March 12, 1946.

C. E. GARDNER

2,396,565

PACKAGE

Filed Dec. 24, 1943

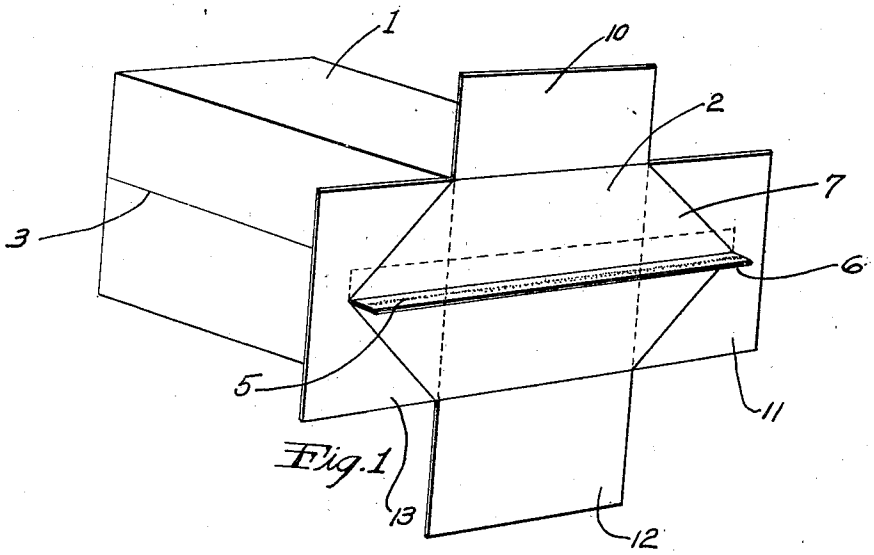


Fig. 1

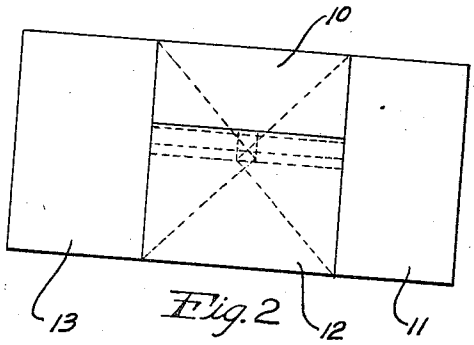


Fig. 2

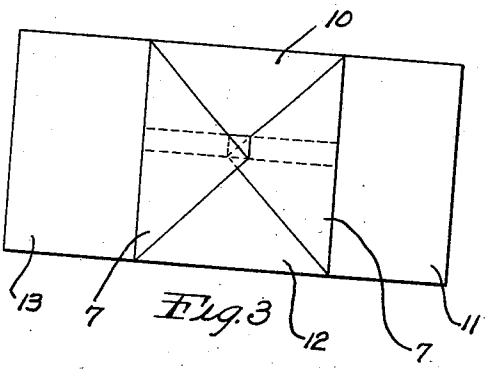


Fig. 3

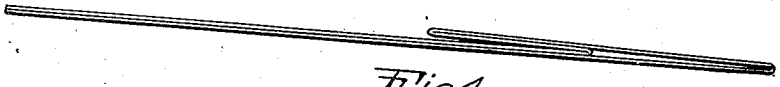


Fig. 4

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PACKAGE

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Application December 24, 1943, Serial No. 515,545

1 Claim. (Cl. 229—58)

This invention relates to an improved gusseted bag structure composed of an outer ply of paper and an inner ply of heat-sealable, synthetic material. The synthetic material is preferably rubber hydrochloride film although other synthetics, such as cellulose derivatives, and polymerized materials, such as the heat-sealable copolymer of vinyl chloride-vinylidene chloride or a plasticized polymerized vinyl chloride, etc., may be used.

The bag is similar to the usual gusset-type bag, except for the method of closing the bottom of the bag. The lining material is not laminated to the paper covering at the bottom because when such a laminated sheet is sealed as here described and then folded over, the number of thicknesses of lining and paper varies greatly over the area of the bottom from many overlapping thicknesses at the seal to a single thickness of lining and paper along two of the opposite edges. In the improved structure of this invention the number of thicknesses is relatively uniform over the whole bottom area.

The invention will be more fully described in connection with the accompanying drawing, in which Fig. 1 is a view in perspective of the sealed, but unfolded, bottom; Figs. 2 and 3 illustrate different methods of folding the bottom; and Fig. 4 is a side view of the flattened bag.

The body of the bag is formed of a paper covering 1 and an inner lining 2, which forms the only covering over the bottom of the bag in the stage of construction shown in Fig. 1. The lining is preferably made of one or two sheets which are sealed together at the middle of one or both ends of the bottom seam by bringing the edges of the sheet or sheets into face-to-face contact. This eliminates intermediate longitudinal seams which interfere with the formation of a simple, tight, heat-sealed seam across the bottom of the lining in the manner explained in what follows.

The bag is of the gusset type and is folded at 3. The lining is sealed across the bottom by spreading the lining at the midpoint of opposite sides (at the longitudinal seam or seams) and applying heat and pressure to the overlapping edges. In Fig. 1 the dotted area 5 indicates the heat seal, and the seam 6 is formed as described. When the seal is produced in this way, triangular ears of packaging material 7 are formed which extend beyond the bottom edges of the side walls of the bag. The undersurface of these triangular portions of the lining may be united to the paper flaps although, generally, the paper flaps at the bottom of the bag will not be united to the lining in any manner. These paper flaps are designated by the reference numerals 10, 11, 12, and 13.

After the lining has been sealed as described, the triangular ears and the paper flaps are folded over in any desired order. Fig. 2 shows the triangular ears folded over first and the flap 10 then folded down and overlapped by the flap 12. Alternatively, Fig. 3 shows the flaps 10 and 12 folded over first and the ears 7 folded over these flaps. Regardless of whether the folds are made as shown in Fig. 2 in or Fig. 3, the outer flaps 11 and 13 are then folded over and united by any suitable adhesive.

When the bag is completed, it may be flattened out as shown in Fig. 4 in the way any gusseted bag is flattened for shipping. It is shipped by the manufacturer in this flattened condition and is not opened up until it is delivered to a filling machine.

In this bag the layers of material across the area of the bottom are relatively uniform. There are two plies of paper over the whole surface, and, of course, where the flaps overlap there are additional plies which preferably cover the whole surface. The lining is usually relatively thin; and, therefore, the fact that there are several more plies at the center of the package than in the triangular areas not covered by the folding over of the triangular ears where there is but a single ply of the lining material makes little difference.

The lining of this bag is absolutely tight. The flat seal 6 across the bottom is easily made. The top of the bag may be sealed in a similar manner. If preferred, the top seal may be formed from portions of the paper and lining material which are united, and then the ultimate closure at the top will be different from that at the bottom although the seal of the lining may be identical.

What I claim is:

A collapsed, two-ply gusseted bag, the outer ply of which is composed of paper and the inner ply of which is composed of an impervious, heat-sealable, synthetic material; the bottom of which bag is made up of (1) the synthetic material which is closed in a seam formed with the inner surfaces of the material brought together in flat contact and without reentrant folds and (2) four uncreased rectangular flaps which are extensions of the paper which constitutes the outer ply of the sides of the bag, said flaps being folded toward the middle along the lines which define the bottoms of said walls; the side walls of the bag being folded flat along their vertical center lines and the bottom of the bag being folded flat with the back of the bag being uncreased and the front of the bag being uncreased except for a fold perpendicular to the side edges and extending from one side edge to the other, the portion of the front below this fold being folded flat against the portion above this fold.

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