(No Model.)

W. MORRISON.

SECTIONAL BRUSH MOLD.

No. 491,757. Patented Feb. 14, 1893.

Fig. 1

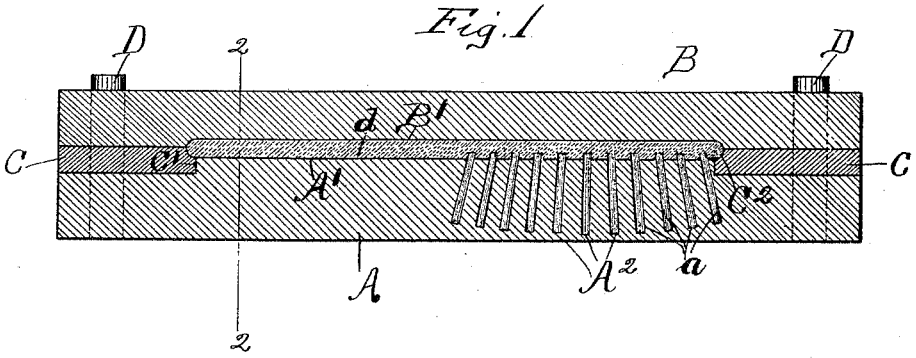


Fig. 2.

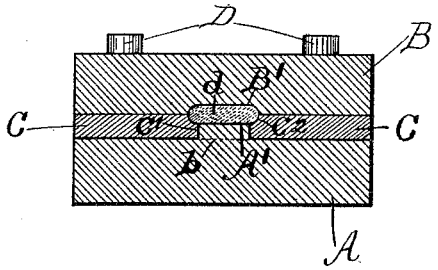
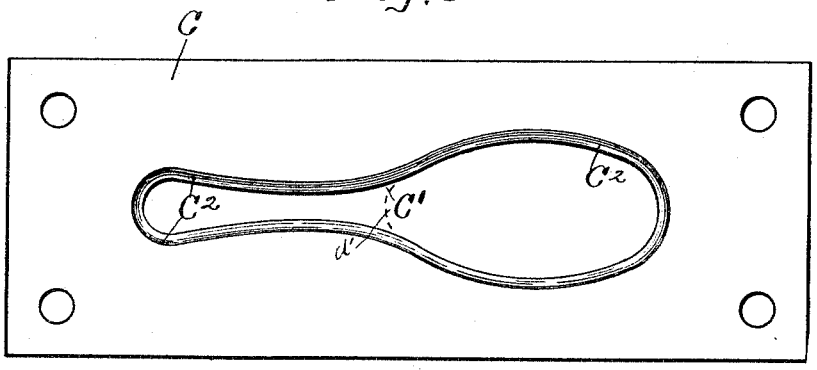


Fig. 3



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UNITED STATES PATENT OFFICE.

WILLIAM MORRISON, OF LANSINGBURG, NEW YORK.

SECTIONAL BRUSH-MOLD.

SPECIFICATION forming part of Letters Patent No. 491,757, dated February 14, 1893.

Application filed May 26, 1892. Serial No. 434,407. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MORRISON, a citizen of the United States, residing at Lansingburg, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Sectional Brush-Molds, of which the following is a specification.

My invention relates to such improvements and consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings, and the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

Figure 1 of the drawings is a vertical central longitudinal section of my improved mold for forming brushes, with a brush inclosed in process of manufacture. Fig. 2 is a vertical cross-section of the same taken on the broken line, 2—2, in Fig. 1, through that portion of the mold which forms the handle of the brush. Fig. 3 is a top plan view of the middle plate of my improved mold, detached.

My invention relates to improvements in brush-molds for forming of plastic material, a bristle-supporting head-block and a laterally projecting handle integral with the head-block.

The objects of my invention are to facilitate the removal of the laterally projecting handles from the molds without breaking them from the head-blocks, and to permit the brushes to be removed from the molds at a comparatively high temperature.

The mold comprises the base-plate or section, A—, the crown plate, B—, and the middle-plate, C—, each of such sections or plates being provided with a plurality of similarly located apertures adapted to receive the steady-pins, D—, for holding the sections in exact position relatively to each other.

The crown-plate, B— is recessed on its inner side, B′— to conform to the shape of the top surface and upper side edge of the head and handle of the molded brush. The walls of such recess may be provided with any design, sunken or in relief, with which it is desired to ornament the back of the brush.

The middle-plate, C—, is provided with a brush-head aperture and a handle-aperture continuous therewith, which together form the elongated aperture, C′—, extending longitudinally of the plate. The wall of such aperture is similar in outline to the molded brush, and is preferably provided along its upper edge with a peripheral groove or chamfer, C^2—, adapted to underlie the entire peripheral edge of the head and laterally projecting handle of the molded brush.

