April 22, 1924. 1,491,269

W. A. JOPLIN

METHOD OF PRODUCING SEALED WRAPPED PACKAGES

Filed Nov. 26, 1920 2 Sheets-Sheet 1

FIG. I

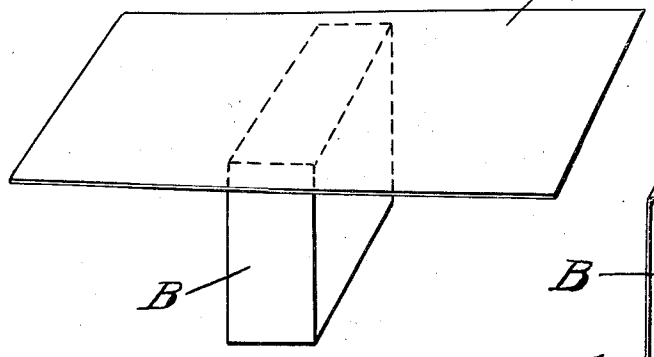


FIG. II

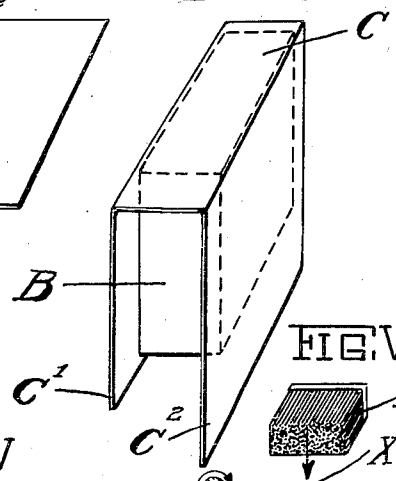


FIG. III

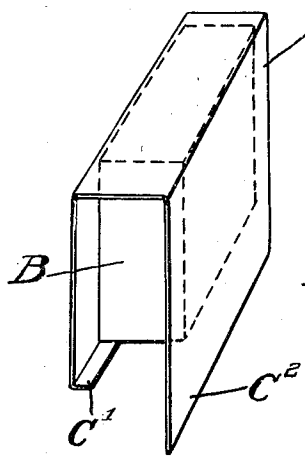


FIG. IV

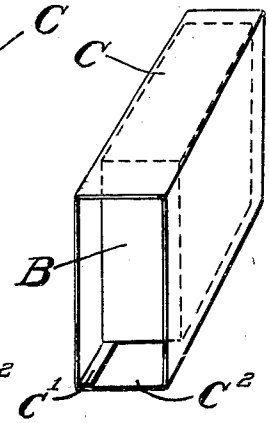


FIG. V

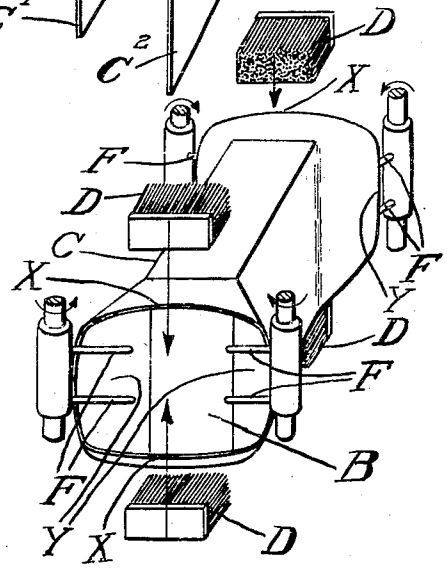
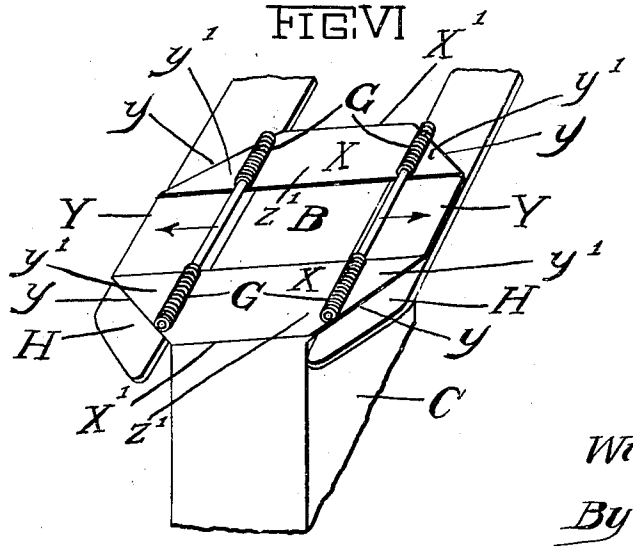


