G. MATTHEWMAN & A. LEININGER.

Button Making.

No. 48,082. Patented June 6, 1865.

Fig. 1.

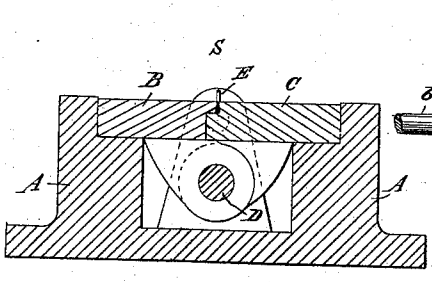


Fig. 2.

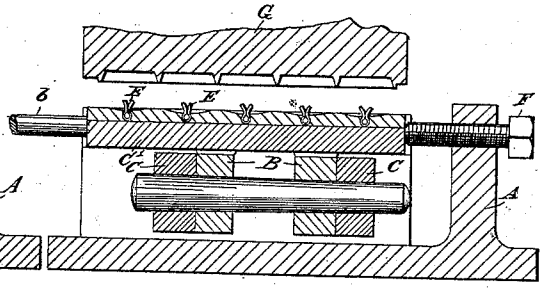
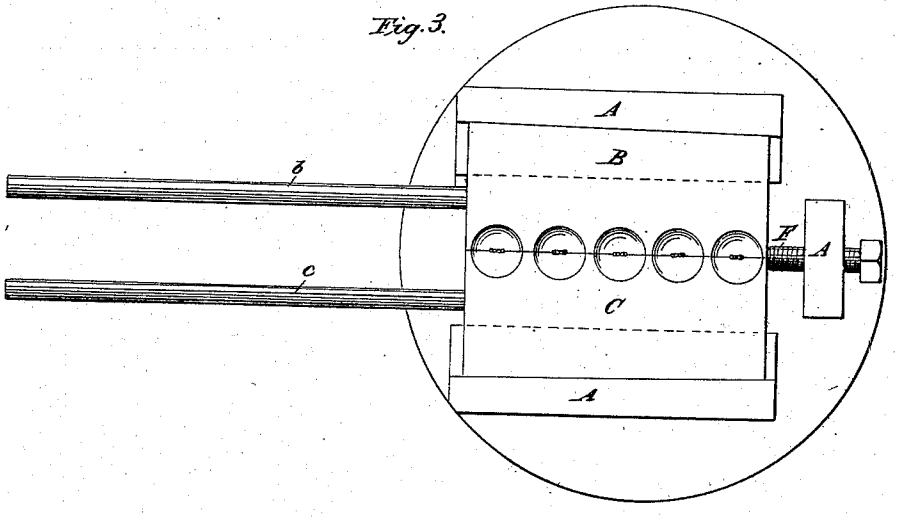


Fig. 3.



Witnesses:
Engelbert Schnell
Paul Miller

Inventors:
G. Matthewman
Aubury Leininger

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE MATTHEWMAN AND ANTHONY LEININGER, OF BROOKLYN, N. Y.

IMPROVED MOLD FOR BUTTON-MAKING.

Specification forming part of Letters Patent No. **48,082**, dated June 6, 1865.

To all whom it may concern:

Be it known that we, GEORGE MATTHEWMAN and ANTHONY LEININGER, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Molds for Buttons; and we do hereby declare that the following is a full and exact description thereof.

The accompanying drawings form a part of this specification.

Figure 1 is a cross-section of the lower portion of our mold in position for use. Fig. 2 is a longitudinal section of the same, showing also a portion of the upper die; and Fig. 3 is a plan view of the lower portion.

Similar letters of reference indicate like parts in all the figures.

Tints are employed to aid in distinguishing parts, and do not imply a difference of material. The material of the whole may be iron or steel.

Our invention relates to the manufacture of that class of buttons in which the eye, formed of bent wire, is secured within a plastic mass, which on hardening forms the head or main body of the button. It is applicable to those buttons which are made of glass and the like material, fused by heat, and to buttons analogous to plaster, which hardens by time. We will describe it as employed in molding glass buttons.

We form our lower portion in two parts, adapted to embrace the eye and hold it very stiffly, leaving the ends of the wire of which it is formed projecting upward, these ends being properly headed or barbed to hold firmly in the glass. Forming the lower portion in two parts allows us to fit the mold around the eye very closely, and thus to avoid the tilting of the eye in different directions, so as to set obliquely in the button, and also to avoid the necessity for any cap or little washer of thin metal, which is frequently employed to reduce this evil. As these buttons have been previously made, the washer or "cap," as it is generally termed, is necessary in order to prevent the plastic material of the button from exuding or being forced to a considerable depth into the cavity for the eye. This difficulty is entirely avoided by our invention. We form these parts with a shelf or shoulder to facilitate the placing of the eye, as will be explained below, and support the parts in such a manner that the pressure of the upper die tends to hold them very firmly together. We prefer to connect the parts of the lower die by stout hinges or knuckles directly below the button, especially when only one row of buttons is to be produced at a time, and in such case we provide handles extending in a line parallel to the axis of the hinge, as represented.

Our invention allows us to manufacture a long line or series of buttons at a single operation, and by duplicating the parts, as will be explained below, we may produce two, three, or more series or rows of buttons at a single operation. We can take the material directly from the melting-pot and form it into buttons by our molds without the necessity for first forming it into bars or rods and afterward reheating.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation by the aid of the drawings, and of the letters of reference marked thereon.

A is a substantial bed, on which the lower die proper is intended to rest when ready for molding.

