

PUBLISHED
MAY 11, 1943.
BY A. P. C.

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IMPERVIOUS PACKINGS AND RECEPTACLES
Filed Sept. 6, 1939

Serial No.
293,601
2 Sheets—Sheet 1

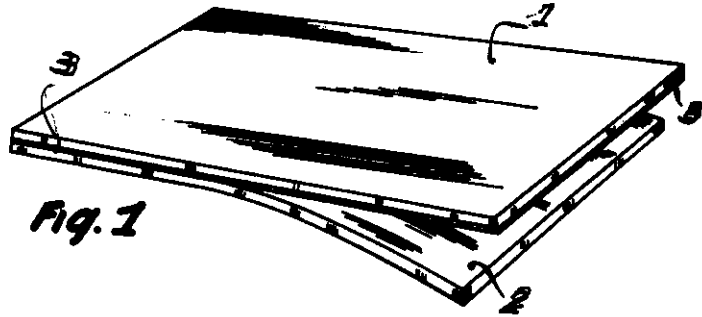


Fig. 1

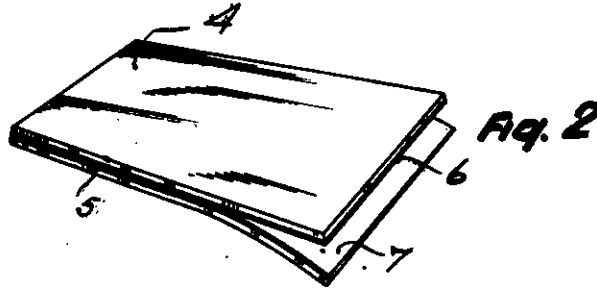


Fig. 2

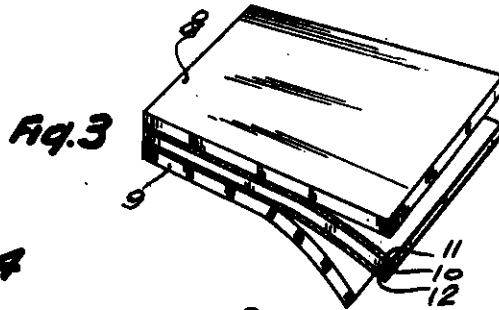


Fig. 3

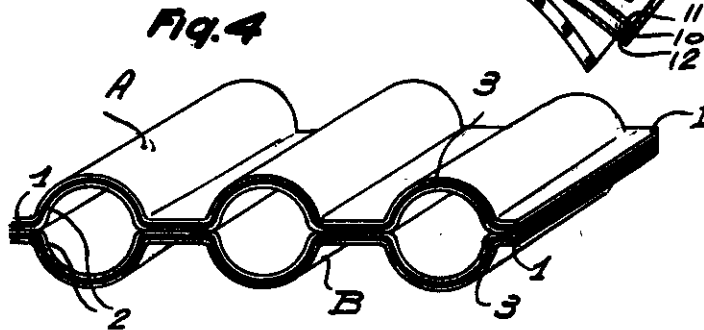


Fig. 4

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Fig. 5

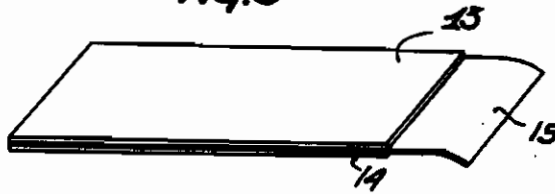


Fig. 6

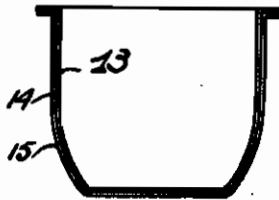


Fig. 7

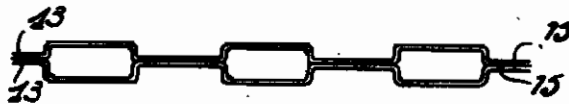
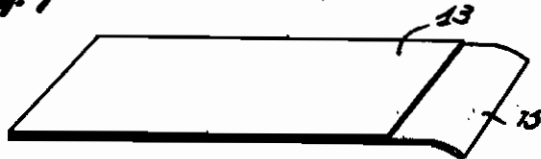


