UNITED STATES PATENT OFFICE.

JOHN W. HYATT, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE CELLULOID MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN THE MANUFACTURE OF CARDS, LABELS, AND ANALOGOUS ARTICLES FROM CELLULOID, &c.

Specification forming part of Letters Patent No. **218,122**, dated August 5, 1879; application filed December 11, 1878.

To all whom it may concern:

Be it known that I, JOHN W. HYATT, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in the Manufacture of Cards, Labels, and Analogous Articles from Celluloid, &c., of which the following is a specification, reference being had to the accompanying drawings.

The invention relates to improvements in cards, labels, and analogous articles; and consists, first, in the production of a card, label, or analogous article formed of what is known as "celluloid," or any other compound of pyroxyline; and, second, in an improved process whereby a design or lettering upon the article is rendered indelible and the effectiveness thereof enhanced.

I contemplate chiefly the production of playing-cards, but do not limit my claim to any particular class or classes of articles requiring the qualities of card-board or paper.

The playing-card I produce has special and marked advantages over those heretofore in use. It is more elastic, more durable, and more economical; will not warp, crease, or break under any ordinary handling, such as playing-cards are subjected to, and preserves its essential qualities longer than the best paper card that can be made. It possesses, in a marked degree, the quick, elastic action, which is one of the most important characteristics of a good playing-card, and which is universally regarded as a great desideratum.

The invention includes within its scope every kind and description of card, label, tag, ticket, card-board, and analogous article, large and small, without regard to the uses for which they are employed. It is believed, however, that it may be practiced with more satisfactory results, and to better advantage, in the production of cards and labels of an ornamental character, particularly such as are printed in colors, than where no ornamentation is required and but one ink or color employed.

The design or lettering may be of any color, or bronze or gilt, and applied by means of a press or otherwise from metal plates or type, from wood, stone, or any other suitable material or substance, and by means of a pencil, brush, or otherwise. I do not limit myself to any manner of applying the design or lettering. It may be effected in a multiplicity of ways, according to the circumstances of the case.

I take a sheet or piece of celluloid or other compound of pyroxyline of the desired thickness, upon which I apply the design or lettering intended to be utilized. The design or lettering having been applied, I cover it with a solution of celluloid or other compound of pyroxyline of about the consistency of varnish. The sheet is then permitted to dry, and the article finished. When preferred, the surface which protects the design or lettering may be polished, at will, in any appropriate manner—for instance, by subjecting the surface or surfaces to pressure between polished plates, the plates, preferably, being heated. While I do not limit myself to this method of polishing, I prefer it, and claim it, in connection with other steps, as hereinafter set forth.

To avoid warping, and to facilitate production, I prefer to fabricate a sheet of celluloid or other compound of pyroxyline of any desired thickness in the manner set forth in the specification of the Letters Patent No. 199,908, granted to me on the 5th day of February, 1878, taking care to make the entire surfaces of the sheet as even as possible. Having attached the sheet to a frame of convenient size and construction, the design or lettering is made upon it by means of a press, in any suitable manner, and, by preference, allowed to dry. The coating of the solution or varnish is then applied, the sheet dried, and the articles cut and trimmed in the usual manner. The printing upon the sheets in this way effects a highly-important result, and is, I claim, a discovery of my own.

It will be expedient in the production of articles, the size of which will permit, to adapt the size of the frame and sheet of material to the requirements of each case, so that the form may be made up, or the stone or plate prepared, to print as many cards, labels, or other articles as possible upon a single sheet.

The method of applying the design or lettering will depend upon circumstances; but I recommend the use of a horizontal bed and a

platen press wherever practicable. In a large majority of instances such a press may be used with satisfactory results. The method of applying the design or impression, however, is, as hereinbefore recited, a matter of judgment. It will be effected according to the result desired and the convenience of the operator in any way that circumstances may demand. The same is true of the cutting and trimming, which will be done in the customary manner, it being practicable to treat the sheet of celluloid or other compound of pyroxyline the same, to all intents and purposes, as if it were a sheet of ordinary card-board or paper.

An important element of the invention is the use of the solution or varnish, the effect of its application being to make the design or impression on the article indelible, and to protect it effectually, so that the surface possesses all the advantages which pertain to the material of which the interior body of the article is made.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a card, label, or analogous article, made of celluloid or other compound of pyroxyline, bearing an impression or design, substantially as set forth.

2. The within-described process of manufacturing articles of celluloid or any other compound of pyroxyline, which consists in applying an impression or design, and then coating the impression or design with a solution of celluloid or other compound of pyroxyline, substantially as set forth.

3. The within-described process of applying designs, &c., upon articles of celluloid or other compound of pyroxyline, which consists in attaching the sheets thereof to frames in any convenient way, printing upon the sheets, coating the impression or design, and drying the result before removing sheets from the frames, substantially as set forth.

4. The within-described process of manufacturing articles of celluloid or any other compound of pyroxyline, which consists in applying an impression or design, coating the design or impression with a solution of celluloid or other compound of pyroxyline, and subjecting the result to pressure of a heated surface, in the manner and for the purposes substantially as set forth.

In testimony that I claim the foregoing improvement in the manufacture of cards, labels, and analogous articles, as above described, I have hereunto set my hand this 23d day of October, 1878.

JOHN W. HYATT.

Witnesses:

R. J. D. DUNN,

ABRAHAM MANNERS.