

March 10, 1959

J. DITLEA

2,876,602

SEALED OIL PACKETS AND THE LIKE AND METHODS OF MAKING SAME

Filed April 1, 1955

2 Sheets-Sheet 1

FIG. 1.

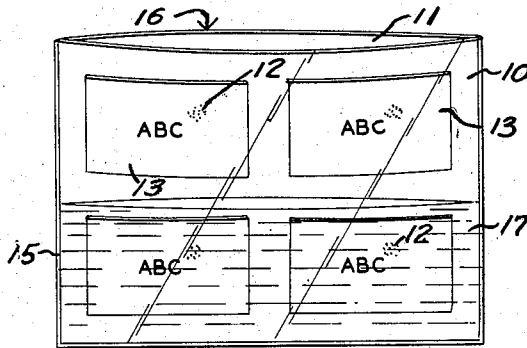
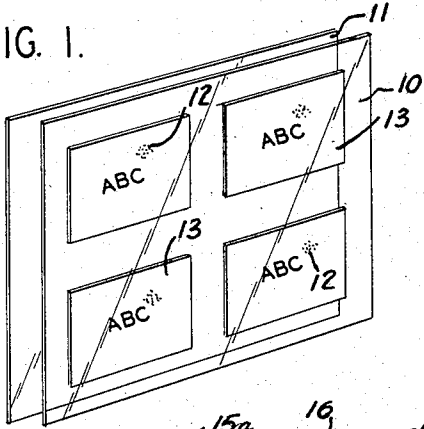


FIG. 2.

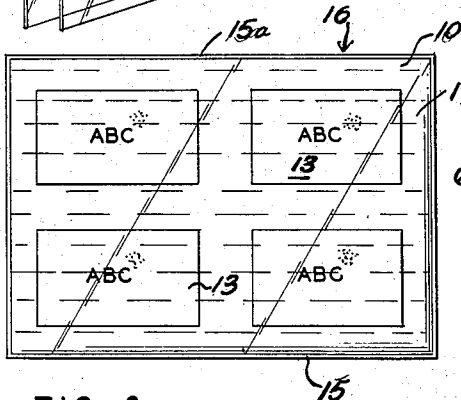


FIG. 3.

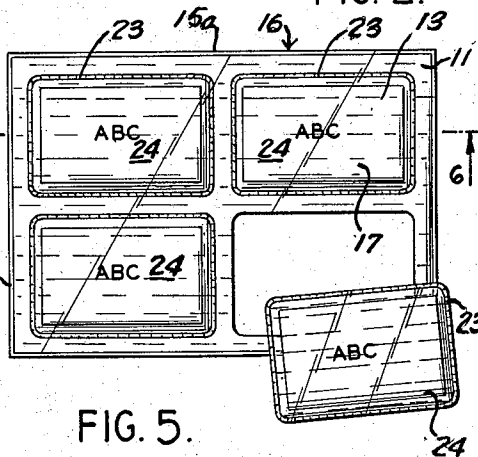


FIG. 5.

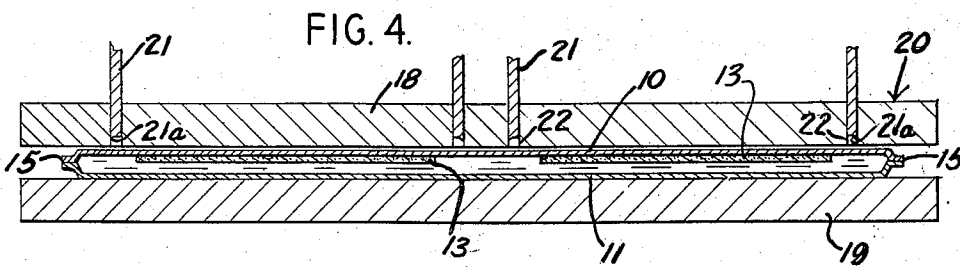


FIG. 4.

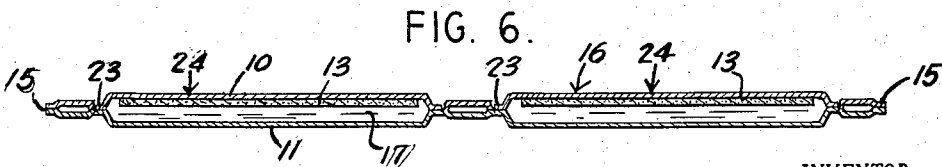
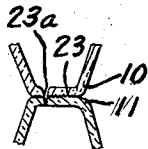


FIG. 6.