FIG. VI



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METHOD OF PRODUCING SEALED WRAPPED PACKAGES

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FIG. VII

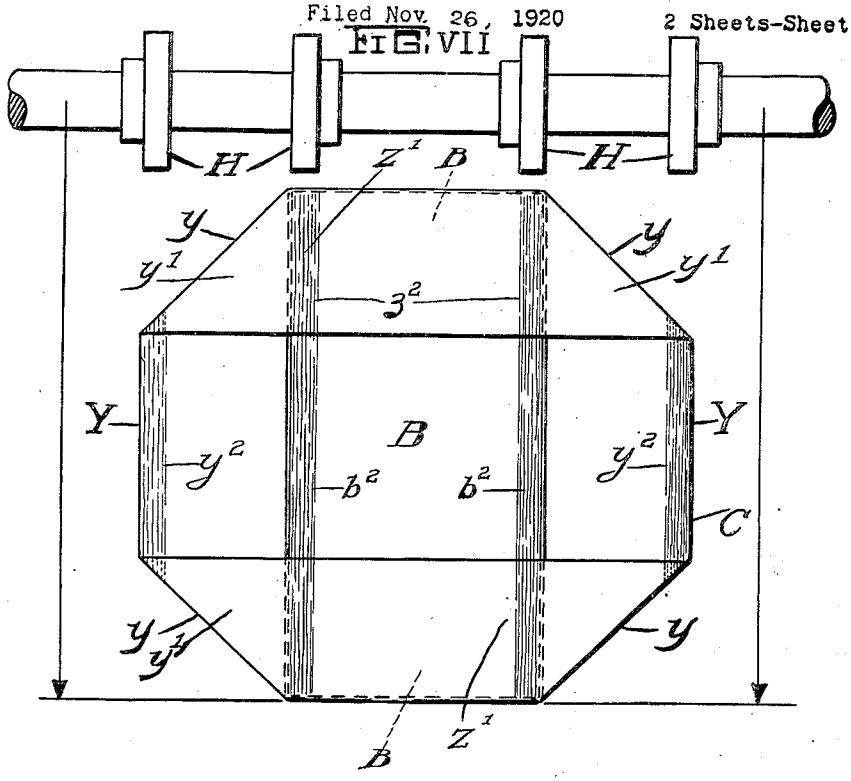


FIG. VIII

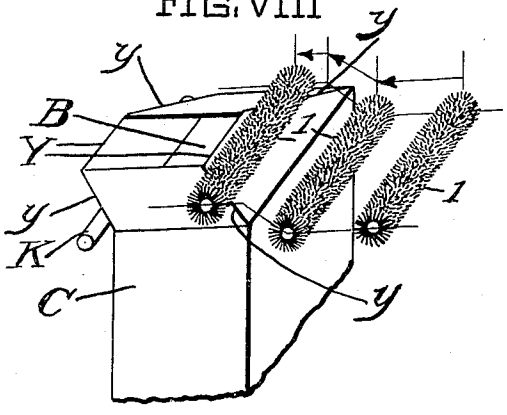
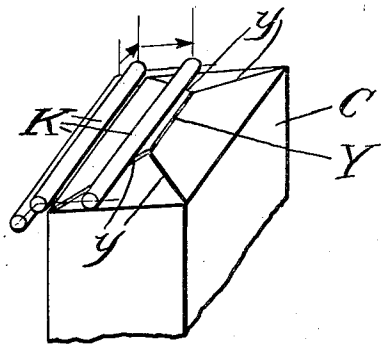


FIG. IX



Inventor
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Patented Apr. 22, 1924. 1,491,269

UNITED STATES PATENT OFFICE.

