the novel method of interlocking and assembling the bristles to the ferrule insures a shedproof brush. Thus, there is no danger that the rough handling by child or adult will result in the bristles coming out while painting or after numerous cleaning operations.

## SUMMARY OF THE INVENTION

Accordingly, the above noted disadvantages of prior art brushes are obviated; and the heretofore discussed advantages realized, by the provision of a brush comprising, body means having a flexible handle and an end portion with an axial socket formed therein, a plurality of elongated bristles, and a wire element twisted about said bristles approximate their midpoint to permit said bristles to be doubled over upon themselves, the ends of said wire element including tineline portions such that the wire element with the assembled, doubled over bristles may be engaged in said socket, with the axial wall portions thereof engaging said bristles to maintain them in closely bunched relationship, and the tineline portions of said wire element penetrating the socket end wall to maintain said bristles in assembly with respect to said body.

Additional objects and advantages afforded by the present invention will become apparent to those skilled in the art as the detailed description of the embodiment illustrated in the drawings is evolved hereinafter.

## DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an art brush according to the present invention.

FIG. 2 is a partial exploded view of the art brush of FIG. 1, with the ferrule portion thereof being illustrated in section.

FIG. 3 is a fragmentary perspective view of the art brush of the present invention in a partially assembled condition, and illustrating the mode of assembling the bristles.

FIG. 4 is a fragmentary sectional view of the bristle carrying end portion of an art brush constructed in accordance with the present invention.

FIG. 5 is an elevational view, with the bristles in section, illustrating how the wire element is twisted about the midpoint thereof to hold said bristles in assembled relationship.

## DESCRIPTION OF THE ILLUSTRATED EMBODIMENT

Directing your attention now to the drawings, an art brush constructed in accordance with the present invention is illustrated in FIG. 1, and designated generally 10. The brush 10 is comprised of a body section designated generally 11 and including a handle 12 and a ferrule 14, and a bristle arrangement 16 carried by said ferrule portion 14.

As is illustrated in phantom in FIG. 1, the handle 12 is preferably flexible to provide the safety features discussed above. In addition, to achieve the nontoxic nature of brush 10 and hence insure safety for use by children, the handle 12 and the ferrule 14 are preferably constructed from any one of a number of nontoxic plastic materials of the type unaffected by paints, lacquers, acrylics, varnishes and their solvents. Also, it should be noted that by constructing the ferrule 14 and handle 12 of a plasticlike material the flexibility of handle 12 may be assured and since the parts are molded and the above-mentioned harmful sharp metal corners inherent with prior art brushes are avoided.

In FIGS. 2-5 the specific construction of the individual elements which make up the brush 10, as well as their mode of assembly, is illustrated. With specific reference initially to FIG. 2, it can be seen that the handle 12 is provided with a reduced diameter, pluglike end portion 18, while the ferrule 14 has in one end thereof an axial socket 20 of corresponding shape. The opposite end of ferrule 14 has an aperture 22 which is designed to accommodate the bristle arrangement 16 to be discussed more fully hereinafter, with the cylindrical wall portion of said recess sized to hold the elongated bristle elements in closely bunched relationship.

Turning now to the mode or manner of assembly of ferrule 14 and handle 12, the reduced diameter portion 18 is provided with a plurality of circumferential grooves 24. The ferrule socket 20 is provided with a like number of inwardly extending protuberances 26, whereby upon reception of the reduced diameter portion 18 in socket 20 the protuberances 26 will be received by a snap-FIT type engagement into the grooves 24, as seen in FIG. 3. In this regard, it should be noted that preferably the socket 20 is frustoconical in shape, with the reduced diameter end portion 18 correspondingly shaped so as to achieve a friction fit when engaged therein, which also facilitates maintaining the elements in assembled relationship.

As is best viewed in the sectional illustration of FIG. 4, the protuberances 26 have a cross-sectional configuration which facilitates reception of the end portion 18 in socket 20, but resists withdrawal thereof, the recesses 24 being of a corresponding shape. In this regard, it should be noted that the leading surface 30 of the rib or protuberance 26 is on a slight taper with respect to the axis of the ferrule, while the opposite surface 32 is substantially perpendicular or transverse to said axis. Accordingly, upon introduction of the reduced diameter end portion 18 in socket 20, the peripheral surfaces thereof will ride easily over the tapered surface 30 until with the ribs 26 they snap into grooves 24. After said ribs 26 are engaged in grooves 24, the contiguous, substantially perpendicular surfaces 30 and 30' will resist pullout or withdrawal of the end portion 18.

