

Aug. 4, 1925.

1,548,096

E. L. PERSONS

PROCESS OF EMBOSSING AND COLORING

Filed Nov. 3, 1923

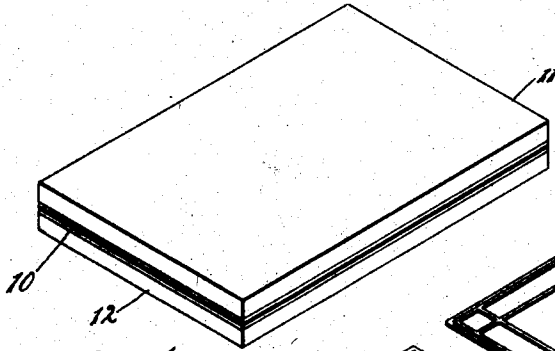


Fig. 1.

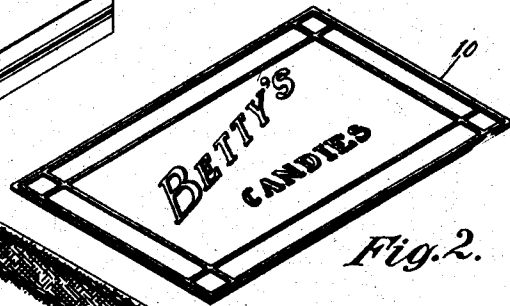


Fig. 2.

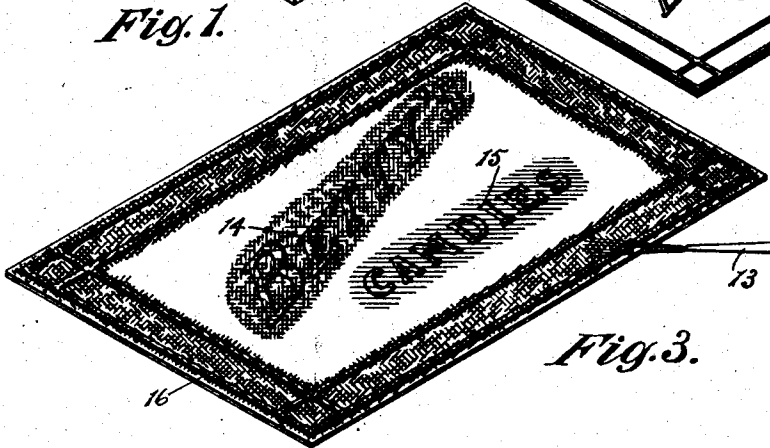


Fig. 3.

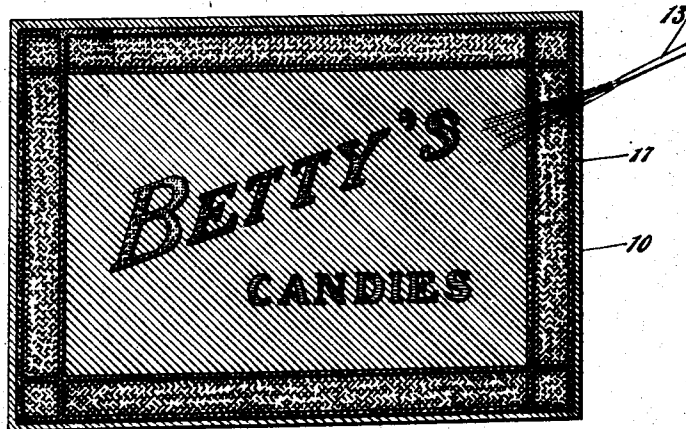


Fig. 4.

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Patented Aug. 4, 1925.

1,548,096

UNITED STATES PATENT OFFICE.

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PROCESS OF EMBOSSING AND COLORING.

Application filed November 3, 1923. Serial No. 672,459.

To all whom it may concern:

Be it known that I, ERNEST L. PERSONS, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Processes of Embossing and Coloring, of which the following is a specification, and which is illustrated in the accompanying drawings, forming a part thereof.

This invention relates to the ornamentation of sheets of porous material, and more particularly to the process of embossing and coloring of said sheets. One of the objects of the invention is the ornamenting of sheets of porous material by a new and improved process of embossing and coloring the same. Another object of the invention is a new and improved process of treating embossed and colored surfaces whereby the same will readily dry and become impervious to moisture and will thereby have the freshness and lustre of the ornamentation preserved indefinitely.

A still further object of the invention is the provision of a sheet of embossed and colored porous material that is ornamental in appearance and that is not affected by climatic and atmospheric conditions.

Other and further objects and advantages of the invention will appear from the following description, taken in connection with the accompanying drawings, in which

Fig. 1 is a more or less diagrammatic view of an embossing press with a sheet of porous material in position therein to be embossed;

Fig. 2 is a perspective of the sheet of porous material after the same has been embossed;

Fig. 3 is a perspective view of an embossed sheet of material showing the same as it appears while being colored; and

Fig. 4 is a plan view of a colored and embossed sheet showing the same after it has been treated with a drying composition.