Fig. 8

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ALIEN PROPERTY CUSTODIAN

IMPERVIOUS PACKINGS AND RECEPTACLES

Charles Nicolle, Montrouge, France; vested in the
Allen Property Custodian

Application filed September 6, 1939

The present invention relates to cellulosic or plastic matters in the form of sheets as used for making packings or wrappings, and more especially to films consisting chiefly of cellulosic esters, as commonly used for the preservation of various products, such as chemical, pharmaceutical, food or other products. These matters have the disadvantage of being insufficiently resistant to the action of moisture and, consequently, packing or wrapping elements made of these matters cannot ensure a perfect preservation of the products they contain.

It has been subjected to coat these matters with varnishes resisting to the action of water up to a given temperature, generally relatively low, but the sheets thus varnished do not permit of making packing elements by stamping or molding because, in the course of these operations, the varnish is injured either because it cracks during the stamping operation or because it peels off when ageing. Furthermore, when these varnishes are on the outside, they are never protected against the action of physical or chemical agents capable of altering and deteriorating them, and when they are located on the inside of the package they may have some action on the products enclosed therein.

The object of the present invention is to obviate the drawbacks above mentioned and to provide a matter of the type above mentioned which is wholly impervious.

According to a first feature of the present invention, this result is obtained by interposing, between two sheets of the cellulosic matter or plastic matter, a fluidtight coating, preferably made of a plastic material, for instance consisting chiefly of cellulose, or of a vinyl, acryl, or other ester, or again of various products of the type of artificial resins or varnishes containing rubber in the state of dissolution, or again a layer of paraffin or the like.

Another feature of the present invention consists in making use, as fluidtight body of a film which is fluidtight in itself and further has the quality of being elastic, for instance a film obtained from latex, and applying it on one or both of the faces of the sheet of plastic matter from which the packing is made.

Another object of the present invention consists in the production of packing elements of various shapes, such as boxes, containers, plates with recesses, bags, etc., corresponding to the shape of the products to be placed therein, made of a fluidtight composite matter incorporating a plastic material as above mentioned.

Other features of the present invention will result from the following detailed description of some specific embodiments thereof.

Preferred embodiments of the present invention will be hereinafter described, with reference to the accompanying drawings, given merely by way of example, and in which:

Fig. 1 is a diagrammatical view of an embodiment of an element rendered fluidtight according to the present invention and adapted to be used as packing or wrapping;

Fig. 2 illustrates a modification of this arrangement.

Fig. 3 shows still another modification of the product.

Fig. 4 is a sectional view of an improved packing made by means of elements constituted according to the present invention;

Fig. 5 shows a fluidtight sheet made according to a second embodiment of the invention, that is to say including a fluidtight and elastic film inserted between two sheets of plastic material;

Fig. 6 shows by way of example, a vessel or container made by means of an element constituted as shown by Fig. 5;

Fig. 7 is a diagrammatical view showing an element constituted by a single sheet of plastic material and a single fluidtight and elastic sheet applied on one of the faces thereof;

Fig. 8 is an end view of a packing made with elements of the kind shown by Fig. 7.

The simplest embodiment of the invention, illustrated by Fig. 1, consists in interposing between two sheets of cellulosic or plastic matter, 1 and 2, a fluidtight coating 3, preferably plastic, for instance consisting chiefly of cellulose or a vinyl, acryl, or other ester, or of various coatings of the type of artificial resins or varnishes of the type including chiefly rubber in the state of dissolution. I may also make use of a layer of paraffin or the like. The water-proofing lining being included between the two sheets or films is then protected against external contacts and chemical agents. It cannot be destroyed by a mechanical action, and the atmospheric agents, such as humidity, vapours or gas, cannot exert their injurious effects.

Furthermore, the varnishes are insulated from any contact with the products packed in the composite sheet, which has the supplementary advantage of avoiding any action, either of the packed products on the varnishes, or of the varnishes on the packed products.

