E. J. CONLEY.

SEALED FOIL PACKAGE AND METHOD OF FORMING THE SAME.

APPLICATION FILED MAR. 10, 1922.

1,433,801.

Patented Oct. 31, 1922.

3 SHEETS--SHEET 1.

Fig. 1.

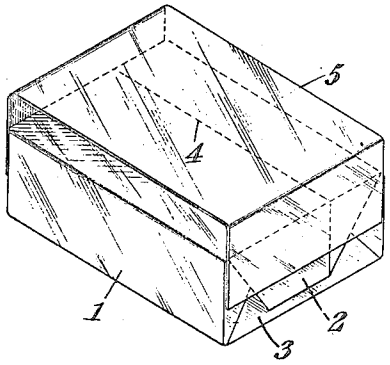


Fig. 2.

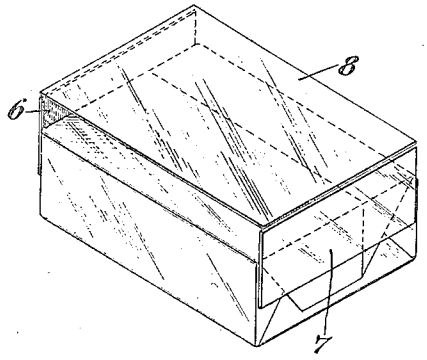
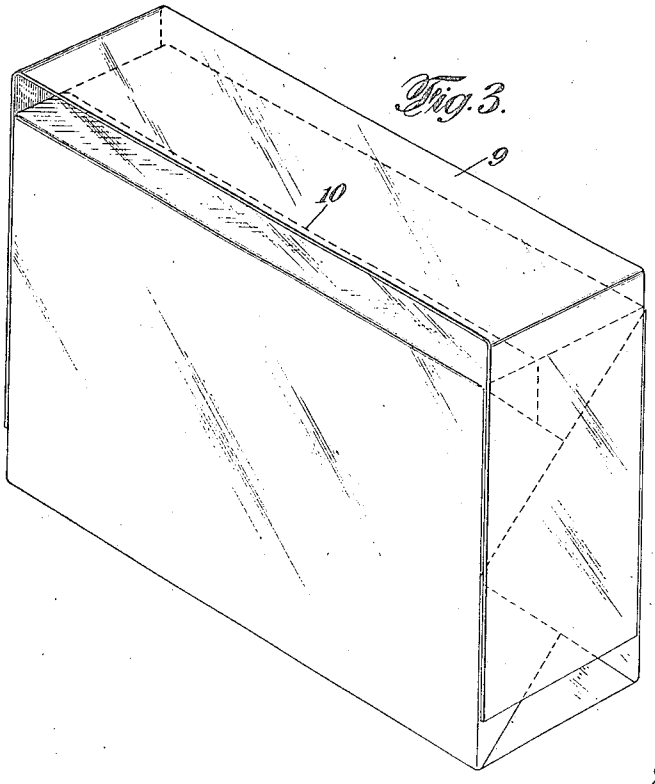


Fig. 3.



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3 SHEETS—SHEET 2.

Fig. 4.