FIG. 7.



INVENTOR.

BY JOSEPH DITLEA

Mock & Blum

ATTORNEYS

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2 Sheets-Sheet 2

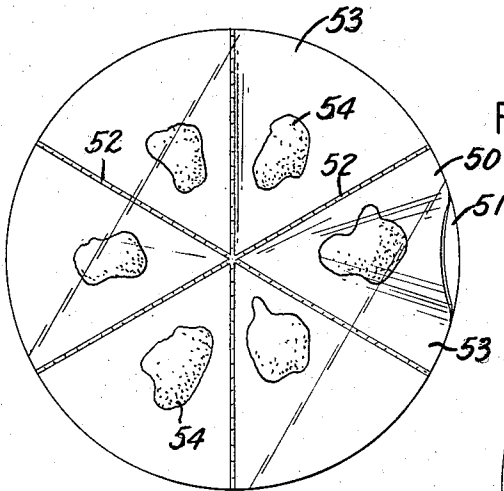
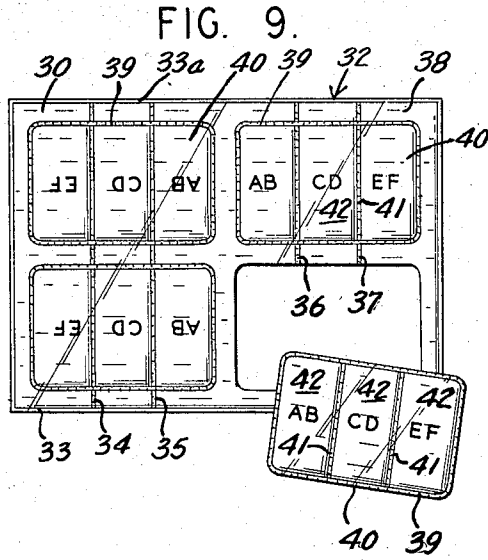
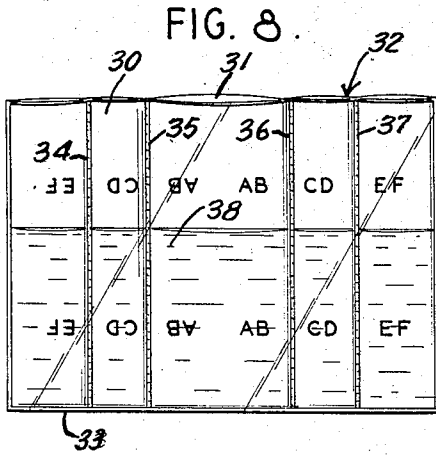


FIG. 10.

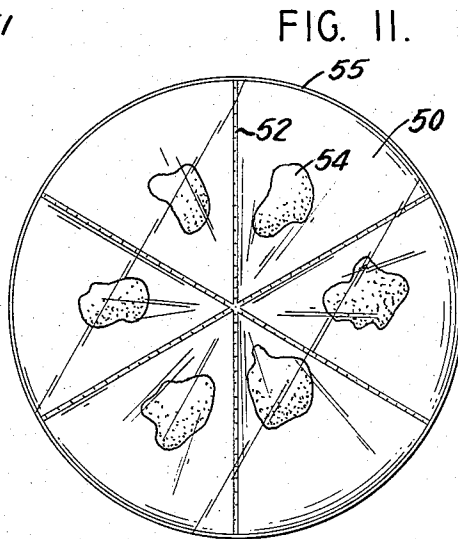


FIG. 11.

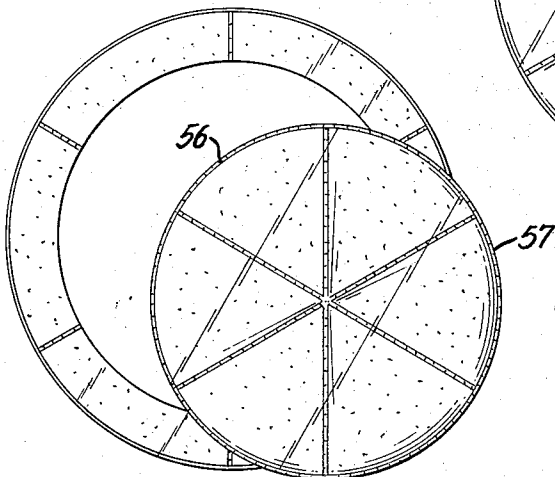


FIG. 12.