In ornamenting fibrous or leather book covers, signs and the like, it is common practice to indent the material and stamp foil in the indentations for coloring or ornamenting the same. This expedient, however, is not satisfactory because the foil is readily detached and even when first applied is not as ornamental as is desirable. On the other hand, embossing and properly coloring the

embossed portion differently from the remaining portions of the material, has heretofore been considered impractical or too expensive to be employed.

These difficulties and many others are overcome by the process of embossing and coloring which will now be described.

The sheet of material 10 may comprise a single sheet of flexible material or a board covered with a suitable material such as cloth, leather, imitation leather or other suitable porous material, and is properly prepared in the usual manner.

The sheet of material is usually mounted on a straw or cloth board and if it is to be "grained" or otherwise treated this operation is performed after which the sheet is embossed by any suitable mechanism.

In Fig. 1 the sheet 10 is shown as being embossed in a conventional type of embossing press shown more or less diagrammatically. The reference character 11 designates the head carrying the intaglio plate and the reference character 12 the bed of the press.

After the sheet 10 has passed through the embossing press as shown in Fig. 2 of the drawings, the embossed portions are colored in any suitable manner. Preferably the coloring matter is applied with a conventional air brush 13 shown more or less diagrammatically in Figs. 3 and 4.

The coloring matter is applied on a spot sufficiently large to include the embossed characters that are desired to be of a particular color. If other colors are desired on the different groups of characters or designs, each group is treated with its particular color. For the purpose of illustration the sheet shown in Fig. 3 contains two groups of letters 14 and 15 and a border design 16 forming three groups in all. Each group is shown as being in a differently colored spot.

The coloring is preferably done after the embossing because the embossing process stretches, compresses and otherwise distorts the material to such an extent that the coloring would no longer be smooth and even over the embossed surface, if applied before the material is embossed. The coloring matter may be of any suitable composition. Preferably the coloring matter is mixed with lacquer which has been thinned to the proper consistency by a commercial "thinner." The

lacquer causes the coloring to dry almost immediately, or at least within a few minutes after it has been applied.

The background of the sheet is then given the desired color. This may be accomplished by printing the same. Preferably the intaglio plate or surface of the embossing head is inked and after the sheet is properly positioned so that the embossed characters or design will register with the corresponding depressions in the head the sheet is printed. In practice, if the border of the sheet contains unembossed portions that are of the same color as the embossed portions thereof, the border of the intaglio head is removed before the printing operation. Usually it is made removable but it may be routed out before printing the ground of the sheet. The ground may be printed in any desired color. It may be, and preferably is, of an entirely different color from the coloring of the embossed design as shown at 17 in Fig. 4. This step of the process makes the whole surface of the sheet a single color except the border and the embossed design on the body of the sheet, which remain unaltered.

Any suitable ink may be employed for this printing process. Preferably lithographic ink to which has been added from 20% to 50% of lacquer, is employed. The lacquer tends to hasten the drying of the sheet, but sufficient lacquer cannot be employed for this purpose because it would dry on the ink roll before the inking process could be completed. After the ground has been colored or printed it is necessary to treat the surface with a drying compound, otherwise the ink will take an indefinite time to dry, especially if the sheet of material be of leather.

The surface of the sheet 10 is finally treated with a suitable drying compound. Preferably lacquer as thick as can well be used is employed for this purpose. A coat of the drying compound is applied to the whole surface of the sheet by any suitable means, such as by means of an air brush 13 as shown in Fig. 4 of the drawings.

In order not to modify or change the appearance of the various colors on the sheet, the drying compound employed is pellucid.

The coat of lacquer is not only valuable

in this relation as a drying agent, but, since it is waterproof and is not affected by climatic or atmospheric conditions, it will protect the sheet from moisture and will preserve the freshness of the colors and appearance of the design for an indefinite length of time.

I claim as my invention:

1. A process of coloring and embossing material, which consists in embossing the material, coloring the embossed portions, printing the background and treating the whole with a drying compound.

2. A process of coloring and embossing sheets of porous material which consists in first embossing said sheets, then suitably coloring the embossed portions, then printing the background and finally coating the whole face of the sheet with a pellucid drying and preserving compound.

3. A process of coloring and embossing sheets of material which consists in embossing said material, coloring the embossed portions, and then inking the background.

4. The process of coloring and embossing porous material which consists in embossing said material, coloring the embossed portions, inking the background and treating the whole with a coat of drying compound.

5. A sheet of porous material provided on its face with a colored embossed design and a ground of different color from the design and a coat of transparent drying material over the whole face of said sheet for protecting and preserving the same.

6. The process of treating surfaces for ornamentation consisting in embossing the surface, coloring the embossed portions and then treating the unembossed portions with a different color.

7. The process of coloring embossed sheets which consists in permanently coloring the embossed portions of said sheets and thereafter applying a different color to the unembossed portions.

8. The process of coloring embossed sheets which consists in applying a color to the embossed portions of said sheets, applying a different color to the background, and thereafter treating the entire surface of said sheet with a drying compound.

ERNEST L. PERSONS.