

UNITED STATES PATENT OFFICE.

JARVIS B. EDSON, OF ADAMS, MASSACHUSETTS.

MANUFACTURE OF ARTIFICIAL IVORY.

SPECIFICATION forming part of Letters Patent No. 309,831, dated December 30, 1884.

Application filed April 23, 1884. (Specimens.)

To all whom it may concern:

Be it known that I, JARVIS B. EDSON, a citizen of the United States, residing at Adams, in the county of Berkshire and State of Massachusetts, have invented new and useful Improvements in the Manufacture of Artificial Ivory, of which the following is a specification.

This invention pertains to the production of an article which closely resembles and is adapted for being used as a proper substitute for ivory, the grain of which is still distinct, or at least has not been removed by artificial means; and designated hereinafter in this application as "grain-ivory," the present invention being designed to improve upon the invention set forth and claimed in Letters Patent granted me by the United States August 14, 1883, No. 283,225.

In the manufacture of factitious grain-ivory from a pyroxyline base—such as zylonite—under my invention, at least two lots of zylonite are prepared, differing from each other in shade to such an extent that when combined and subsequently reduced to the ultimate and desired articles to be formed the general shade or color of the article and the individual characteristics of the integral parts forming the grain shall be such as to best approach the appearance of the natural ivory as found in articles of similar form. It will be recognized that the procurement of these degrees of shade is a matter of great nicety and judgment; furthermore, the least of a material of a pyroxyline or zylonite base is never white, or even opaque, but possesses a similar shade to horn, and this horn shade varies to such an extent in different "bleaches," from various causes, that it becomes necessary to take it into account, and it becomes a factor in determining the proper amount of coloring-pigment required to be added to the several lots of zylonite out of which it is intended, by combining together, to form the grain-ivory imitation.

To enable those skilled in the art to which this appertains to practice the same, I will now proceed to describe the operation hereinbefore referred to for the manipulation and manufacture of zylonite and similar compounds for the production of factitious grain-ivory therefrom.

At least two lots of transparent horn-colored pure pyroxyline or zylonite base are required. With one is incorporated, either prior to or at the rolling operation, sufficient pigment—say of oxide of zinc, about seven and one-half per cent., and of suitable coloring-matter—say a yellow—one-half of one per cent., or such pigment without any coloring-matter. These ingredients, employed to obtain the desired body, depth, and tone of color and to destroy the horn-like appearance of the pure material, having been thoroughly incorporated and the whole sufficiently worked on the rolls to the consistency found best adapted for the purpose, occupying about thirty minutes, the rolls are set, say, one-sixteenth of an inch apart, and the batch is run through while it is yet warm, and it emerges in a long sheet. This sheet is either subdivided into small areas or not, depending upon subsequent requirements. With another lot of the transparent horn-colored pure pyroxyline or zylonite base is incorporated, either prior to or at the rolling or grinding operation, sufficient pigment—say of oxide of zinc, about fifteen per cent., and of suitable coloring-matter—say a yellow—one-quarter of one per cent., or such pigment without coloring-matter. These ingredients, employed to obtain the desired "body," "depth," or tone of color and to destroy the horn-like appearance of the pure material, having been thoroughly incorporated and the whole sufficiently worked on the rolls to the consistency found best adapted for the purpose, occupying about thirty minutes, the rolls are set, say, one-sixteenth of an inch apart, and the batch is run through while it is yet warm, and emerges in a long sheet. This sheet is either subdivided into small areas or not, depending upon subsequent requirements. Having thus obtained the two or more layers, I now arrange them alternately and build them up in a block, or amass them in any convenient manner, as by pressing or rolling, aided by heat and pressure, and so as to consolidate them without destroying the individuality of the several layers, thus giving, when cut into cross-sections, a grain appearance. The desired result may also be obtained by using equal amounts of the same pigments in each of these layers, by shading with colors

the different layers; nor is it essential that the pigments, or coloring-matters in their stead, used in the several layers shall be of the same nature, for by using those which give greater
5 or less opacity in the one layer than in the other similar results may also be obtained.

I am aware that various methods have been published for producing factitious grain-ivory—as, for instance, films or sheets produced from dissolved pyroxyline rendered
10 white and opaque by the addition of a suitable pigment, with other films or sheets produced from dissolved pyroxyline without pigment. These films are formed one on the other in
15 geometric forms, so as to give a pleasing figure or grain when the built-up mass is cut.

The following is the manner prescribed: The parkesine is prepared without pigment or coloring-matter, and kept as clear and white
20 as possible, and when in a dough-like state it is rolled into sheets, say one-sixteenth of an inch thick, more or less. Another similar parkesine is prepared, but containing carbonate of strontia, say in the proportion of one
25 part to two hundred parts of pyroxyline, and this is also rolled out into thin sheets. From these sheets, placed alternately one above the other, a block is built up, according to the style or grain the artist desires to produce; and as a method the following is described:
30 A transparent or opaque sheet is laid the one on the other and rolled upon a mandrel, or without, until a roll of some size is accumulated. Then the roll is taken, (the mandrel,

if any, having been drawn out,) twisted, and
35 passed through hat-rolls, rolled down into a slab suitable for cutting, say, knife-handles, or any article it is desired to produce; or the sheets may be accumulated on a large roll and
40 cut off from it in strips and the strips slightly twisted and rolled down into slabs; or many other similar methods may be resorted to. Other methods have been published for producing a satisfactory substitute for ivory; but
45 in none of these cases has a satisfactory imitation been the result entirely, owing to the use of a pure pyroxyline base to form one of the layers of the mass.

It will be seen that it is the distinguishing characteristic of my improvement that each
50 of the sheets or laminae composing the ultimate combined mass is treated with pigment or coloring-matter for the purpose of giving an ivory-grain characteristic and shade to the several individual layers.

Having thus described my invention, what
55 I claim is—

As an improved new manufacture, the imitation grain-ivory herein described, made of
60 two or more combined layers of a pyroxyline base, each of said layers being pigmentized, in the manner substantially as herein set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JARVIS B. EDSON.

Witnesses:

JAMES L. NORRIS,
GEORGE N. REA.