Nov. 25, 1924. 1,516,506

E. SCHULTZ

PROCESS OF APPLYING CELLULOID TO PAINTED SURFACES

Filed July 26, 1921

Fig-1

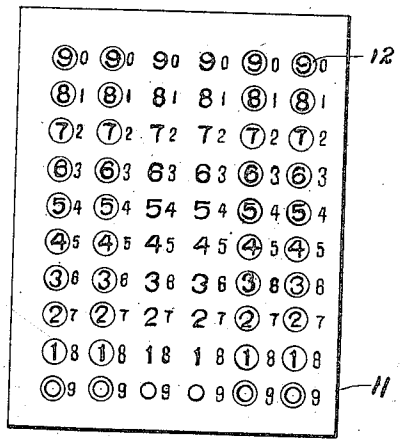


Fig-2

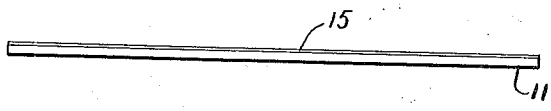


Fig-3



Fig-4

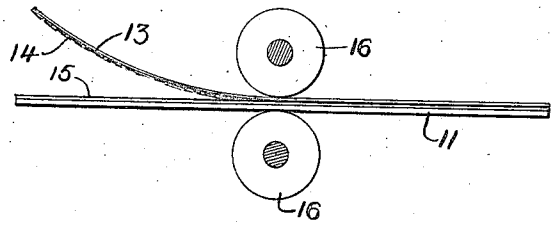
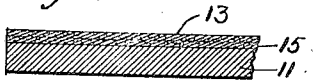


Fig-5



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By:- Munday, Clarke & Carpenter, Attys:-

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UNITED STATES PATENT OFFICE.

EDWARD SCHULTZ, OF MAYWOOD, ILLINOIS, ASSIGNOR TO AMERICAN CAN COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

PROCESS OF APPLYING CELLULOID TO PAINTED SURFACES.

Application filed July 26, 1921. Serial No. 487,777.

To all whom it may concern:

Be it known that I, EDWARD SCHULTZ, a citizen of the United States, residing in Maywood, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Processes of Applying Celluloid to Painted Surfaces, of which the following is a specification.

My invention relates to a process of uniting celluloid to painted surfaces, and while in the particular embodiment used for the purpose of illustration, the process is employed for the purpose of covering with celluloid metal plates or boards of the type used as fingerboards on adding or listing machines, it will be understood that the invention has a much wider scope and is of general application in providing articles of various kinds with a celluloid covering.

An important object of the invention is the provision of a method or process adapted to produce firm adhesion of the celluloid sheet to the surface to which it is applied throughout its surface of application.

A further object of the invention is the provision of a process of uniting the substances mentioned, which results in rendering the painted or printed characters on the covered surface clearly visible upon the coating, it being understood that for the accomplishment of this purpose a transparent celluloid is used.

A still further object of the invention is the provision of a process of the character specified which produces a glazed-finish surface, accentuating the lustre of the paint and simulating a glass covering.

Another and highly important object of the invention is the provision of a process for the purpose stated, which provides an effectual protective coating for the painted characters, preventing wear or effacement of them through exposure or through contact in use.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings,

Figure 1 is a front elevation of a small adding machine keyboard produced by the method of my invention;

Fig. 2 is a side view of a metal board prior to the application of the celluloid covering thereto;

Fig. 3 is a side elevation of a celluloid sheet to which a suitable paint-solvent lacquer has been applied;

Fig. 4 is a side elevational view of the metal and the lacquered celluloid covering in the process of being united under the pressure of rollers; and

Fig. 5 is an enlarged section of a portion of the united board and celluloid covering.

It will be noted that the embodiment of the invention shown in the drawings comprises primarily a metal board 11 having painted or printed thereon characters 12, these, in the present instance, being an outline arrangement of the numerals used upon a keyboard for adding or listing machines and the like, and a celluloid covering 13, which is applied to the metal board in a manner to be hereinafter described.

In carrying out the process of my invention, the metal board 11, or preferably a large sheet from which a number of boards are subsequently stamped, is printed, painted or varnished as may be desired. A transparent celluloid sheet, numbered 13 in the drawings, is then coated with lacquer of suitable composition and thickness to act as a solvent for the varnish or paint. The mixture which I have found most efficacious for this purpose consists of a half part of what is commonly known as celluloid lacquer, and a half part of thinner, though it will be understood that my invention is not limited to the particular type of solvent solution employed. The lacquered transparent celluloid is then applied to the metal board or sheet, care being taken to prevent slipping or any relative movement of the board and the celluloid, since this would result in a spreading and marring of the characters on the board. Upon application of the lacquer, which is indicated by the reference character 14, and which at this stage is coated upon the celluloid, the paint or varnish 15 is partially dissolved and unites with the lacquer. To complete the uniting action of the two substances, however, and to cause the paint or the varnish to adhere to the celluloid strip, the metal board or sheet with the celluloid adhering thereto is passed through rollers 16 or otherwise subjected to

pressure. This results in adhesion of the entire composition to the metal base and also presses out any surplus of the solvent mixture. It is desirable that the edges of the board be enclosed in absorbent material such as soft paper in order to take up this surplus mixture.

It will be observed that the means for applying pressure to the board and covering comprises, as illustrated, the two rollers 16 such as are used in a clothes wringer, but it is manifest that other means of accomplishing this result, either automatic or manually controlled, may be employed within the contemplation of the invention. After the foregoing operations have been completed the individual articles, such as fingerboards, are stamped out or blanked and may subsequently be punched and formed to any desired shape.

Great difficulty has been experienced in obtaining proper and effective cohesion of celluloid to metal, and as a result the usual method of attaching a celluloid covering has been to clinch or otherwise secure the edges thereof about the outer edges of the article to which it was applied. Through the use of my invention not only is a firm union produced between the celluloid and the metal, but the surface characters on the latter are effectually protected and the finished article provided with a lustre and brightness of exceptionally pleasing appearance.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A process of applying celluloid to painted surfaces, which consists in applying a paint-solvent to celluloid sheets, pressing the solvent coated side of said sheets upon the painted surface and subjecting the assembled parts to pressure.

2. A process of applying celluloid to painted surfaces, which consists in applying a paint-solvent celluloid lacquer to celluloid sheets and pressing the lacquered side of said sheets onto the painted surface.

3. A process of applying celluloid to painted surfaces, which consists in combining celluloid lacquer and a thinning solution in such proportions as to produce a paint-solvent mixture, applying said mixture to one side of the celluloid sheets, arranging the coated side of said sheets upon the painted surface and applying pressure thereto.

4. A process of applying celluloid to painted surfaces, which consists in applying a paint-solvent solution to celluloid sheets positioning said sheets with their coated sides upon the painted surface and applying a rolling pressure thereto.

5. The process of covering articles with celluloid, which consists in painting the article to be covered, applying a paint-solvent solution to a celluloid sheet throughout its surface, and uniting the paint on said article and the solvent solution on said sheet under pressure.

6. The process of covering articles with celluloid, which consists in painting the article to be covered, applying a paint-solvent solution to a celluloid sheet and uniting the paint on said article and the solvent solution on said sheet under pressure.

7. The process which consists in applying paints to a suitable article or base, applying a celluloid lacquer on a celluloid covering, and subjecting said base and covering together to pressure, thereby partially dissolving the paints by said lacquer without displacing them and causing the permanent union of said base and covering.

EDWARD SCHULTZ.