INVENTOR.
JOSEPH DITLEA

BY

Mock & Blum
ATTORNEYS

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SEALED OIL PACKETS AND THE LIKE AND METHODS OF MAKING SAME

Joseph Ditlea, New York, N. Y.

Application April 1, 1955, Serial No. 498,631

1 Claim. (Cl. 53—29)

This invention relates to improvements in packets for the display and shipment of samples of lubricants, such as oil and grease, and in methods of making same.

One object of this invention is to provide improved methods for preparing a preferably transparent packet having flexible walls and having one or more compartments each substantially filled with a sample of lubricant or the like and each completely sealed.

The packets according to my invention can be safely carried in the pocket and have been approved for mailing by the United States Post Office, as a great amount of force is required to break them open. Accordingly, these packets make excellent advertising mailing pieces, and may also be used in lieu of calling cards. The packets are also highly suitable for use for sample and demonstration purposes, because the colors of their contents may be observed through the transparent walls, and because the consistency of their contents may be felt by squeezing the walls.

Another object of this invention is to provide improved methods of preparing such packets rapidly and economically, with a minimum of costly special equipment. This is especially important when it becomes necessary to produce the packets in limited runs.

In one preferred embodiment of the invention, two sheets of transparent, flexible, thermoplastic material are heat sealed to form a flat bag having a top opening. The bag is then partially filled with oil, grease or the like. Of course, the invention is not limited to the use of these substances. The top opening is sealed, the bag is placed in a horizontal position and the contents thereof are equally distributed throughout its interior space. The packets are then formed simultaneously by heat sealing the perimeters of selected registering areas of the two walls of the bag. In this step of the process, the sealed portions extending around the periphery of each packet are weakened sufficiently so that the packet may be readily punched out of the bag. The portions of bag material and the contents thereof remaining after the packets are separated therefrom are waste material.

Other objects and advantages of this invention will become apparent from the following description, in conjunction with the annexed drawings, in which preferred embodiments are disclosed.

In the drawings,

A first embodiment is shown in Figs. 1 to 7.

Fig. 1 is a perspective view showing a first stage in the formation of the improved packets. Fig. 1 shows two registering sheets of transparent plastic with a plurality of cards attached by temporary glue to the inner face of one of the sheets of plastic.

Fig. 2 is a perspective view of a flat bag formed by heat-sealing the side edges and the bottom edge of the sheets of plastic of Fig. 1, leaving a top opening in the bag. The bag is partially filled with oil or the like.

Fig. 3 is a plan view of the bag of Fig. 2, with the top edge also sealed and with said bag being placed in a hori-

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zontal position to distribute the oil equally throughout the volume thereof.

Fig. 4 is a longitudinal section of the bag of Fig. 3, with said bag being placed between the plates of a heat-sealing mechanism.

Fig. 5 is a plan view of the bag as it appears after it is heat-sealed by the mechanism of Fig. 4, this step forming four packets which may be readily removed from the remainder of the bag. One of the packets is shown separated in Fig. 5.

Fig. 6 is a section on line 6—6 of Fig. 5.

Fig. 7 is a detail of Fig. 6.

A second embodiment of the invention is shown in Figs. 8 and 9.

Fig. 8 is a perspective view of a bag somewhat similar to that shown in Fig. 2, but also provided with parallel vertical heat-sealed seams to divide it into a plurality of compartments, each of which is partially filled with oil. In this embodiment, instead of the cards being provided, the bags are marked by printing upon the inner face of one of the sheets of plastic.

Fig. 9 is a plan view of the bag of Fig. 8, after final processing thereof to form individual packets, and corresponds generally to Fig. 5.

A third embodiment of the invention is shown in Figs. 10-12.

Fig. 10 is a perspective view of a bag in accordance with this embodiment, and corresponding generally to the bag of Fig. 2. The bag is generally circular and is divided into a plurality of web wedge-shaped sectors, each of which is adapted to be filled with grease or the like.

Fig. 11 is a plan view of the bag of Fig. 10, after all compartments have been sealed.

Fig. 12 is a plan view of the bag after final processing thereof and showing the packet removed therefrom.

First embodiment

Fig. 1 shows a pair of registering sheets of material 10 and 11. Without limitation thereto, these sheets are shown as being rectangular in shape. Each sheet is preferably made of flexible, thermoplastic material, such as the well known vinyl and polyethyl materials. Each sheet is optionally and preferably transparent.