WILLIAM A. JOPLIN, OF NORFOLK DOWNS, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO STATE STREET TRUST COMPANY, TRUSTEE, A CORPORATION OF MASSACHUSETTS.

METHOD OF PRODUCING SEALED WRAPPED PACKAGES.

Application filed November 26, 1920. Serial No. 426,395.

To all whom it may concern:

Be it known that WILLIAM A. JOPLIN, a citizen of the United States, residing at Norfolk Downs, county of Norfolk, Commonwealth of Massachusetts, has invented certain new and useful Improvements in Methods of Producing Sealed Wrapped Packages, of which the following is a specification.

This invention relates to package or box covering, and particularly to a novel method of sealing a filled container by a covering sheet in such manner as to exclude all air or moisture by reason of the completeness of the application of the covering sheet and the union of contacting surface throughout.

Such package is known in the art as a "sealed, wrapped package," and is generally used as a container for such articles of food as from their very nature are peculiarly susceptible to atmospheric conditions. In such a package therefore completeness and perfection of seal is highly important in order to protect the contents from deterioration.

My invention contemplates certain steps and stages which in part correspond with previous practice in this art and in part involve features of novelty.

My package is characterized by a completeness and tightness of seal not heretofore attained in the art. This results from my novel method of wrapping and sealing the package ends, which are particularly difficult to seal in any package on account of overfold of the wrapper flaps at the ends of the package. According to my invention the wide end flaps of the wrapper are initially spread apart to permit the narrow end flaps to be sealed down tightly and squarely across the ends of the package, thus avoiding any tendency of the narrow flaps to adhere to the wide flaps and destroy the perfection of seal at the package ends, after which the wide flaps are pressed outwardly and creased along definite lines of fold to expose the sealed down narrow flaps for an additional application of adhesive. This not only defines the fold of the wide flaps but permits additional adhesive to be applied in zones closely adjacent the crease lines of the wide flaps where the seal is apt to be quite loose, and to the exposed ends of the package itself, thus insuring an air-tight-seal at the end edges of the side panels of the package. If desired the outer edges of the wide flaps which are the contacting surfaces of said flaps when flaps are finally sealed down to each other, may be given an additional coating of adhesive to insure a positive seal of the wide flaps to each other across the narrow flaps.

For the purposes of description and by way of illustration, I shall treat my invention as applied to a well known form of container. As illustrative of the practice of my invention, I have shown in the accompanying drawings in a somewhat diagrammatic manner, the successive steps by which this package and its wrapper are brought together and the wrapper applied to the package and the manner in which the said wrapper is laid with its contacting surfaces completely united.

Throughout the specification and drawings like reference characters are employed to indicate corresponding parts, and in the drawings:

Fig. I shows a package and wrapper in the position of their initial contact, the same being considered the first step.

Fig. II shows the position at the end of the second step.

Fig. III shows the position at the end of the third step.

Fig. IV shows the wrapper about the container at the end of the fourth step.

Fig. V indicates the fifth step of spreading apart the wide flaps while sealing down the narrow end flaps to the package.

Fig. VI shows one end of the package in course of its treatment in the sixth step.

Fig. VII is an end view showing the end gluing step.

Fig. VIII is an end view of the wrapped package showing the next step in the method which consists in sealing down one of the wide end flaps at each end of the package, and

Fig. IX is a similar view showing the final step in the method which consists in sealing down the opposite wide flap at each end of the package.

