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A. O. DALLER

2,176,584

METHOD OF FORMING A SEAM

Filed May 6, 1933

Fig. 1.

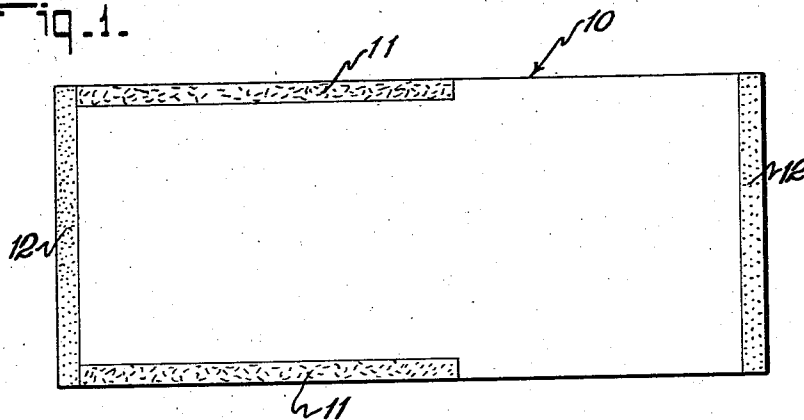


Fig. 2.

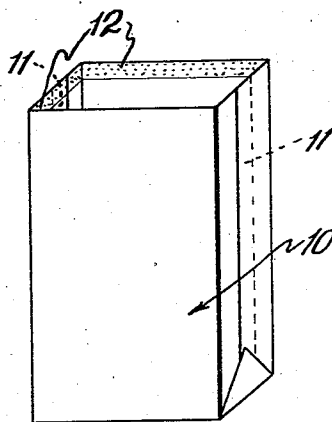
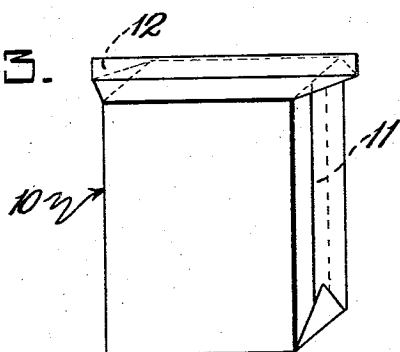


Fig. 3.



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METHOD OF FORMING A SEAM

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Application May 6, 1933, Serial No. 669,662

1 Claim. (Cl. 154-42)

This invention relates to containers and to a method of constructing the same, and specifically to moisture-proof containers.

In general, it is an object of the invention to provide a device of the character described, which will efficiently perform the purpose for which it is intended, which is simple and economical of construction, which can be safely relied upon, and which can be readily manufactured and assembled.

Another object of the invention is to provide a coated moisture-proof container which is tightly sealed without using a solvent for the moisture-proof coating.

Another object is to provide a moisture-proof container that may be sealed after filling without setting up objectionable bouquets and without the application of heat.

Another object is to provide a method of forming a moisture-proof container.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the several steps and the relation and order of one or more of such steps with respect to each of the others, and the article possessing the features, properties and the relation of elements which are exemplified in the following detailed disclosure, and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is a plan view of one form of blank from which a container may be fabricated in accordance with the invention;

Fig. 2 is a perspective view of a container, unfilled and not completely sealed, and made from the blank shown in Fig. 1; and

Fig. 3 is a perspective view of the container shown in Fig. 2, the seal, however, being complete.

In the drawing the numeral 10 denotes a blank from which a container is to be made. The container may be used simply as a package or it may comprise the lining or the outer wrapping for some other container. Any desired material may be used and it is preferably moisture-proof, for example, waxed paper.

An adhesive is applied to certain portions of the blank, whereby, when the blank is folded against itself, a container is formed which may have the shape of an open bag. These portions

are shown as strips 11 extending along at least part of the periphery of two edges of the blank.

The adhesive used contains a latex, caoutchouc latex being particularly suitable. It is capable, in the fluid state, of adhering to most surfaces and upon drying will continue to adhere thereto as a water-repellent film. After it has been applied to a surface and dried out thereon it has very little tendency, if any, to adhere to another surface not so treated. It will, however, in such a dried state, adhere to another similarly-treated surface, and two dried latex layers exhibit a relatively large force of cohesion.

A latex in which the colloidal rubber is about seventy-five per cent. and the water is about twenty-five per cent. may be called a commercially normal concentration. If an uncoated surface of paper or other object is to be prepared for adhesion this normal latex may have any desired amount of water added. This addition may amount to two hundred per cent. It is desirable that the adhesive be in such a state that it can be spread in any convenient manner, as by a roller or brush. The concentration will depend obviously upon the circumstances, such as the physical properties of the paper surface, the tension to which the adhesive seam is to be subjected, how rapidly the surface or seam is to be dried out, how much heat is available for drying, etc. It is essential that the final dried latex film in the seam be substantial enough to withstand the forces expected to be exerted upon the seam.