As is also shown in Fig. 1, a plurality of rectangular pieces of cardboard 13 are optionally mounted upon the inner face of sheet 10, each card 13 bearing appropriate printed indicia. Solely for illustrative purposes, the indicia on each card are shown as reading "ABC." Optionally, the indicia may be printed directly upon either the inner or outer face of sheet 10, as shown in Figs. 8-9. Each card 13 is secured to sheet 10 by glue or the like 12. Optionally, this glue 12 is applied only to a small portion of card 13 and is soluble in the material with which the packets are to be filled.

Preferably, the cards 13 mounted upon sheet 10 correspond in number and position to the number and shape of packets which are to be formed.

As shown in Fig. 2, the bottom and side edges of sheets 10 and 11 are heat-sealed together along a seam 15 to form a flat bag 16 which is open at its top. The heat sealing 15 may be relatively weak, because bag 16 is only temporary.

In this step, it is sufficient that a single small opening be left along any edge of bag 16.

As the next step, bag 16 is partially filled with the flowable material 17 to be packaged. For illustrative purposes, the material 17 is shown in Fig. 2 as being a liquid, optionally oil. Optionally, the filling material may be a viscous material, such as grease, as shown in Figs. 10-12. The amount of filling material is chosen

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so as to substantially completely fill the packets which are to be formed.

As shown in Fig. 3, bag 16 is next flattened and manipulated if necessary in order to reduce its interior space, expel most of the air therefrom and distribute the material 17 evenly within its entire interior space. Also, the remaining edge opening of bag 16 is heat-sealed and closed along a seam 15a which is preferably similar to seam 15.

As shown in Fig. 4, bag 16 is placed between the parallel jaws 18 and 19 of heat sealing mechanism 20. Optionally, the adjacent faces of jaws 18 and 19 are horizontal, and bag wall 11 rests upon lower jaw 19. Preferably, jaw 18 is spaced slightly above bag wall 10.

A plurality of dies 21 extend from above jaw 18 into appropriate through-and-through slots 22 of jaw 18. Each said die 21 has a continuous peripheral wall whose lower face is accordingly shaped to form a continuous seam in bag 16. Optionally, die 21 is of rectangular cross-sectional shape, to produce a rectangular seam. Preferably, die 21 has a depending knife edge 21a extending around the outer circumference of its lower face. Each card 13 is located inwardly of the periphery of a respective die 21.

The heat sealing mechanism 21 is not shown in detail, since its operating parts are conventional.

In the next step, the dies 21 are heated and are lowered through slots 22 into contact with bag 16, in a manner well known in the art. As shown in Figs. 5-7, each die 21 forms a continuous heat-sealed seam 23 between the walls 10 and 11 of bag 16, to define a sealed packet 24 inwardly of said seam 23.

These seams 23 are extremely strong and have the characteristic corrugated appearance well known in the art. Most of the filling material 17 is forced away from seam 23 by the action of die 21. The knife portion 21a of die 21 forms a continuous slit 23a adjacent the outer edge of seam 23, which slit 23a extends from the upper face of sheet 10 almost completely through sheet 11. This is shown in detail in Fig. 7.

In the final step, as shown in Fig. 5, packets 24 may be easily separated from bag 16, optionally by manual means.

As an important feature of the invention, heat sealing mechanism 20 is substantially conventional, except that the size, shape and number of the dies may be altered in accordance with the invention. Ordinarily, the dies 21 would completely puncture the two sheets 10 and 11. Accordingly, it is primarily as a result of the increased thickness of bag 16 resulting from the inclusion of the filling material 17 that the slits 23a generally do not extend entirely through bag 16.

It will be apparent that each packet 24 has a heat-sealed peripheral edge seam 23 and is substantially entirely filled with the filling material 17, with a minimum of air present. If the material 17 is grease or the like, there is a greater possibility that a substantial amount of air is present within packet 24.

It will be apparent that the remainder of bag 16, after separation of packets 24 therefrom, may be discarded. It will be apparent from Figs. 5-7 that the remaining material within bag 16 is entirely sealed therein, thereby ensuring cleanliness of operation.

While illustratively four rectangular packets 24 are shown in Fig. 5, it will be apparent that the size, shape and number of packets may be varied.

A short time after the packets are made, the filling material 17 in each packet dissolves the adhesive 12 therein, so that the card 13 is movable within the packet, adding to the attractive effect.