For the purposes of the present disclosure and discussion I have selected a conventional carton package B and a covering sheet C. The sheet C is of the rectangular overlapping type and is arbitrarily proportioned in the present instance to be passed

entirely about the sides of the box or package B with a suitable overlap at its opposite edges. In its shorter dimension the sheet C overlaps the ends of the box sufficiently so that when the end overhang is tucked in and folded down the end of the container B is neatly and completely covered. In practice the covering sheet C is completely coated upon its inner or under face as the sheet appears in Fig. I with fresh glue so that it is in a readily adhering and uniformly moistened state.

In handling the package and sheet herein used as illustrations the sheet C is preferably applied to the top edge of the package B being so positioned that when folded down against the side panels of the package the shorter end C^1 of the wrapper slightly overhangs the bottom edge of the package, while the slightly longer opposite end C^2 overhangs sufficiently to give a suitable lap for covering the bottom edge of the package as appears in Fig. II.

Considering my method step by step it will therefore be seen that the first step consists in bringing the package and covering sheet into contact in such relation as to determine the ultimate warp and position the panels or areas of the covering sheet C preferably on the various faces of the package B.

In the second step the sheet is brought down into the position shown in Fig. II, those portions of the sheet coming in contact with the box being suitably laid as by brushes or rolls to effect perfect contact and union between the contacting surfaces.

In the third step (see Fig. III) the narrow end C^1 of the wrapper is turned under and united to the adjacent surface of the package B. In the next step the wider end C^2 of the wrapper is laid on the same face of the package in overlapping relation to the end C^1 (see Fig. IV).

At this stage the package is within the wrapper which is now laid continuously about it in two dimensions while in the third dimension it overlaps or overhangs at each end in a closed extension projecting from each end of the package. So much of my method is in accordance with general practice in labelling and wrapping. I next proceed as shown in Fig. V to turn inwardly two opposite portions of the overhang at each end and bring them into contact at opposite portions of the ends of the box as indicated at X, which are thus the narrow end flaps of the wrapper. At the same time by means of the oppositely rotating fingers F I hold out the intermediate portions of the overhang or wide end flaps Y of the wrapper, so that said flaps Y are drawn back on each side into substantially the plane of the box end. The narrow flaps X are brushed down by the reciprocating pairs of brushes D, thus determining the smoothly drawn edges X^1. The intermediate wide flaps Y thus formed are thus far only roughly defined in that their diagonal folds have not yet been made and as yet their removal from the normal planes of the box sides has only been temporary. At this point I introduce a novel step of great practical importance. This step consists in determining the folds y which determine the ultimate shape of the flap Y. At the same time by bringing together and uniting the contacting faces of the covering sheet in this fold I secure a permanency which is of great advantage especially in view of subsequent steps. In addition to this backing for the flaps Y I give to these flaps a permanent set in the plane at the end of the package forming a right angled crease with the sides of the box. This step may be accomplished by the rolls G, Fig. VI which iron the flaps Y against suitable contact surface as H. This not only removes the flaps Y from any possible interfering position and prepares the box end for the next step, but it determines once and for all the shape of the flaps Y both as regards the base line of the flap where it joins the package B and also as to its triangular overlaps y^1, which are now creased and their glued surfaces pressed into permanent adherence.

The correct position of these parts determines the proper length of the outside edge of the flap. It is now desirable to finish the ends by laying the flaps Y on the ends of the package. It is to be noted, however, that the surfaces y^1 and the surfaces z^1 are unglued surfaces in that they are the outer faces of the wrapper. The end sealing of such a package is of the greatest importance. If there be any contact surfaces that are not united there is obviously a possible air space through which the contained goods may suffer on account of penetrating moisture or by the escape of volatile constituents.

