Oct. 6, 1953 L. L. SALFISBERG 2,654,471

SEALED PACKAGE

Filed Nov. 7, 1950

Fig. 1

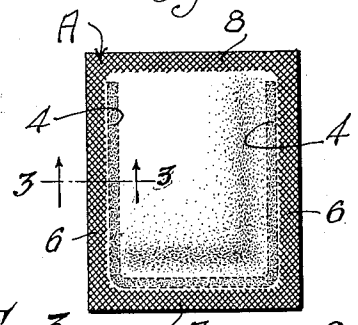



Fig. 2

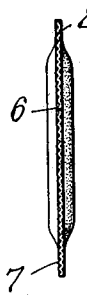



Fig. 4

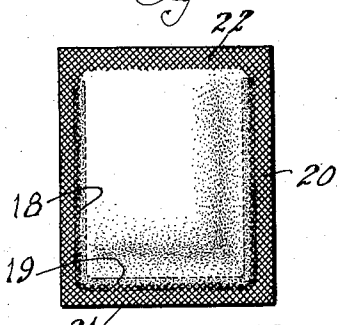



Fig. 3

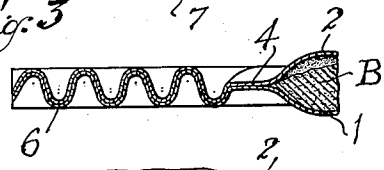



Fig. 8

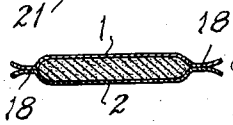



Fig. 6

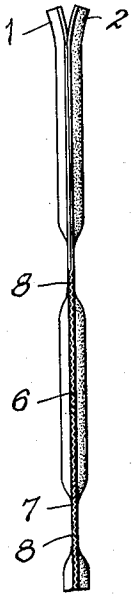



Fig. 5

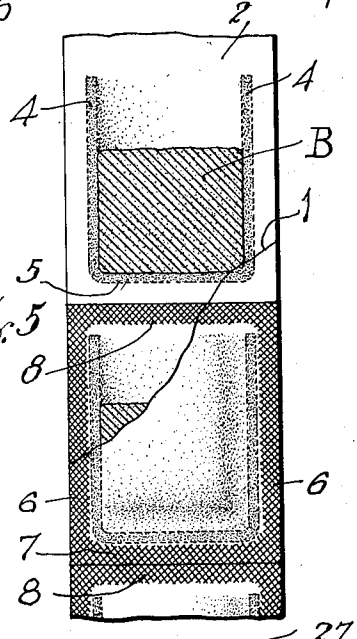



Fig. 7

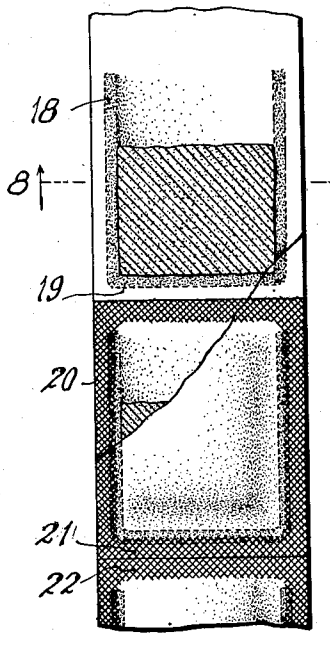
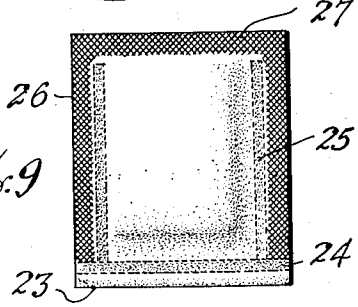



Fig. 9



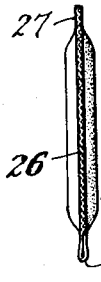




Fig. 10

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# UNITED STATES PATENT OFFICE