Concerning the bristle assembly or arrangement 16, attention is invited initially to FIG. 5, the arrangement 16 includes a plurality of individual elongate bristles 34, which are maintained in assembly with respect to each other by a wire element 36 as illustrated in FIG. 2. The wire element 36 is twisted about the midpoint of said bristles 34, and said bristles are

then doubled over upon themselves. The wire element 36 is provided with tinelike portions 38 at the ends thereof. Accordingly, after said wire element 36 has been wrapped about the midpoints of the bristles 34, and said bristles doubled over, the resulting bristle arrangement 16 can be inserted within the bristle confining socket 22, in the manner as illustrated in FIG. 3. Due to the relatively soft nature of the ferrule 14, continued advancement of the bristle construction 16 in the direction indicated will cause the tinelike portions 38 to pierce the end wall of socket 22 thereby to retain said wire element 36 and the associated doubled over bristles 34 within the confines of said socket.

Also, it should be noted that the recess 22 is preferably provided with a tapered frustoconical section 22' which upon assembly exerts a wedging force on the bristles. This wedging action coupled with the force exerted on the bristles by the twisted wire element 36 insures that the individual bristles will not pull out during use. In addition, the forward or entry portion 22'' of said bristle receiving socket is of cylindrical configuration and sized to closely receive said elongate bristles 34 and hold them in closely bunched relationship.

While the art brush construction hereinbefore discussed was developed primarily with the safety of children in mind, it is noted that its mode or manner of construction is such that a high quality art brush may be realized, at a relatively low cost. In addition, it is noted that various modifications, changes and substitutions will occur to one skilled in the art, with respect to the specific embodiment illustrated and described. For example, means other than that illustrated may be employed to maintain the ferrule and handle in assembled relationship; or for that matter, the body of the brush may be formed of the one-piece construction. Accordingly, in this regard said changes and modifications are envisioned and intended insofar as they fall within the spirit and scope of the invention, which is defined by the claims appended hereto.

What is claimed is:

1. An artist's brush comprising: body means having an end portion with an axial socket formed therein; and a bristle arrangement assembled in said socket, said bristle arrangement including a plurality of elongate individual bristles, an elongate wire element twisted about said bristles approximate the midpoint thereof, the ends of said wire element being exposed and of a tinelike configuration such that said wire element

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with the associated doubled over bristles may be engaged in said socket with the tinelike end portions of said wire element piercing the socket wall to maintain said bristle arrangement therein; said bristle arrangement receiving socket including an entry portion, and a narrowing, frustoconical portion adjacent thereto for effecting a wedging force on the individual bristles thereby to assist in maintaining said bristles in the desired assembled relationship.

2. An artist's brush as defined in claim 1 wherein said body means includes a handle element and a ferrule member assembled together, said ferrule member having the bristle arrangement receiving socket formed therein, and cooperating means on said ferrule and said handle to provide for assembly thereof.

3. An artist's brush as defined in claim 2 wherein said cooperating means includes a reduced diameter portion on said handle and a socket formed in said ferrule, said reduced diameter portion having a plurality of circumferential grooves and said socket having a like number of peripheral protuberances, whereby upon reception of said reduced diameter portion in said socket said protuberances will be snap fitted into said grooves.

4. An artist's brush comprising: body means having an axial socket formed in an end portion thereof; and a bristle arrangement disposed in said axial socket; said body means comprising a handle element and a ferrule element of a unitary, one-piece construction joined to said handle, said ferrule element having the bristle arrangement receiving socket formed in one end thereof; and cooperating means on said handle and ferrule element for joining said elements together, said cooperating means including a second axial socket formed in an end of said ferrule opposite said first mentioned socket, and a reduced diameter portion formed on said handle which is frictionally engaged in said second axial socket of the ferrule to maintain said elements in assembled relationship, and said handle being constructed of a soft, flexible material that is easily bent, thereby to reduce the danger of injury when said brush is used by a child.

5. An artist's brush as defined in claim 1 wherein said ferrule member is of a unitary, one piece construction, and said handle element is formed from a soft, flexible material that is easily bent, thereby to reduce the danger of injury when said brush is used by a child.

UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 3,601,838 Dated August 31, 1971

Inventor(s) Nathaniel M. Marx

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Col. 2, line 38, change "designated" to --designed--

Col. 4, line 39, change "claim 1" to --claim 2--

Signed and sealed this 4th day of April 1972.

(SEAL)  
Attest:

EDWARD M. FLETCHER, JR.  
Attesting Officer

ROBERT GOTTSCHALK  
Commissioner of Patents