In certain cases, in order to affix a latex adhesive more securely to a surface, the latex and the surface may be caused to be somewhat more commingled than in the usual absorption. Where the surface has an outer coating of water-repellent material for example, such as wax, it is found advisable to have heat present after the latex is applied. The waxed surface itself may be heated, or the latex, having been applied to the wax on one surface, may be pressed against another coated surface and caused to commingle therewith, by passing the assembly between heated means. In any event there should be sufficient heat to cause whatever amount of wax is present to become somewhat fluid and somewhat interspersed with the latex.

It is found advantageous in connection with coated surfaces to use a concentration of latex such that the latex will not roll up into globules. If the coated surfaces with latex thereon are to be pressed together before the globules have had time to form, more water may be used. The

water added may amount to one hundred per cent. of the normal latex when waxed surfaces are to be pressed together soon after the latex application. When, however, the coated surfaces with latex thereon are not to be pressed together until they have completely dried out the concentration may approach that of the normal latex, in which case it is spread on more like a paste.

In the normal concentration there may be a stabilizing agent, for example, one per cent. potassium hydroxide and two per cent. neutral soft soap.

The odor of ammonia, arising as a natural concomitant of the vegetable matter or from ammonia added at the source to help maintain the colloid character, may be removed by stirring a suitable agent, such as triethanolamine, into the latex and drawing off the ammonia vapor. The former replaces the alkalinity of the latter and adds keeping properties. From one-half of one to one per cent. of the triethanolamine is sufficient to maintain stability.

From five to ten per cent. of casein may be added to strengthen the adhesive properties and to lessen the cost. Ammonium hydroxide may add the alkalinity necessary to keep the latex and casein in solution. A certain amount of sodium hypochlorite increases tackiness. Methyl salicylate may be used as a deodorant and a mild germicide to prevent the decomposition of the casein.

Another satisfactory formula is:

	Per cent
Normal latex	65
Chalk or clay	15
10% casein ammonia solution	20

¹ Slightly variable.

Still another formula is:

	Per cent
Normal latex	65
Clay	12
10% casein ammonia solution	15
20% oxgall solution	5
Zinc oxide	2
Sulphur	21

¹ Plus a slight amount of anti-oxidant and accelerator.

The strips 11 of adhesive may extend all along each side. If they are permitted to dry, each may later be pressed against itself, as the blank is folded to form a seam having an exposed or free edge. If a strip 11 is disposed along one side but part on one face and part on the opposite and allowed to dry, that portion on one face may be pressed against that portion on the other face as the blank is folded, to form a seam having no exposed or free edge.

The process is more quickly carried out if the blank is folded before the strip dries, in which case the strip need only extend along a portion of the periphery and the seam may be with or without a free edge, the latter form being shown in Fig. 2.

The adhesive may contain water in addition to that of the normal concentration as explained above. If the blank is made of waterproof material, or is waterproofed with a material such as wax, then heat must be present to permit the intermingling of the wax and the latex. It is desirable to continue the heating during the pressing of the seam in order that the water excess may dry out. The unfilled container is shown in Fig. 2.

Other strips 12 of the latex adhesive are applied, with heat and before folding, to those portions of the periphery of the blank which are to form the mouth of the container. In the event that time is to elapse between the preparing of the blank, the filling of the container and the final sealing, the concentration of the latex in strips 12 may be about normal to prevent any tendency of the latex to form globules on the surface of the wax. The strips 12 may be dried, the container filled, and the mouth sealed in any suitable fashion as, for example, by pressing the strips against each other.

The applying of adhesive and the folding may be carried out manually or on any suitable apparatus such as that described in my copending application, Serial No. 661,265, filed March 17, 1933. A container so sealed is shown in Fig. 3.

If desired, dry stripping may be resorted to. In such event the material of the blank is not made moisture-proof in those portions to which the adhesive is to be applied and the adhesive need not be heated to effect an adequate bond with the material of the blank.

Although the contour of the blank is shown as generally oblong and rectangular, it will be evident that the shape of the blank is immaterial as long as it may be folded into a container of the desired dimensions.

Since certain changes in carrying out the above process, and certain modifications in the article which embody the invention may be made without departing from its scope, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claim is intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

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

The method of providing a water-proof seam between wax coated surfaces, comprising applying an adhesive containing latex to said surfaces, heating said surfaces to cause said adhesive to form a mixture with the wax coating on said surfaces and to dry, and thereafter pressing said surfaces together.

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