2,654,471

## SEALED PACKAGE

Leroy L. Salfisberg, deceased, late of South Orange, N. J., by Herman G. Kopald, New York, N. Y., and Lloyd I. Volckening, Glen Ridge, N. J., executors, assignors to Ivers-Lee Company, Newark, N. J., a corporation of Delaware

Application November 7, 1950, Serial No. 194,481

2 Claims. (Cl. 206—46)

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This application is a continuation-in-part of the application of Leroy L. Salfisberg, deceased, Serial No. 15,623, filed March 18, 1948, now Patent No. 2,606,412, dated August 12, 1952; and the invention relates in general to packages made of two layers of packaging material, for example, strips of cellophane, Pliofilm, metal foil, papers or the like sealed together in zones forming and bounding a compartment between the layers in which is located the packaged substance.

Packages of this general type and machines for making them are disclosed, for example in the Salfisberg Patents Nos. 2,245,827 and 2,350,930 dated June 17, 1941, and June 6, 1944, respectively. In methods set forth in these patents, the strips of material are moved through the machine between cooperative sealing dies with a step by step motion, and at the end of each step of movement, the dies press the strips together simultaneously along their longitudinal margins and transversely to form a rectangular bag-like container having an open end, the two sides and bottom of the bag being formed by the longitudinal and transverse seals, respectively, and the open end being formed between the unsealed portions of the strips at the upper ends of said longitudinal sealed zones. With this method, the last-mentioned end of a given package is sealed at a different time and independently of the sealing of the strips together to form the other three sides of the package; the sealing is therefore not always as secure as it might be, and frequently the junctures of the longitudinal sealed zones and the transverse zones that close the previously open end of the package are visible and detract from the appearance of the package, and they may be spaced apart and thereby permit leakage of the packaged substance.

One object of the present invention is to provide a novel and improved package wherein the layers of packaging material have been initially or preliminarily sealed together to form a self-sustaining bag-like structure having an open end through which the bag is filled and thereafter said layers have been sealed together to form simultaneously all of the longitudinal sealed zones and the transverse zones and thereby providing a final or permanent annular sealed zone which is continuous or uninterrupted, of uniform strength throughout, and neat and attractive in appearance.

Another object is to provide such a package wherein the initial or preliminarily sealed zones shall be practically invisible in the completed package.

Other objects, advantages and results of the

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invention will be brought out by the following description in conjunction with the accompanying drawings in which

Figure 1 is a plan view of a package embodying the invention;

Figure 2 is an edge elevational view thereof;

Figure 3 is a greatly enlarged fragmentary transverse view, approximately on the plane of the line 3—3 of Figure 1;

Figure 4 is a plan view of a modified form of the package;

Figure 5 is an enlarged plan view of a portion of a package strip illustrating some of the steps in the method of forming the package that are described and claimed in the above-mentioned co-pending application;

Figure 6 is an edge elevational view of the portion of the package strip shown in Figure 5;

Figure 7 is a view similar to Figure 5 showing the package strip incident to formation of the package illustrated in Figure 4;

Figure 8 is a transverse vertical sectional view on the plane of the line 8—8 of Figure 7;

Figure 9 is a view similar to Figure 1 showing another form of package embodying the invention; and

Figure 10 is an edge elevational view of the package shown in Figure 9.

In making the package, two strips 1 and 2 of suitable packaging material are drawn step by step from a suitable supply into juxtaposition or side by side relation by any suitable mechanism such as that described in Patents Nos. 2,606,412, 2,245,827 and 2,350,930.

At the end of each step of movement, the two strips are sealed together by suitable dies along their longitudinal edges, as indicated at 4, and transversely as indicated at 5 to form a bag-like receptacle having an open end or mouth facing upwardly between the strips, and simultaneously said strips are sealed together along longitudinal and transverse margins 6 and 7, as well as transversely, as indicated at 8, of said open end of the next preceding bag-like receptacle that was formed at the end of the immediately preceding step of movement, so as to form a complete package A. In the interval between the steps of movement and after the partial formation of each package above described, the substance or article to be packaged is deposited by a filling mechanism having a discharge spout into the open mouth of the bag-like receptacle.