I therefore apply to the ends thus prepared a coating of glue which may be laid by any suitable device as by the rolls H, Fig. VII. These rolls not only apply adhesive to the ungummed areas y^1 and z^1 but also to the ungummed area of the box end B, as indicated diagrammatically in Fig. VII by the lined zones b^2, y^2. Inasmuch as the areas y^1 and z^1 are already closely bonded as to their internal surfaces, the flaps Y may now be laid alternately so as to complete the sealing of the package end, although it is sometimes preferable to apply additional adhesive to the outer edges of the flaps Y, as indicated diagrammatically in Fig. VII by the lined zones y^2, so that said surfaces will adhere tightly to each other

when overlaid one upon the other as shown in Figs. VIII and IX. In the final folding steps one flap Y at each end of the package is first turned inwardly as shown in Fig. VIII and laid as by a suitable brush 1 indicated in that figure, and the opposite flap is laid overlapping it as shown in Fig. IX by any suitable device as the roll K, the successive positions of the brushes and rolls being diagrammatically indicated in said figures.

It will therefore be seen that my package is completely sealed as to all contacting surfaces both between the covering sheet and the box or carton and as between all contacting surfaces of the infolding covering sheet. It will of course be understood that where containers of different shapes are employed the wrapper will be correspondingly varied and the steps of the method may be varied to conform to the requirements of the case. The steps may be started from any convenient side and the several steps may be varied or modified or used together in various combinations. Such methods and the resultant packs are therefore in accordance with the spirit of my invention if within the limits of the appended claims.

What I therefore claim and desire to secure by Letters Patent is:

1. The method of applying an overlapping covering sheet about a package which consists in applying to one face of the package a covering sheet completely gummed on one side, in successively turning and pressing the free edges of the wrapper upon the opposite face of the package, in turning and pressing the overlap from two opposite sides of each end of the wrapper while holding out the overlap of the intermediate sides of the ends, and in subsequently sealing said held-out portions upon the package ends.

2. The method of applying an overlapping covering sheet about a package which consists in applying to one face of the package a covering sheet completely gummed on one side, in successively turning and pressing the free edges of the wrapper upon the opposite face of the package, in turning and pressing the overlap from two opposite sides of each end of the wrapper, in folding back and creasing the portions of the overlap intermediate of said sealed down portions, and in sealing said folded back portions upon the package ends.

3. The method of applying an overlapping covering sheet about a package which consists in applying to one face of the package a covering sheet completely gummed on one side, in successively turning and pressing the free edges of the wrapper upon the opposite face of the package, in turning and pressing the overlap from two opposite sides of each end of the wrapper, in folding back and creasing the portions of the overlap intermediate of said sealed down portions, in applying adhesive to portions of the surfaces exposed between said folded back portions at the package ends, and in laying said folded-back portions upon the package ends.

4. The method of applying an overlapping adhesively coated covering sheet about a package with its coated face disposed to the package which consists in applying to one face of the package a covering completely gummed on one side, in successively turning and pressing the free edges of the wrapper upon the opposite face of the package, in turning and pressing the overlap from two opposite sides of each end of the wrapper, in inserting supporting surfaces under the portions of the overlap intermediate of said sealed-down portions, in folding back and creasing said intermediate portions over said supporting surfaces, in applying adhesive to portions of the surfaces exposed between said folded-back portions at the package ends, and in successively laying said folded-back portions upon the package ends.

5. The method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed to the package which consists in enveloping the package in an adhesively coated sheet having its coated face disposed to the package, in sealing down to the package ends the overlap from two opposite sides of each end of the wrapper while holding out the portions intermediate of said sealed down portion, in folding back said held out portions, in applying adhesive to the outer uncoated faces of said sealed down portions and to the partly covered package ends exposed between said sealed down portions, and in laying said folded back portions upon the package ends.

6. The method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed to the package which consists in enveloping the package in an adhesively coated sheet having its coated face disposed to the package, in sealing down to the package ends the overlap from two opposite sides of each end of the wrapper, in inserting supporting surfaces under the portions of the overlap intermediate of said sealed down portions, in folding back and creasing said intermediate portions over said supporting surfaces, in applying adhesive to the outer uncoated faces of said sealed-down portions and to the exposed faces of said folded back portions and in successively laying said folded back portions upon the package ends.