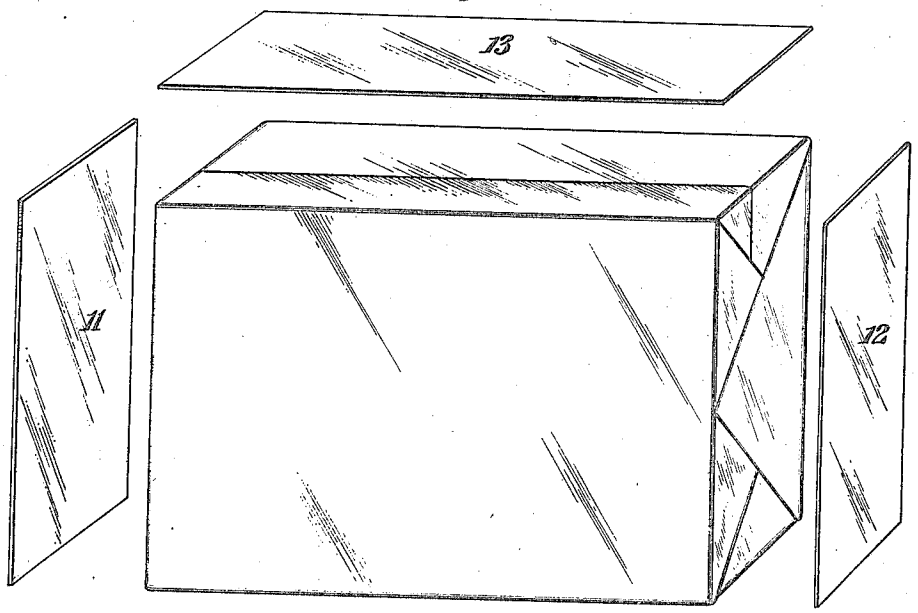
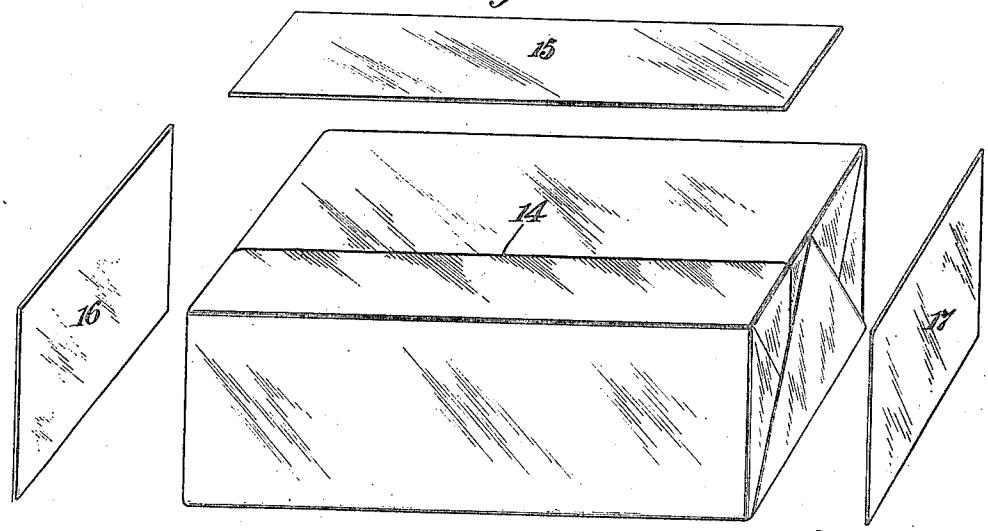


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 6.

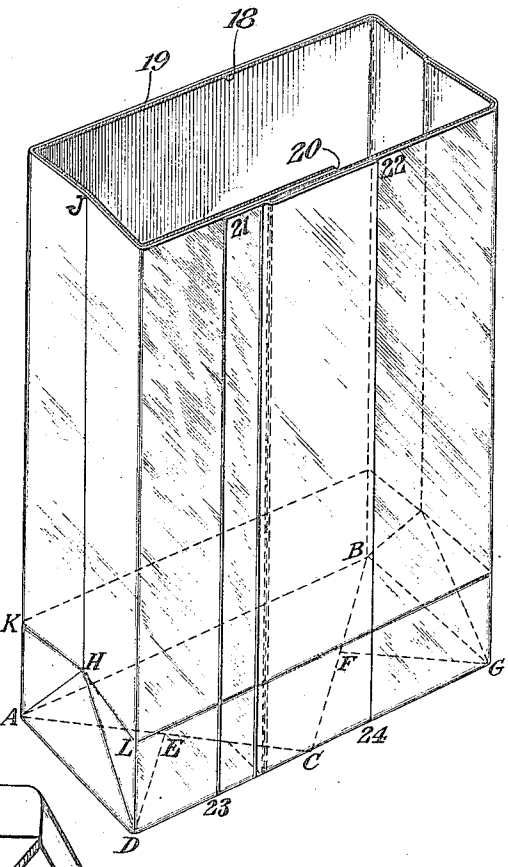
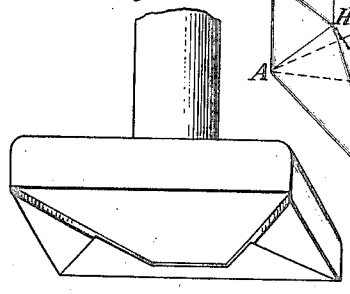
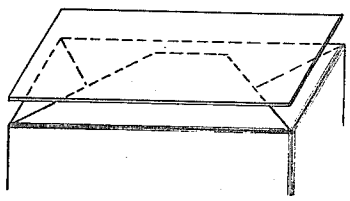


Fig. 7.