In forming the packages, the sealing dies are first separated and the packaging strips are pulled downwardly into juxtaposition between the sealing dies. Thereupon, the dies are moved

toward each other so as to cause the sealing surfaces thereon to press the strips together to form the zones 4 and 5 and partially fabricate a package or a bag-like structure having its open end open between the strips at the upper ends of the sealing dies, and simultaneously press the strips together to form the zones 6, 7 and 8 of the next preceding package and complete said package. Where the strips 1 and 2 are of thermoplastic material or have a thermoplastic coating on their adjacent surfaces, the sealing dies will be heated in any suitable manner to soften or fuse the thermoplastic material and seal the strips together. Where ordinary adhesive is used for sealing the strips together, the heaters may be omitted.

After the strips have been sealed as above described, the sealing dies are opened and the spout of the filling mechanism is quickly lowered into the open end of the partially completed package to deposit the material to be packaged. The spout is then withdrawn and the operations are repeated.

In the package so far described, the permanent sealed zones 6, 7 and 8 are disposed wholly outside of the initially or preliminarily sealed zones 4 and 5 and are corrugated or crimped, while the initially sealed zones 4 and 5 are smooth or flat (see Figure 3).

A modification of the invention is shown in Figures 4, 7 and 8 where the initially sealed zones 18 and 19 are at least partially overlaid by the permanent sealed zones 20, 21 and 22. In this case, the sealing dies will have the sealing surfaces for forming the initial and permanent seals, respectively, in proper relation to each other to locate the sealed zones as described.

Another form of package is shown in Figure 9 where a single strip of material is folded upon itself as indicated at 23, to form two superposed layers that are preliminarily sealed together transversely or inwardly of the fold as indicated at 24 and along the longitudinal edge portions as indicated at 25. The permanent sealed zones 26 and 27 are inverted U-shaped and extend only along the longitudinal edge portions of the layers and along the transverse edge portions opposite the fold.

It will be seen that in the specific form of package herein described, the initial sealed zones 4 and 5 are arranged to form a U-shaped seal, all portions of which are substantially continuous and uninterrupted, thereby producing a self-sustaining bag-like receptacle, while the areas 6, 7 and 8 form an annular seal of rectangular shape, all portions of which are continuous and uninterrupted to hermetically and permanently seal said receptacle. This annular seal is therefore of uniform strength throughout and attractive in appearance. Moreover, the packages



of Figures 1 and 4 have in effect double seals throughout the sealed portions except across the original mouth of the container, that is, across the ends of the initial zones 4; but where the initial zones are smooth and flat, as shown, they are substantially invisible. Furthermore, it will be observed that the initial smooth flat seal avoids the formation of strains or distortions between the sealing zones and the commodity compartment while the final annular seal, made after the compartment has been filled, tightly seals the whole compartment so as to provide strength to prevent separation of the sheets, and the initial zones maintain the compartment tight and prevent the escape of the contents of the compartment into the final sealing areas during the operation of filling the compartment. Where the packaging material becomes crinkled during the sealing operation and before the insertion of the powder or the like into the compartment, particles of the powder flow into the crinkles and provide an irregular and unpleasing appearance at the margins of the compartments, whereas in the present invention, the smooth sealing zones insure straight and attractive margins for the compartment.

It will be understood by those skilled in the art that the invention may be embodied in other forms of packages within the spirit and scope of the invention.

What is claimed is:

1. A package comprising opposed rectangular layers of package material thermoplastically sealed together in smooth flat zones along only three edge portions and spaced inwardly from the corresponding edges of said layers and forming a bag-like commodity-receiving compartment in which a commodity is deposited, said layers being also thermoplastically crimp-sealed together in a continuous annular area that is disposed outwardly of the inner boundaries of said smooth flat zones in encircling relation to said compartment.

2. A package as defined in claim 1 wherein said annular area partially overlies said zones.

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LLOYD I. VOLCKENING,
*Executors of the last will and testament of Leroy L. Salfisberg, deceased.*

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