Aug. 7, 1934. F. X. MALOCSAY 1,969,569

METHOD OF MAKING PRINTED CELLOPHANE

Filed June 21, 1932

Fig. 1.

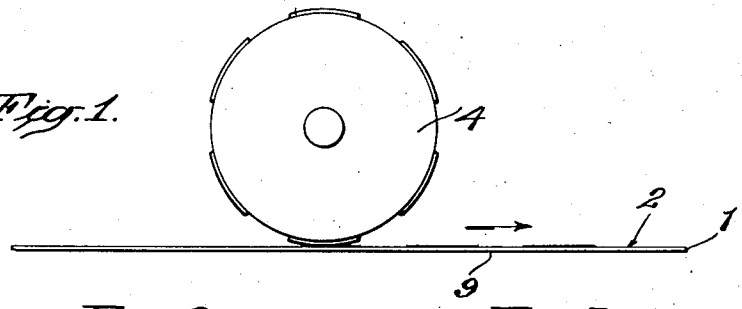


Fig. 2.

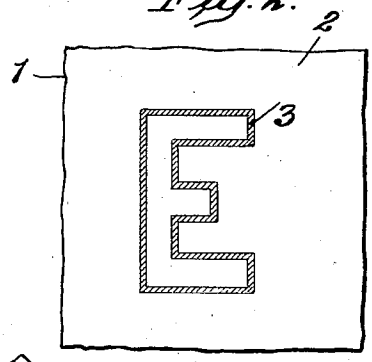


Fig. 3.

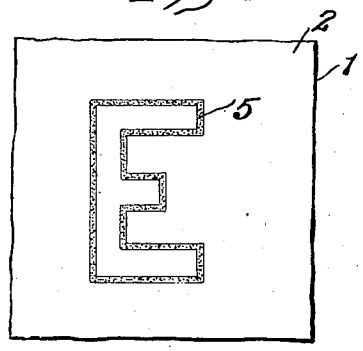


Fig. 4.

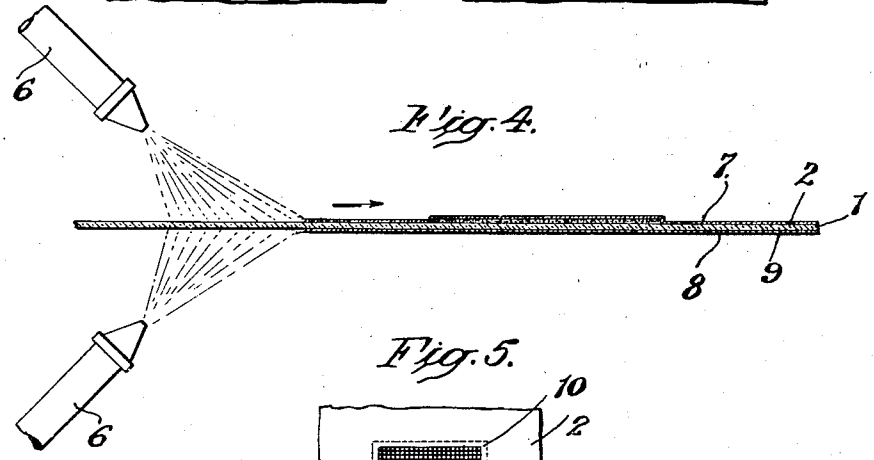
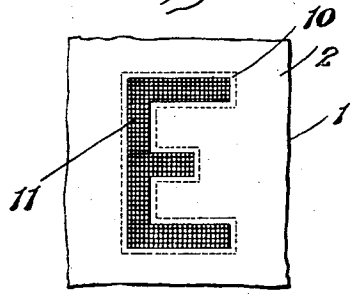


Fig. 5.



INVENTOR
Francis X. Malocsay
BY
Harry Raziunty
his ATTORNEY

Patented Aug. 7, 1934 1,969,569

UNITED STATES PATENT OFFICE

1,969,569

METHOD OF MAKING PRINTED CELLOPHANE

Francis X. Malocsay, Upper Saddle River, N. J., assignor, by mesne assignments, to Consolidated International Corporation, a corporation of New York

Application June 21, 1932, Serial No. 618,452

2 Claims. (Cl. 41—22)

This invention relates to printed "Cellophane" wrappers, or printed "Cellophane" sheets for other purposes and particularly to the method of making the same.