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UNITED STATES PATENT OFFICE.

EDWIN J. CONLEY, OF NEW YORK, N. Y.

SEALED FOIL PACKAGE AND METHOD OF FORMING THE SAME.

Application filed March 10, 1922. Serial No. 542,602.

To all whom it may concern:

Be it known that I, EDWIN J. CONLEY, a citizen of the United States, a resident of New York, in the county of New York and State of New York, have invented a certain new and useful Sealed Foil Package and Method of Forming the Same, of which the following is a specification.

This invention has as an object the making of a sealed foil package by the use of additional sheets of foil arranged to cover the overlapping flaps and edges of the package. A further object of the invention is to utilize sheets of relatively thin foil for covering said flaps and edges. More specifically, the invention has as an object the sealing of such a package by fusing the additional sheets of foil to the overlapping portions thereof. A still further object of the invention is to provide a suitable process for making a package as described above.

These objects and others are attained by this invention, of which the following description constitutes several preferred embodiments.

The annexed drawings which form part of the specification illustrate various packages and ways of sealing them with foil, and illustrations have been made with a view of showing the manner in which the foil is placed around the package with respect to the overlapping flaps and edges thereof. These illustrations are not to be taken as showing actual steps in the method of applying said foil; the specific methods of bringing the separate foil into contact with the overlapping flaps and edges in order to fuse them are not intended to be shown by these illustrations.

Accordingly, Figure 1 shows a package with a continuous sheet of foil to be placed over the folded flaps and overlapping edges on the wide side of the package;

Fig. 2 shows a similar package with separate sheets of foil;

Fig. 3 shows a package with a continuous sheet of foil to be placed over the folded flaps and the overlapping edges on the narrow side of the package;

Fig. 4 shows a similar package with separate sheets of foil;

Fig. 5 shows a package with several sheets of foil to be placed over the folded flaps and a narrow strip of foil to be placed over the folded edges on the wide side;

Fig. 6 shows a bag of usual shape with a strip or sheet of foil placed along the folded edges on the wide side, and Fig. 7 is an elevation on a reduced scale of a fusing surface that is adapted for fusing flaps on a package where the flaps are of substantially different elevations, and particularly upon a package having unyielding contents and such a package.

In said Fig. 1 there is shown a package 1 made up of paper covered with metal foil in the usual way and folded in the usual manner to provide flaps 2 and 3 at the ends of the package. The edge of the overlapping foil is shown by the line 4 on the upper or wide side of the package. A continuous sheet of foil 5 is provided to cover said wide side and the ends of the package in order to completely cover up all folded portions. This foil 5 is shown raised up above the package in order to clearly illustrate the relative dimensions and arrangements of the parts, but it is of course to be understood that the foil is not applied by slipping it over the package as shown. When placed over these folded portions as above set forth, the sheet of foil is fused to the foil covering of the package by heated sealing means having a suitable temperature such as 400 to 600° F. in a manner more specifically described in my Patent 1,398,840. The overlapping flaps and edges are not fused together in the manner described in my above mentioned patent, but this step may of course be performed if so desired. The sealing of the foil sheet 5 to the sides of the package having folds and flaps accomplishes a perfect hermetic sealing without additional sealing means.

Fig. 2 shows the same method of sealing except that the sheets are separate, in case it is desired to use separate mechanical means for applying the thin foil. These sheets are designated as 6, 7, 8.

Fig. 3 shows a sheet of thin foil 9 to be placed around the package on the narrow side thereof in order to seal overlapping edge 10 which occurs in this case on the narrow side of the package, and to seal the overlapping flaps on the ends of the package.

Fig. 4 shows a package similar to that of Fig. 3 with separate sheets of foil 11, 12 and 13 to cover the ends and the narrow side respectively.

Fig. 5 shows the package having the over-

lapping flap on the wide side along line 14 and then sealed by a sheet of foil 15 narrower than the full width of the side, as it is unnecessary to cover the entire side. Separate sheets of foil 16 and 17 are shown in relation to the ends of the package to which they are to be fused.

