

UNITED STATES PATENT OFFICE.

WILLIAM F. NILES, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN MANUFACTURING BUTTONS, &c.

Specification forming part of Letters Patent No. **221,852**, dated November 18, 1879; application filed September 8, 1879.

To all whom it may concern:

Be it known that I, WILLIAM F. NILES, of Jersey City, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in the Processes of Manufacturing Buttons and other articles from fibrous materials, which will stand without injury thereto steam-heat of 212° Fahrenheit and upward; and I do hereby declare that the following is a full, clear, and exact description of the same, sufficiently so to enable a person skilled in the art to which my said invention belongs to make and use the same.

The fibrous material is first prepared in the form of pulp, used in the manufacture of paper, after which it is dried, and which operation may be performed in any convenient manner. One good mode I have found to be to first squeeze the pulp up into bunches, thereby expelling the water to a considerable extent, after which said bunches of pulp are placed in a convenient position for drying, and when well dried are reduced to a soft linty substance, and this may be accomplished by feeding the dried bunches of pulp to a series of rapidly-rotating saws, arranged close together, the dried bunches of pulp being fed to said reducing-saws through a hopper properly arranged for that purpose; but any other suitable mode of reducing the dried pulp or fibrous material may be adopted and employed.

After the dried pulp has been reduced to a soft linty substance, as before explained, it is saturated with a solution of albumen or gelatine, after which it is again dried and then broken up into small pieces, which pieces, being placed in suitable dies or molds and subjected to great pressure and heat at the same time, the heat being 212° Fahrenheit and upward, articles such as buttons, martingale-rings, and ornaments to be worn on ladies' dresses and heads are produced, possessing great strength and beauty, while at the same time being light and free from all disagreeable and offensive smell or odor.

The simple saturation of white pulp or fibrous material with albumen will give to such material, when subjected to heat and pressure, as before explained, a mottled color or appearance, very pleasing and attractive to the eye;

and in case the fibrous material employed (whether it be vegetable or animal fibrous material) is of a dark or varying hue, the article produced will also have a variegated appearance. Still again, if it is desired to give any particular color to the articles, this may be done by coloring a portion of the fibrous material before the albumen or gelatine is applied thereto when a mottled or variegated appearance is desired.

In making the articles in the manner last above described the colored fibrous material would be mixed with the uncolored portion before the albumen or gelatine was applied. In case the coloring-matter was to be applied in a powdered state, this could be done by sifting it into the broken pieces and mixing it therewith just before being placed in the molds or dies.

In short, the fibrous material may be colored in various ways to suit the convenience, taste, and wishes of the manufacturer, and such coloring may extend to the whole or any portion of the fibrous material.

If desired, metallic substances, in the form of powder, fine particles, or in the leaf, may be placed upon the material in the molds or dies before the pressing and finishing operation commences, in which case, when the article has been removed from the molds and polished, a metallic surface, wherever such metallic material was applied, will appear, and that, too, with great beauty and brightness.

I have enumerated only a few of the various articles which can be made by my improved mode or process, and those skilled in the art to which it belongs will readily perceive the practical value and importance of the invention, since the articles produced thereby do not shrink, and will not crack or readily break apart, the fibers of the material being united by great pressure and heat of a temperature of 212° Fahrenheit and upward, so as to form one continuous mass, thereby giving great strength to the article, while at the same time it is sufficiently hard to receive and retain a very high polish or finish.

In pressing the articles I prefer to place the dies or molds between compressing tables or beds, filled with steam, in the manner heretofore practiced by me in the manufacture of ar-

ticles from powdered blood and other substances, and for which Letters Patent have heretofore been granted to me.

In case large quantities of fibrous material are to be prepared for use after it has been reduced to the soft linty state, as before explained, such linty fibrous material may be immersed in a solution of albumen or gelatine, and then passed through pressing or squeezing rollers, for the purpose of removing all excess of such solution; or the linty fibrous material may be placed in a centrifugal extractor and drier, and in either case the surplus albumen or gelatine solution can be saved for further use.

As a result of my mode or process of manufacturing articles from fibrous materials, the fibers, as before intimated, are interlocked and combined with each other in such a manner that when the articles made therefrom are broken or torn asunder the fracture resembles very much the fracture of wrought-iron, thus differing, in a substantial and material manner, from all modes or processes previously devised in which articles were sought to be made from substances first powdered or ground.

I do not wish to be understood as claiming anything described in the English Patent No. 10,883 of 1845; but

What I claim as my invention, and desire to secure by Letters Patent, is—

In the art of manufacturing articles from paper fibrous material, the mode or process hereinbefore described, consisting of, first, reducing the paper fibrous material to a pulp; second, drying the same; third, separating the dried pieces of pulp by a saw or otherwise into a soft linty substance or mass; fourth, then saturating such soft linty fibrous material with albumen or gelatine; fifth, drying the fibrous linty material thus saturated; sixth, breaking the dried saturated fibrous material up into small pieces or bunches; and, seventh, then placing them into molds of the desired shape, and subjecting them to great pressure, and at the same time to heat of 212° Fahrenheit and upward, for the purposes stated.

WILLIAM F. NILES.

Witnesses:

THOS. H. DODGE,
FRED L. GOULDING.