"Cellophane" is a widely known wood pulp product and is in extensive use to-day, particularly for wrapping or containing various articles of merchandise. Its primary advantage is that it is highly transparent so that the contents of the package are plainly visible through the wrapper. "Cellophane" as it is known at the present time, is made in several grades, one which is non-waterproof and may be used for purposes where the penetration of moisture through the wrapper is more or less inconsequential, and the other grade is waterproofed, or at least is made water-resistent by the application of a very thin film or coating of a waterproofing substance on one or both faces of the sheet. This waterproofing layer is applied to the ordinary non-waterproof "Cellophane" sheet by spraying it on, or else by subjecting the "Cellophane" to a bath which applies the desired waterproofing coating or film to both faces of the material.

Efforts have been made in the past to print upon "Cellophane", and some degree of success has been had, particularly when liquid inks were used and when the printing was applied to the non-waterproofed "Cellophane". The application of the waterproofing coating serves to cause the "Cellophane" to be adherent to certain printing inks, particularly those in the form of a powder such as gold, silver or bronze powder. It has been found that the waterproofing layer or coating, while being receptive to the powder, possesses adherent qualities which prevent the ready removal of excess powder from the printed impression, with the result that an attempt to remove such excess printing powder causes the "Cellophane" sheet to be smeared or blurred due to the refusal of the excess powder to be dislodged from its adherence with the face of the waterproofed "Cellophane".

My invention relates to a new and improved method whereby waterproof "Cellophane" may be produced with a printed face and wherein the waterproofing layer serves as a protective film or coating for the printing, and since the printing is disposed under the waterproofed layer, its appearance is greatly enhanced due to the lustrous and glossy effect given to it by the superimposed layer of waterproofing material.

My invention also contemplates the application of printing on both faces of the "Cellophane" sheet so that accurate registration of the various portions of the design is possible and the printing on both faces of the sheet is in every way protected and will present a glossy and clean cut appearance for the entire life of the "Cellophane" sheet on which it appears.

Specifically, my invention contemplates the application of an adhesive sizing in the form of the printed impression, applied to the face of a non-waterproof "Cellophane" sheet, following this with an application of a printing powder or color powder over the sizing; the removal of excess powder and the subjection of the sheet so printed to a waterproofing bath or spray which will coat the sheet, as well as the printing borne by it with a thin, transparent, flexible, lustrous film or coating layer acting to not only protect the printing, but to greatly enhance its appearance.

Reference is to be had to the accompanying drawing forming a part hereof in which Fig. 1 is a diagrammatic view showing a printing roller applying printed impressions of an adhesive material or sizing to the face of a sheet of non-waterproofed "Cellophane", or some other similar thin, transparent sheet material; Fig. 2 is a face view of a piece of "Cellophane" showing one of the impressions made thereon by the printing roller; Fig. 3 is a view of the same impression after the printing powder has been aplied thereto; Fig. 4 is a diagrammatic view of a "Cellophane" sheet bearing the printed impression of Fig. 3 being subjected to waterproofing treatment by the spraying method; and Fig. 5 is a view of the treated sheet of "Cellophane" after a printed impression has been placed on the back face of the same to register with the printed impression of Fig. 3 located on the opposite face of the sheet.

In carrying out the improved method, a sheet of non-waterproof "Cellophane" or other similar thin, transparent sheet material 1 has one of its faces 2 printed with impressions such as shown at 3 for example, by means of a printing roller 4 or by any of the other well-known printing methods. The material used to produce the impression 3 is an adhesive material or sizing such as is in general use for printing where a powdered ink, a gold, silver or bronze powder is used to produce the printed figures. Such a sizing is, for example, that known in the trade as "Cellophane Gold Size", which is composed of lead chromate, carbon black, linseed oil varnish and phenol formaldehyde resin. When the sheet 1 has had the impressions 3 produced by sizing on its face 2, the gold, silver, bronze, or other printing powder, is applied to the sheet and will adhere, as shown at 5 in Fig. 3, to the adhesive im-

pression produced by the roller 4, thus forming printing in the color or shade of the powdered material applied. It has been found easy to dust away, or otherwise remove, the surplus printing powder applied to the sheet, when a non-waterproofed "Cellophane" is used. Consequently the sheet 1 is of such material.

