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J. F. MUMFORD.

METHOD OF MAKING BRUSHES.

(Application filed May 1, 1900.)

(No Model.)

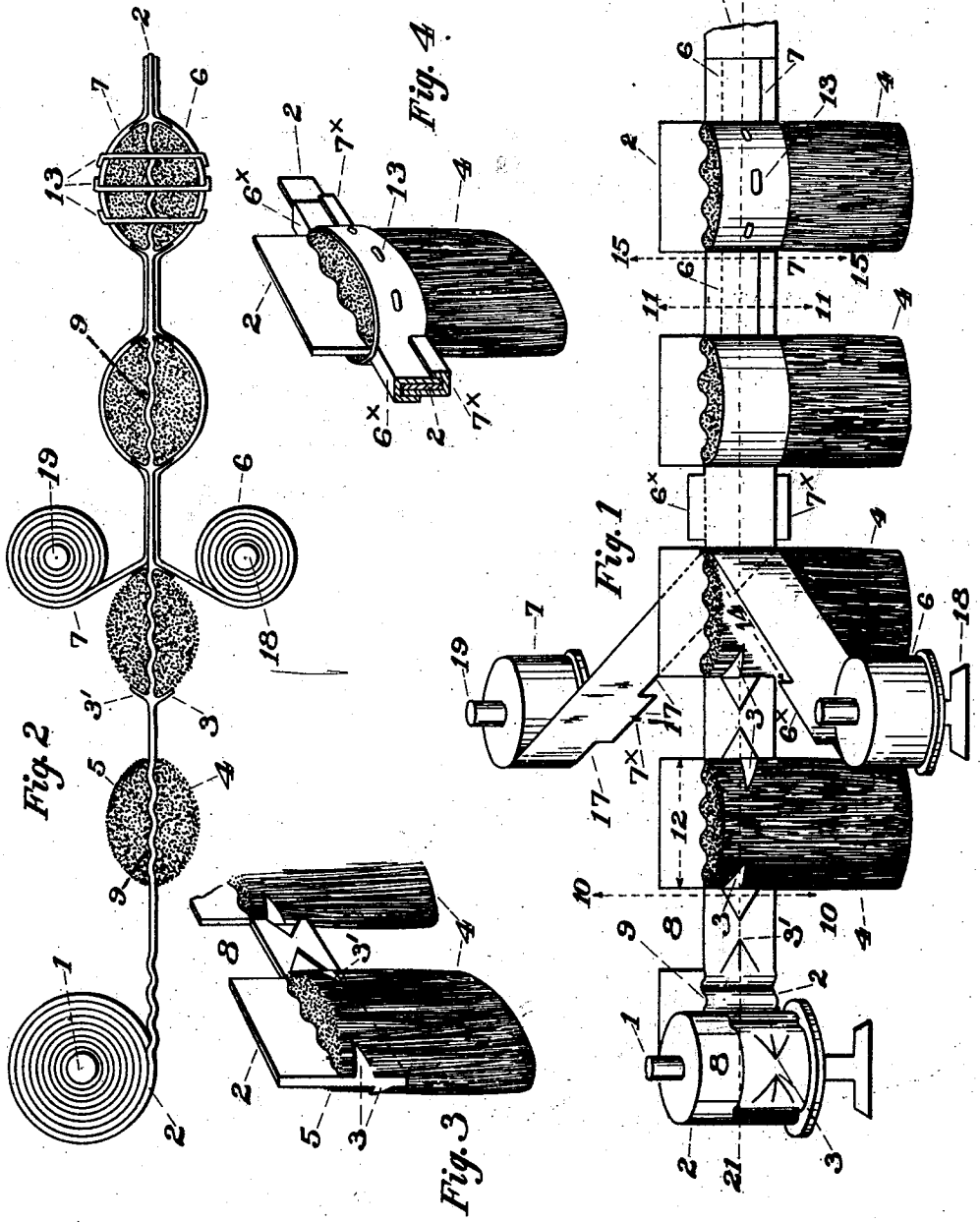


Fig. 1

Fig. 2

Fig. 3

Fig. 4

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METHOD OF MAKING BRUSHES.