Second embodiment

As shown in Fig. 8, two sheets of plastic 30 and 31 are formed into a bag 32 having a heat sealed seam 33 along its side and bottom edges and open at its top,

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similarly as in the first embodiment. In addition, a plurality of spaced, vertically extending heat seal lines 34, 35, 36 and 37 are formed, sealing sheets 30 and 31 and extending between the top and bottom edges of bag 32. While seam 33 may be relatively weak, as in the case with seam 15, seams 34-37 are formed as strong, permanent seams; because portions of these seams are intended to become seams of the packets to be formed.

As is also shown in Fig. 8, suitable spaced indicia AB, CD and EF are optionally printed on the inner face of sheet 30. It will be understood that the cards 13 may be used instead.

The vertical seams 34-37 divide bag 32 into five compartments, each of which is partially filled with filling material 38, corresponding to the material 17 of the first embodiment. Bag 32 is then closed by a top heat seal 33a, and is flattened to distribute the material 38 evenly, similarly as in the first embodiment (see Fig. 9).

As shown in Fig. 9, sheets 30 and 31 are then joined by a plurality of rectangular heat sealed seams 39, forming a plurality of separable packets 40, similarly as in the first embodiment.

Illustratively, but without limitation thereto, Figs. 8 and 9 show left and right upper packets 40, and left and right lower packets 40. Illustratively, but without limitation thereto, seams 34 and 35 are shown as trisecting the left packets 40, and seams 36 and 37 are shown as trisecting the right packets 40. At a result, each packet 40 has a continuous edge seam 39, and two interior seams 41 which divide it into three equal rectangular compartments 42 which are sealed from each other. Of course, the number and spacing of seam lines 34-37 may be varied in order to vary the size, shape and number of compartments 42. The manner in which the seams 34-37 are spaced in Figs. 8 and 9, in order to produce the equal compartments 42, will be obvious from the drawings.

As an important feature of this embodiment, the filling material 38 in the various compartments of bag 32 may be varied. For example, a first type of oil may be placed in the central compartment, as identified by the multiple sets of indicia AB. A second type of oil may be placed in the intermediate compartments, as identified by the multiple sets of indicia CD. A third type of oil may be placed in the outer compartments, as identified by the multiple sets of indicia EF. As a result, in this example, the three compartments 42 of each packet 40 respectively contain a different type of oil, respectively identified by the indicia AB, CD and EF.

Third embodiment

While the appearance of the product in this embodiment varies somewhat from those of the first two embodiments, the method of making the product is similar.

Optionally, in this embodiment, the initial registering blanks of sheet material 50 and 51 are circular. Initially, a plurality of permanent, radial heat seams 52 are formed between the two sheets 50 and 51, extending between the center of the sheets and the outer edge thereof. Illustratively, but without limitation thereto, six equally spaced seams 52 are shown in Figs 8-10, as a result of which six compartments 53 are formed. Each compartment 53 is open at its outer end.

As shown in Fig. 10, filling material 54 is inserted into each compartment 53. This material 54 is optionally, but not necessarily, grease. As shown in Fig. 11, the peripheries of sheets 50 and 51 are joined by a heat seal 55, which may be of a temporary nature. The compartments 53 are thus sealed.

As shown in Fig. 12, sheets 50 and 51 are flattened together so as to distribute the material 54 in the respective compartments 53. A circular heat seam 56, of permanent nature, and of less diameter than that of seam 55, is then formed in the sheet material, in substantially the same manner as seams 23 of the first embodiment are

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formed. The resulting packet 57, which may readily be separated from the scrap material, as shown in Fig. 12, is circular in shape and has a plurality of sector-shaped compartments, each containing a different filling material.

While I have disclosed a preferred embodiment of my invention, and have indicated various changes, omissions and additions which may be made therein, it will be apparent that various other changes, omissions and additions may be made in the invention without departing from the scope and spirit thereof.

I claim:

A method of forming a filled packet comprising the steps of partially filling an open bag with flowable, non-conducting material, sealing the opening of said bag, flattening said bag to provide it with opposed flattened walls and distribute the material evenly through the inner space pressing said opposed flattened walls into closely and fixedly spaced parallel relationship so as to maintain the material evenly distributed under pressure in the

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inner space of said bag, forcing one of the walls of the bag against the other wall along a periphery enclosing a selected area of said bag while said opposed flattened walls are maintained in said closely and fixedly spaced parallel relationship, and simultaneously heat sealing the walls of the bag together to form a peripheral seam enclosing said selected area of said bag.

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