The base-plate, A—, is provided with a raised portion or table, A′— having at one end a plurality of recesses, A^2— to receive and support the bristles with their upper ends in the head aperture in the middle-plate, in a position to be embedded in the plastic material of which the brush is made. The other end of the table, A′— forms a molding surface or table projecting laterally from the bristle-supporting table and continuous therewith; and is adapted to close the lower side of the handle-aperture in the middle-plate and form the face of the laterally projecting handle of the brush.

The operation is as follows: The base-plate is first prepared by the insertion of the bristles, *a*— in the recesses, A^2— in the head end of the table, A′—. The bristles are then trimmed to project uniformly above the surface of the table the distance it is desired to have them embedded in the brush-head. A small quantity of the plastic composition of which the brush is to be formed is then worked by hand between and around the projecting ends of the bristles, after which the middle-plate is superimposed upon the base-plate, the bristle-supporting table fitting the lower part of the head-aperture in the middle-plate, and the laterally extending molding table on the base-plate fitting and closing the lower part of the handle-aperture in such middle-plate. The head and handle apertures are then filled with the melted or partly melted composition which is rounded up in approximately the form of the completed brush, and the crown-plate, B—, superimposed upon the middle-plate. The mold is then complete and is placed in a press until the composition sets or hardens, when the brush, *b*— may be removed while yet comparatively hot.

In removing the brush from the mold, the crown-plate B is first lifted, the brush being retained in the lower part of the mold by its bristles which remain inserted in the recesses in the head end of the table, A'— of the base-plate. The middle-plate C is next lifted from the base-plate carrying with it the molded brush, and withdrawing the bristles from their recesses in the base-plate table. The brush is then supported only on its periphery by the middle-plate, and may be easily and safely removed from such plate by means of the hand or any suitable instrument inserted through the plate aperture from below.

I am aware that a mold formed of three or more sections is not broadly new, and that the middle-plate of such a mold has been provided with a head-aperture to permit the passage of the bristles; but in all molds adapted to form a laterally-projecting handle upon a bristle-supporting head-block, the handle portion of the middle-plate was closed on its under side, as indicated by dotted line, *d'*—, in Fig. 3, making the under side of the handle inaccessible to remove it from the middle-plate after such plate had been lifted from the base-plate. When so constructed, it is necessary to wait till the heated composition has cooled and contracted before it is safe to attempt to remove the brush from such middle-plate; and even when fully cooled the handle is frequently broken from a brush head-block by the adherence of the composition to the inner surface of the middle-plate.

By providing the middle-plate with a handle aperture, the handle is accessible from the under side throughout its length and can be pressed upwardly away from its seat in the middle-plate by a suitable instrument applied at the exact point of the adherence of the composition to the plate. I thus avoid all danger of breakage and can remove the brush from the mold as soon as the composition has set, without waiting for the composition and mold to become cold, whereby I save a large portion of the time which has heretofore been necessary in the manufacture of molded handle-brushes.

It is well known to those skilled in the art that a fillet is formed upon the molded brush wherever a crack occurs in the mold, and must be removed after the brush is taken from the mold. It is therefore desirable to have the joints of the sectional mold so located that the fillets formed thereby will occur along the exposed edges of the brush, in a position easy of access where they can be removed without disfiguring the brush. As heretofore constructed with the handle portion of the middle-plate closed on its under side, a crack was formed in the mold transversely of the brush at the junction of the projecting handle with the head-block, resulting in the formation of a fillet across the face of the brush at this point. The surface of the brush on either side of this fillet is usually flat and unornamented, making the removal of the fillet difficult, and rendering the mars caused by its removal conspicuous.

By forming a handle aperture continuous with the head-aperture in the middle-plate of my improved mold, and providing the base-plate with a handle-molding table continuous with the bristle-supporting head-table, I am able to avoid the formation of a fillet across the face of the brush, all the joints of the mold-sections being located along the exposed edges of the brush, in which position they can be most easily removed, with least injury to the brush.

What I claim as new and desire to secure by Letters Patent is

A sectional mold for handle-brushes, comprising a crown-plate, a middle-plate having a brush-head-aperture and a handle-aperture continuous therewith, and a base-plate having a recessed table for supporting the bristles in the head-aperture, and a handle-molding table, continuous with the recessed table and closing the bottom of the handle-aperture, substantially as described.

In testimony whereof I have hereunto set my hand this 19th day of May, 1892.

WILLIAM MORRISON.

Witnesses:
FRANK C. CURTIS,
A. E. DELANEY.