SPECIFICATION forming part of Letters Patent No. 696,104, dated March 25, 1902.

Application filed May 1, 1900. Serial No. 15,120. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH FRANCIS MUMFORD, a citizen of the United States, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in the Method of Manufacturing Brushes, which improvement is fully described in the following specification and accompanying drawings.

My invention relates to brushes of that class known as "full center" and used very much in painting and finishing; and it consists of a novel method of manufacturing the same, in which a continuous strip of sheet material of special form is interposed between the bristles or brush-stock to the butt-ends of which cement has been applied, said strip being placed in the center of the knot or bunch of bristles and through the butt-ends thereof, so as to hold and carry the brush-stock forward for further manipulation, the strip being further divided in sections—one section corrugated and carrying a portion of the brush-stock, the other section projecting beyond the line of said brush-stock—said projection having recesses and angular slits cut therein, the slitted portion of the projecting end forming tongues to hold the brush-stock in position and the recesses being used to temporarily fasten in their respective places around the brush-stock two other narrower binding-strips, also recessed, the whole mass of brush-stock and strips being then nailed together, so as to form what is technically know in the art as a whole "brush-knot," my object being to form a continuous row of these brush-knots and when dry cutting them apart to be placed in case or ferrule, as may be required.

With these ends in view my invention consists of certain novel features described herein, shown in the accompanying drawings, and more particularly pointed out in the claims.

In carrying out my invention I employ three reels of sheet metal in the form of strips of any desired length, the central strip being wider than the two outer binding-strips and being corrugated at regular intervals throughout its entire length, the corrugations extending partly across the face thereof. In the smooth spaces between the corrugations a recess is cut in one edge of the strip and in the blank portion of the remaining smooth space triangular tongues are also struck up, the function of said tongues being to encompass and hold a portion of the bristles allotted to the corrugated section of said central strip. The bristles or brush-stock, having the butt-ends thereof supplied with cement or adhesive material, are held by suitable means, so that as the central strip unwinds equal portions of the bunch of bristles will rest against the two sides of the strip in the portion corrugated and will then be bound by the two narrower binding-strips, they having their projecting edges secured to the central strip through the recesses in said strip, the projections between the recesses in the narrow strips always coming in alinement with the aforesaid recesses in the central strip, so that all three strips are mutually bound together, the corrugating, slitting for the tongues, and cutting the recesses in aforesaid strips being done before they are wound on their respective reels. In making brush-knots in this manner it is preferable to form them in a continuous row, the knots being connected or linked together by the binding-strips between aforesaid corrugations, and when it is desired they can be cut apart and attached to a case or ferrule in a suitable manner.

In the accompanying drawings, which show an example of my invention, Figure 1 is a perspective view of the three reels and showing the successive stages in the formation of a brush-knot while the central and outer binding strips are being unwound from their reels. Fig. 2 represents a sectional plan of Fig. 1, taken on the line 20 21, Fig. 1, showing the central strip, the two bunches of bristles on either side thereof in the corrugated sections, the tongues in the central strip, and the two outer binding-strips in position and the three strips and brush-stock nailed together. Fig. 3 is a perspective view, partly in section, on the line 10 10, Fig. 1, of the interior of the brush-knot, showing how the tongues are turned or upset against and encompassing a portion of the bristles in the corrugated section of the central strip. Fig. 4 is a perspective view on the line 11 11, Fig. 1, of one of the brush-knots formed and showing in detail how the outer binding-strips are formed

around the brush-stock and are then bound around the central strip in the recess, so as to hold and link the knots together.

Similar figures of reference refer to similar parts throughout the several views.