It is also possible, by way of modification, to

make the films or sheets as illustrated by Figs. 2 and 3.

In the modification of Fig. 2, two cellulosic sheets 4 and 5 are coated with varnish on their respective faces 6 and 7, these varnished faces being subsequently applied in contact with each other and assembled together.

According to the modification of Fig. 3, I interpose between two virging films or sheets 8 and 9 a thin film 10 varnished on both of its faces 11 and 12, or again, between two films varnished on one face, as in Fig. 2, I interpose a virging film, the whole being fixed together, in sandwich-like manner.

The composite sheets thus obtained, as above described, are well adapted to the manufacture of packages and the like by molding or stamping, since, during these operations, which are generally carried out in the hot state, the varnish is insulated from the molds or dies that are used, so that it does not undergo any deterioration and cannot stick to the molds or dies.

In Fig. 4, I have shown a packing device including a plurality of housings, made by means of sheets according to the invention. It will be noted that both of the elements A and B are constituted each by a sheet made according to the invention, of the type illustrated by Fig. 1, that is to say including two sheets elements 1 and 2 one of which is coated with a layer of varnish interposed between them as visible at 3.

For the manufacture of packages according to the invention, it is possible to proceed in any suitable manner. The coating may be applied by means of a brush, or by dipping the piece in the varnish, by means of a pistol, by means of coating machines of any suitable type, or, generally speaking, in any suitable manner.

The assembly of the sheets or films with the varnish interposed between them will be carried out either in the hot or in the cold state, either before the shaping of the final product (package or container) or even in the course of the stamping or molding operation.

It should also be noted that the flat films or hollow recesses made according to the present invention keep all the particular qualities of the cellulosic or plastic matters themselves, concerning printing possibilities, gluing either in the hot state or by means of a solvent, molding, stamping, folding, and so on.

According to a second embodiment of the invention, I make use, as waterproofing means, of a fluid tight film, which further possesses the property of being elastic. In particular, I will make use of films such as those obtained from latex, for instance. Such a film has the advantage,

due to its elasticity, of conforming to any shape it can be given by molding or stamping and of being not liable to crack or break, as it may be the case, after a time, with a layer constituted by a layer of coating or varnish.

Fig. 5 of the drawing shows this film 15 interposed between two sheets 13 and 14 of a cellulosic or plastic matter. The film can be secured to the two sheets by means of a suitable varnish, but it can also be employed without the adjunction of a varnish.

If it is desired to make, for instance, a pot-shaped container as that shown by Fig. 6, it is not necessary to secure the intermediate film to the two sheets of cellulosic or plastic matter because the very shape of the container serves to maintain the three layers together, and the absence of air between these three layers helps in keeping them in contact. As a matter of fact, I obtain the same result as in the first embodiment, to wit an inner wall 13 and an outer wall 14, having all the qualities and advantages of the cellulosic or plastic matters employed, and the molded walls of the container compel, due to their rigidity, the thin elastic waterproof film 15 to conform to the shape of the container.

For other packings, in particular those which are to be hermetically closed, it will suffice to cause to adhere to each other under pressure, either in the dry state or in a moist atmosphere, by means of a glue or a varnish, a single sheet of plastic or cellulosic matter 13 (Fig. 7) and a thin waterproof and elastic film 15 (Fig. 7) obtained for instance from latex. In this way, I obtain a sheet or plate having on one side the properties of a plastic or cellulosic matter and on the other side a waterproof face. This plate can easily be stamped or moulded, the cellulosic portion serving, so to speak, of reinforcement and compelling the elastic film to conform to its shape, while, of course, this film, if taken alone, due to the very fact that it is elastic, could not keep some special stamped or molded shape that it would be given. Furthermore, the cellulosic sheet gives the packages a rigidity which could not be obtained when using only a waterproof film.

Fig. 8 shows a shape, already disclosed by my prior patents, made of two sheets of a composite structure such as that shown by Fig. 7, these sheets being applied against each other. A packing thus made therefore has, on the inside, a waterproof layer which wholly and directly surrounds the product to be protected, to which moisture can no longer have any access.

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