7. The method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed to the

package, which consists in sealing down to the package ends the overlapping from the two narrow sides of the wrapper at each end, in folding back and creasing the wide portions of the overlap intermediate of said sealed down portions, in applying adhesive to the outer uncoated faces of said sealed down portions and to the exposed faces of said folded back portions, and in successively laying said folded back portions upon the package ends.

8. The steps in the method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed to the package which consist in sealing down to the package ends the overlap from two opposite sides of each end of the wrapper while holding out the portions intermediate of said sealed portions, in folding back said held-out portions, and in applying adhesive to the exposed faces of the sealed-down portions.

9. The steps in the method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed to the package which consist in sealing down to the package ends the overlap from two opposite sides of each end of the wrapper, in inserting supporting surfaces under the portions intermediate of said sealed down portions, and in folding back and creasing said intermediate portions over said supporting surfaces and in applying adhesive to the exposed faces of the sealed down portions.

10. That step in the method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed to the package which consists in folding back opposite portions of the overlap at the ends of the package to permit an application of adhesive to the portions of the overlap intermediate of said folded back portions.

11. The steps in the method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed to the package which consist in folding back opposite portions of the overlap at the ends of the package, and in applying adhesive to the outer uncoated faces of the portions of the overlap intermediate of said folded back portions.

12. The steps in the method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed to the package which consist in folding back and permanently creasing opposite portions of the overlap at the ends of the package. and in applying adhesive to the outer uncoated faces of the portions of the overlap intermediate of said folded back portions and to the outer edges of the exposed faces of said folded back portions.

13. The steps in the method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed to the package, which consist in folding back and permanently creasing opposite portions of the overlap at the ends of the package and in applying adhesive to the outer uncoated faces of the portions of the overlap intermediate of said folded back portions and to the ends of the package exposed between said folded back portions.

14. In the method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed against and sealed to the package throughout its entire extent and with its overlap at the ends of the package overfolded in opposite pairs of flaps, that step which consists in applying an external coating of adhesive to the theretofore uncoated face of one flap pair at each end of the package whereby the other flap pair may be overfolded and sealed directly to said first named flap.

15. In the method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed against and sealed to the package throughout its entire extent and with its overlap at the ends of the package overfolded in opposite pairs of flaps, that step which consists in applying an external coating of adhesive to the theretofore uncoated face of one flap pair at each end of the package and to the exposed ends of the package itself, whereby the other flap pair may be overfolded and sealed directly to said first named flap pair and to the package ends.

16. In the method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed against and sealed to the package throughout its entire extent and with its overlap at the ends of the package overfolded in opposite pairs of flaps, that step which consists in sealing down to the package ends the overlap from two opposite sides of each end of the wrapper while holding out the portions of the wrapper intermediate of said sealed down portions.

17. In the method of applying an overlapping adhesively coated covering sheet to a package with its coated face disposed against and sealed to the package throughout its entire extent and with its overlap at the ends of the package overfolded in opposite pairs of flaps, those steps which consist in first sealing down to the package ends the overlap from two opposite sides of each end of the wrapper while holding out the portions of the wrapper intermediate of said sealed down portions, and in subsequently folding back and creasing said held-out intermediate portions to define their folds as flaps.

18. The steps in the method of applying

an overlapping adhesively coated covering sheet to a package with its coated face disposed to the package which consist in sealing down to the package ends the overlap from two opposite sides of each end of the wrapper while holding out the portions intermediate of said sealed down portions, in inserting supports beneath said intermediate portions, in folding back and creasing said intermediate portions over said supports to cause said intermediate portions to lie in planes at substantially right angles to the package ends, and in subsequently overfolding said intermediate portions upon said sealed down portions.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM A. JOPLIN.

Witnesses:
GEORGE C. CLEAVES,
GEORGE A. ROBINSON.