

(No Model.)

W. F. & J. NILES.
BUTTON, &c.

No. 453,064.

Patented May 26, 1891.

Fig. 1.

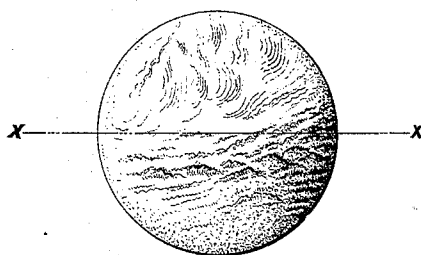


Fig. 2.



WITNESSES:

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INVENTORS

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WILLIAM F. NILES AND JOSEPH NILES, OF BABYLON, ASSIGNORS TO THE
VULCANITE MANUFACTURING COMPANY, OF NEW YORK, N. Y.

BUTTON, &c.

SPECIFICATION forming part of Letters Patent No. 453,064, dated May 26, 1891.

Application filed November 21, 1889. Serial No. 331,088. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. NILES and JOSEPH NILES, citizens of the United States, and residents of Babylon, in the county of Suffolk and State of New York, have invented certain new and useful Methods of Forming Buttons and other Articles, of which the following is a specification.

Our invention relates to a process of manufacturing buttons and other articles, whereby they are ornamented to resemble mother-of-pearl or with organized designs, as hereinafter more fully described. By preference we make use of a laminar substance, such of hoof, horn, or tortoise-shell.

Our process is based upon the discovery that when the laminar substances or materials mentioned are subjected to heat and pressure or pressure alone while in contact with a roughened or corrugated surface, or a plate or net-work constructed to produce an organized design, the particles or laminae of the material are so affected that the color or tint when dyed is successfully retained and the design indelibly applied to the material.

Our understanding of the result of the heat and pressure is that the material is rendered denser in places, and that the laminar structure is broken up or changed, whereby the color or stain is unevenly distributed, thus producing the effect of light and shade, and bringing out the design, as shown in the drawings, in which—

Figure 1 is a plan view of a button, and Fig. 2 a sectional view thereof on the line $x x$ of Fig. 1.

The structure of horn, hoof, or tortoise-shell is such that it may be used with very satisfactory results, and we therefore recommend the employment thereof.

One of the most important of the objects of our invention is to produce a button or analogous article which shall resemble mother-of-pearl. In making such articles we proceed as follows: We take a plate having a surface such as is produced either by natural or artificial oxidation. A plate of metal will be used by preference, because it is more convenient; but any oxidized surface which is sufficiently hard can be employed. We

have used, with very satisfactory results, a plate of naturally-oxidized iron, the character of the surface of which is exactly what is demanded. The plate having been prepared, we take a piece of clean hoof, horn, or tortoise-shell, and having placed it upon the plate, subject it to heat and pressure, employing a pressure of, say, from about fifteen hundred to two thousand pounds to the square inch, more or less, according to the condition or quality of the material, and to a temperature of about from 250° to 300° Fahrenheit for from, say, three to five minutes; but it will be understood that the heat and pressure will necessarily vary according to circumstances, and need not in all instances be applied simultaneously. After the material has been subjected to heat and pressure while in contact with the roughened or oxidized plate, the roughened surface caused by contact with the plate will be removed by scraping, grinding, splitting, or otherwise, and the material will then be cut up into buttons or other articles, which will be subjected to the action of a dyeing or staining substance and polished and finished in the customary way.

In instances in which it is desired to produce an organized design it will usually be expedient to subject the material to pressure between heated surfaces to flatten and distend it before making use of the devices, by means of which the design is applied, and in such instances numerous expedients may be employed. Thus it may be practicable to use an engraved or perforated plate or one the surface of which has been removed at intervals so as to be thrown into strong relief, or a net-work formed of wire may be availed of, the essential consideration being that the surface shall be so constructed that the lines will be sufficiently elevated or in sufficient relief or sunk to such a depth as to properly affect the material by destroying its laminar structure. We have used a net-work of wire with very satisfactory results by first flattening the hoof or horn in the manner customary in the art, and then subjecting it to heat and pressure while in contact with the net-work, using the same degree of heat and pressure as when we used the oxidized plate, as hereinbefore set

forth. Any surface or plate or other expedient which will enable the application of pressure to the material in substantially the same manner as when net-work is used can be employed.

We are aware that in the production of horn buttons plates having designs produced thereon have been used in connection with heat and pressure for the purpose of applying said designs to the buttons either sunk in or raised upon the surface; but such process and product are widely different from those above described, in that after the material has been treated by our process that portion of the laminiferous material which has come in contact with the plate is removed, and after further manipulation a button or article produced having a smooth polished surface. Nor do we limit ourselves to the use of any particular kind of plate, surface, or expedient, nor to any particular color or colors of dye; but

What we claim, and desire to secure by Letters Patent, is—

1. The process hereinbefore described of producing buttons or analogous articles from hoof, horn, tortoise-shell, or other laminar substance, consisting in subjecting the material

to heat and pressure while in contact with the surface of an oxidized plate, removing the contact-surface of the material, and finishing and dyeing the same.

2. The process hereinbefore described of producing buttons or analogous articles from horn, hoof, tortoise-shell, and other laminar substance, consisting in subjecting the material to suitable heat and pressure while in contact with a cameo or intaglio design, removing the contact-surfaces of the material, and dyeing and finishing the same.

3. A button or analogous article constructed of hoof, horn, or tortoise-shell in the manner described, having the laminar structure broken up or changed, its roughened surface or surfaces removed, and the article dyed and finished.

Signed at New York, in the county of New York and State of New York, this 18th day of November, A. D. 1889.

WILLIAM F. NILES.
JOSEPH NILES.

Witnesses:

HERMAN GUSTOW,
FRED. C. RIECKERS.