B and C are the two parts of the lower die. They are hinged together by the tapering pin D, which passes through the stout lugs projecting downward from B and C, as represented.

E E, &c., are the eyes for the buttons. They are formed of brass wire, and are properly formed by suitable machinery. (Not represented.) Recesses equal in depth to half the diameter of this wire are formed in the parts B and C, respectively, and adapted to fit closely to the exterior of the curve formed by the eye, as indicated in Fig. 2.

c' is a shelf or projection of the part C, which extends into the part B, as indicated in Fig. 1. This shelf is in the plane of the lowermost points in the eyes E and of the corresponding recesses for said eyes, so that in placing the eyes it is only necessary to open the parts B and C a little distance and drop the eyes into

their positions, so as to rest on the shelf *c'*. Then by closing the parts B and C tightly together each eye is held firmly in its proper position. In this condition we introduce the compound lower die, B and C, upon the bed or rest A, as indicated, and by a rapid movement stretch the melted glass in a continuous stream or string along the line of the eyes, so as to cover each to a sufficient depth. We then bring down the upper die, G, with great force by mechanism not represented, and press the glass into the proper shape, excluding by the pressure the superfluous glass, if any. On lifting the upper die, G, and removing the lower die, B and C, from the bed A and opening it, the buttons are readily removed, and on new eyes E being supplied the series of operations are repeated. The screw F aids in adjusting the position of the lower die, B C, and corresponds with the upper die, G.

We can with suitable precautions make a long series of buttons at a single operation by making our lower die, B C, and our upper die, G, of considerable length. We propose in some instances to duplicate the series by introducing a middle part, (not represented,) and forming a series of recesses to receive the eyes E on each side of this middle part. We can make the middle part to slide in or to be simply dropped into its place and secured by suitable means; but we prefer, in case only two rows of buttons are to be formed at once, to hinge all three of the parts, so that they shall, in opening, turn on the common center D. We propose to duplicate the number of parts, and to vary the means of fixing and adjusting the parts in many ways which readily suggest themselves to any good mechanic, the purpose being to embrace the eyes more tightly and closely about the neck, or the point where they are joined to the buttons, than can be done in the molds ordinarily used. Our upper die, G, may be depressed by a lever or series of levers operated by hand, or by any other suitable means.

In order to operate with a smaller pressure in molding a very long or greatly duplicated series of buttons, we propose to employ an upper die in a curved form, and give it a slightly rolling motion, so that the pressure shall be concentrated mainly on a small portion of the extent of surface at any one time; but it is of course necessary, in molding hot material, that the operation shall be rapid. We can of course place what we have called the "lower" die, B C, in the uppermost position, and what we have called the "upper" die, G, in the lowermost position. In other words, our molds may be inverted, or partially inverted, if desirable; but we term the parts "upper" and "lower" dies for convenience.

It will be observed that the bearings of the parts B and C upon the bed A are at and near their outer edges, and that these parts are not directly separated beneath the hinge D. We prefer this arrangement for the reason that the pressure of the upper die, G, upon the material of the button, being transmitted through the parts in this condition, causes the parts B and C to turn or tend to turn very slightly on the axis D as a center, and thus to compress the parts B and C with very great tightness around the neck of the eye E during the brief period while the glass is being molded.

In the simple form of our mold represented in the drawings the handles *b* and *c*, which are cast on or otherwise rigidly fixed to the parts B and C, form convenient means for manipulating the molds. The heat of the melted glass should pervade the parts B and C and the parts G about equaliy, so as to cause a uniform expansion; but if, for any reason, this cannot be done, the part which becomes less heated should be formed of brass or a more expansible material than the other parts, so as to expand equally. The handles *b* and *c* will in all cases remain reasonably cool and allow the molds to be operated with comfort.

We do not confine ourselves to hinging the lower die, B C, by means of the parallel bolt or axis D. We may apply these parts together by locking them in various ways, or by hinging them at one end, and causing them to swing open, like a carpenter's rule; but we prefer the construction represented in the drawings.

It should be remarked that the placing of the eyes in their proper positions in the recesses in B and C will be much facilitated by inclining the open parts or laying them in a half-inverted position, so that the eyes will keep their places by gravity until the parts are closed.

We do not confine our invention to the manufacture of buttons of the precise form here indicated, or even to the manufacture of articles known in the trade as "buttons," but can manufacture by modifications of the parts, which will be obvious to any mechanic, the several varieties of studs, pins, and other articles of ornament and use in which eyes, shanks, hooks, or projections of other kinds or names, composed of brass or other analogous material, are embraced within and are thus firmly secured to a head or expanded part made from plastic material.

Having now fully described our invention, what we claim as new in the manufacture of buttons, and desire to secure by Letters Patent, is as follows:

1. Constructing the lower die in separate parts, B and C, adapted to close tightly around the neck of the eye E, substantially in the manner and for the purposes herein set forth.

2. In connection with the above, the shelf *c*, or its equivalent, arranged as represented, and adapted to support the eyes E, and aid in placing them in the die, substantially as hereinbefore set forth.

3. Supporting the parts B C on the bed A,

so that the pressure of the upper die, G, upon the face of the buttons shall cause the parts B and C to be sprung or compressed more tightly together, substantially in the manner and for the purpose herein set forth.

4. The arrangement of the handles *b c* on the parts B and C, and standing parallel or nearly parallel to the axis D, substantially as and for the purposes described.

G. MATTHEWMAN.
ANTHONY LEININGER.

Witnesses:
ENGELBERT SCHMYTH,
PAUL MILLER.