After the printing has been completed, or has reached the stage indicated in Fig. 3, the sheet is then subjected to either a bath or a spraying to apply to one or both of its faces a thin layer, coating or film of a waterproofing material. The waterproofing material is a lacquer such as that ordinarily used for waterproofing "Cellophane" and is in liquid form and extremely thin, flexible and highly transparent, and invisible when evenly applied to the "Cellophane" sheet. An example of a satisfactory waterproofing material is described in U. S. Patent No. 1,737,187, issued to Charch and Prindle. In Fig. 4 the layer or coating of the waterproof material is shown as being sprayed by nozzles 6 to both sides of the sheet and appears thereon in the form of the layer or film 7 on the top surface of the sheet and in the form of the layer or sheet 8 on the under side of the sheet. It will be understood that instead of applying the waterproof coating by spray methods, the sheet may be dipped or drawn through a bath of the waterproofing material to secure the same coating effect as is attained by the spray method. Regardless of the method of applying the waterproofing material, the resultant finished sheet is coated on its faces with the thin, transparent, waterproof layers, one of which extends over and covers the printed impression of Fig. 3. The application of the waterproofing layer 7 over the sheet 1 serves to not only waterproof the printing applied thereon, but also to produce a thin, transparent protective layer on the sheet which is lustrous and glossy and which adds luster to the printing. If desired, all of the printing may be employed on one face of the sheet and be thus covered by the waterproof layer 7. It is also possible to produce complementary printing on the under surface 9 of the sheet, which printing may be so located as to register with the printing on the surface 2. This is possible due to the high degree of transparency of "Cellophane" and many very atractive arrangements can be had.

In Fig. 5 an arrangement is shown wherein the outline of a letter indicated at 10 is produced as shown in Fig. 3 on the surface 2 of the sheet 1 and is covered by the waterproof layer or coating 7. The body of the letter shown at 11 is located on the under face 9 of the sheet so as to register with the outline 10. As an example, the body of the letter 11 may be printed with black liquid ink on the surface 9 and the outline 10 may be printed with a gold or silver powder on the surface 2 of the sheet and be coated or covered by the waterproof layer 7.

When a sheet of "Cellophane" printed as above described is applied or wrapped about an article it will be seen that all parts of the printing will be fully protected, that is to say, the printing on the outer surface 2 will be coated by and protected with the waterproof layer 7, while the printing on the under side 9 of the sheet will be protected by the body of the sheet. The printing 11 produced on the surface 9 may be made with liquid ink and may be thus printed after the sheet is waterproofed. It may, if preferred, be printed before the waterproofing bath or spray is given to the sheet and may thus be coated with the waterproof layer 8. In such a case all parts of the printing will be covered by this waterproof layer or coating.

The process employed is of particular importance where gold, silver, bronze or other powders are used in the printing process, particularly for the reproduction of cigar bands and the like upon "Cellophane" cigar wrappers, since gold powder is widely used for the printing of cigar bands.

What I claim is:—

1. The method of making printed "Cellophane", consisting in printing a design with an adhesive substance on one side of a "Cellophane" sheet, applying printing powder over the design and removing surplus powder from the sheet, printing complementary design elements with liquid ink on the opposite face of the sheet, and subjecting both sides of the sheet to a waterproofing treatment to form a thin, transparent film over the printing.

2. The method of making printed "Cellophane" consisting in printing a design with an adhesive substance on one side of a "Cellophane" sheet, applying printing powder over the design and removing surplus powder from the sheet, coating both faces of the sheet with a thin, transparent waterproofing compound to form a film over the printing, and printing design elements complementary to those first printed, on the opposite side of the sheet and on top of the waterproofing compound.

FRANCIS X. MALOCSAY.