1 represents a reel having wound thereon the aforesaid central strip 2, having corrugations 9 impressed therein at regular intervals, while in the smooth space between the corrugations a recess 8 is cut in the top edge of said strip. In the portion of the strip beneath the recess 8 and on each side of the corrugations 9 triangular slits are cut, so that tongues of triangular form may be struck up.

18 is the reel upon which is wound one of the outer binding-strips 6, said strip having the recesses 14, Fig. 1, cut in the top edge thereof. 19 is the reel upon which is wound the other outer binding-strip 7 and having the recesses 17, Fig. 1, cut in the bottom edge thereof, the projecting edges between the recesses 14 and 17 being used to bind the outer strips around the central strip 2 in the recesses 8.

As the central strip 2 is unwound from the reel 1 the two bunches of bristles or brush-stock 4 and 5 and of equal size and previously supplied on the butt-ends with cement are placed on each side of the central strip 2 and held there by suitable means, so that they lie parallel with and in the space occupied by the corrugations 9. The two tongues 3 3′ are then turned one to the right and one to the left against the bristles 4 5 on both sides of the corrugations 9, as shown in Figs. 1 and 3. This operation of turning the tongues against the bristles serves to hold the bristles in position, so that they may be further secured by the outer binding-strips 6 and 7. The central strip 2, with the bunches of bristles 4 and 5, now bound by the tongues 3 3′ having been advanced to a desirable point, the strips 6 and 7 are also unwound from their respective reels 18 and 19 and placed in alinement with the aforesaid central strip 2 and the bristles 4 and 5, as shown in Figs. 1 and 2. The projections $6^{\times}$ and $7^{\times}$ on strips 6 and 7 are then simultaneously bound over and under the strip 2 in the recess 8 and upset against each other, as shown in Figs. 1 and 4. In Fig. 4 the projection $6^{\times}$ on strip 6 is shown to be turned or folded over the strip 2 and down against strip 7, while the projection $7^{\times}$ on strip 7 is turned under strip 2 and folded up against strip 6, thus binding all three strips together. The strips 6 and 7 are now carried around the outside of the bunches of bristles 4 and 5 to the next recess 8 in strip 2, and the previously-described operation is repeated, all the aforesaid operations being successively repeated throughout the entire length of the strips 2 6 7, thus uniting the knots in the process of manufacture. It will be observed that the portion of the central strip 12 projecting above the brush-stock is still retained, it being desirable to use the same as a means to subsequently assist in securing the knot to a handle or stick. (Not shown.) The strips, with the brush-stock now inclosed, are further and permanently bound together by having wires or nails driven through the entire mass and clenched on the outer sides of strips 6 7, as shown at 13, Fig. 1 and Fig. 2, and thus forming a continuous row of brush-knots that can be produced rapidly and at small cost. After the knots have been thus formed and the cement on the bristles has dried they may be safely cut apart on the line 15 15, Fig. 1, as it is apparent that the projecting ends or links must be cut away before the knot can be secured within a ferrule or to a handle, (not shown,) the projections on the aforesaid central strip above the brush-stock being used as a means to conveniently fasten the finished knot to a handle.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. That improvement in the art of manufacturing brush-knots, which consists, first, in inserting between portions of brush-stock, a central strip of corrugated sheet material, a portion of said strip having recesses and triangular tongues cut therein; second, clamping the brush-stock to central strip with the tongues cut in said strip; third, securing two outer binding-strips and central strip together, on each side of brush-stock, by means of projections and recesses in said strips, thereby forming a brush-knot, substantially as set forth.

2. That improvement, in the art of manufacturing brush-knots, which consists, first, in inserting a central strip between portions of brush-stock; second, clamping brush-stock to said strip by the tongues cut therein; third, securing the two outer strips to central strip, between the brush-stock, thereby forming a brush-knot; fourth, the projecting portion of central strip above brush-stock as a means to secure the knot to a handle, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH FRANCIS MUMFORD.

Witnesses:
ALLEN G. MILLER,
GORDON GARLAND.