Fig. 6 shows a bag consisting of a sheet of paper 18 covered by a sheet of foil 19 folded in the usual manner to provide overlapping edges at point 20, and the usual flaps at the bottom of the bag represented by dotted lines A, B, C, and D, E, F, G, respectively. The lines A, H; H, D; H, J; H, K, and H, L (all shown as full lines) represent the folds in the bag when it is folded in the usual manner to lie flat. A relatively thin sheet of foil represented by the rectangle 21, 22, 24, 23 is placed over the overlapping edges at 20 and sealed by fusion to the bag. Another separate sheet of foil having the dimensions A, B, D, G is placed against the bottom of the bag and similarly fused thereto. The bag is thereafter handled in the usual manner, and may be hermetically sealed at the top by fusing a sheet of foil along the top edge to cover the same completely.

These various views do not illustrate all of the various embodiments of the invention, but are merely illustrative of several advantageous ways in which a package may be formed according to this invention. It is not necessary that the foil forming part of the body of the package should have any unusual characteristics; in other words, it may be ordinary foil, but the foil with which the package is finally sealed preferably should be relatively thin foil having a thickness of less than 3/1000 of an inch and advantageously 1/1000 of an inch. As above stated, the flaps and overlapping edges do not need to be separately sealed before applying the thin foil sheets. The packages illustrated may contain unyielding contents such as boxes, or they may contain yieldable contents such as cigarettes. The specific method of bringing the metal foil sheet or sheets into contact with the respective portions of the package and thereupon fusing them together does not form part of my invention, and this operation may, if so desired, be done by hand with the aid of a suitable fusing tool such as is described in my Patent No. 1,398,840. In addition to the advantages recited in said patent, this present invention accomplishes a very secure hermetic sealing of the package by reason of separately covering all folded portions, and it furthermore makes it possible to use relatively thick foil in forming the body of the package while using relatively thin foil to seal the joints. Another advantage resides in the fact that packages formed and folded by the usual types of machinery may, by a simple operation, be hermetically sealed with thin foil without rearranging old machinery.

The manner of sealing may be similar to that described in my Patent 1,398,840, and this sealing takes place without the aid of any flux or solder, for the foil, whether thick or relatively thin, is caused by the heat of the fusing iron to firmly and permanently fuse to the body of the foil package.

Where there are a number of flaps or thicknesses more or less overlapping each other, which are either substantially unyielding, because the contents of the package are unyielding or because the difference in thickness of the said flaps is considerable, I prefer to use a sealing surface which is complemental and conformed to the different levels and outlines to be sealed. Such a sealing surface is shown in elevation in Fig. 7 and is adapted for sealing the folded flaps on the end of a package such as the package shown therein. I preferably relatively bring such a sealing surface into operation by a movement that is relatively perpendicular to the foil.

As many apparently widely different embodiments of this invention may be made without departing from the spirit thereof, it is to be understood that I do not intend to limit myself to the specific embodiment thereof, except as indicated in the appended claims.

By the term "metallically united", occurring in the claims, is meant united by metallic adhesion or cohesion, such as by fusing or soldering.

I claim:

1. An enclosure for packages comprising foil, having its edges sealed by a sheet of foil metallically united to the foil of said package.

2. An enclosure for packages comprising foil, having its edges united by a sheet of foil fused thereto.

3. An enclosure for packages comprising foil, having its edges overlapping and sealed by a sheet of foil fused thereto.

4. An enclosure for packages comprising foil, having its edges united by a sheet of foil fused thereto, the latter sheet having a thickness less than 3/1000 of an inch.

5. The method of uniting the edges of a foil enclosure comprising fusing a sheet of relatively thin foil thereto.

6. The method of sealing a package wrapped in foil so as to provide folded flaps comprising fusing a relatively thin sheet of foil over said flaps.

7. The method of hermetically sealing a package wrapped in foil so as to provide overlapping flaps and edges comprising fusing a relatively thin sheet of foil over said flaps and edges.

8. The method of uniting the edges of a

foil enclosure comprising fusing a sheet of of foil thereto.

9. The method of sealing a package wrapped in foil so as to provide flaps or overlying portions of different thicknesses or levels having foil contacting with foil, comprising applying a sealing surface which is complemental and conformed to the different levels and outlines of the portions to be sealed and fusing the contacting surfaces together.

In testimony that I claim the foregoing, I have hereunto set my hand this 9th day of March, 1922.

EDWIN J. CONLEY.