

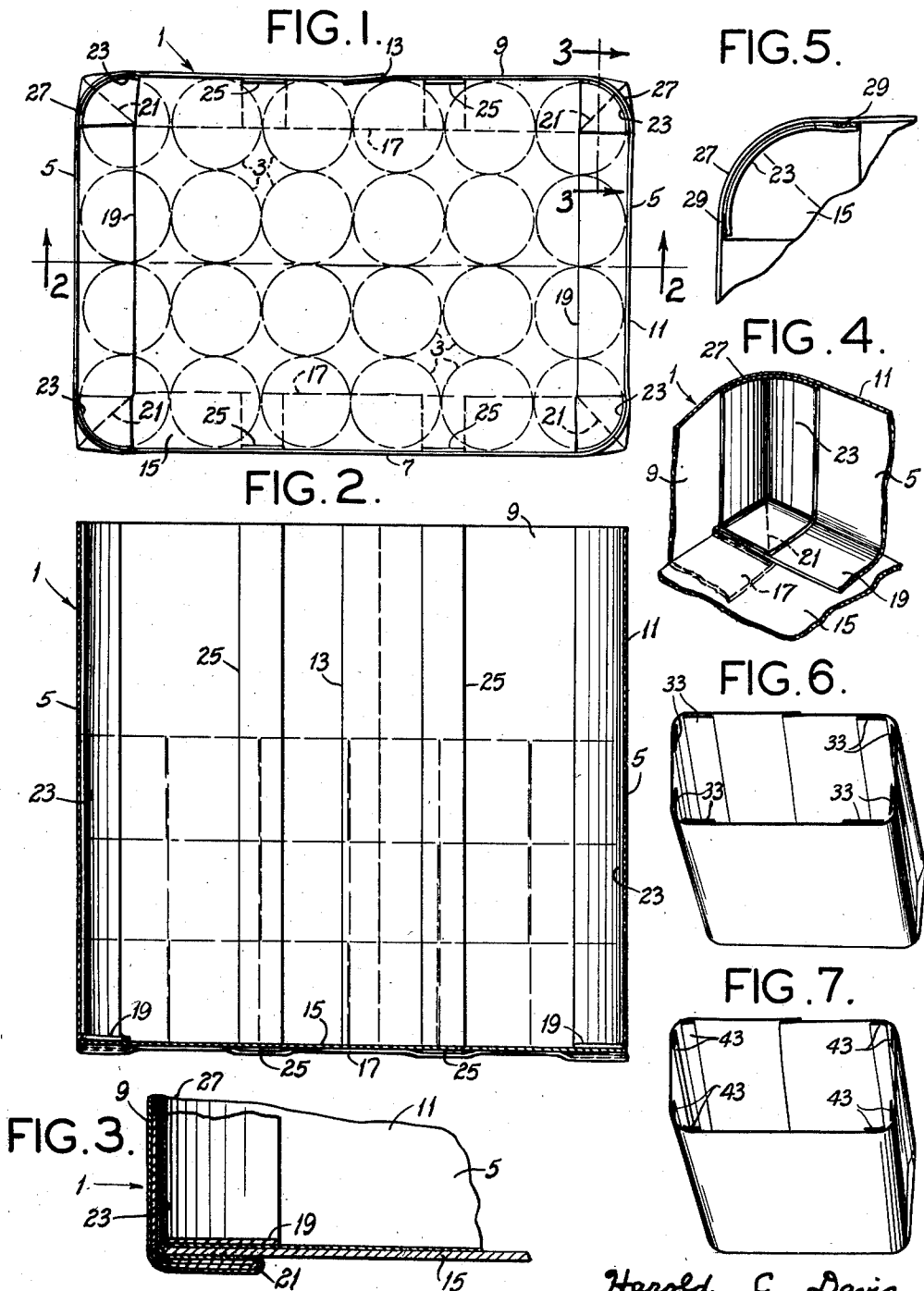
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PAPER BAG

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PAPER BAG

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This invention relates to paper bags and more particularly to paper bags for holding empty cans in storage.

The object of the invention is the provision of a paper bag of such construction as to be particularly suitable for holding empty cans in storage, which may be economically manufactured, which is easy to fill with cans, and which lends itself to stacking up in warehouses of bags full of cans in stacks of considerable height, as much as twenty feet, for example. Empty cans cannot be practicably stacked to such heights if not packed in suitable receptacles because a pile of empty cans of such height would collapse too readily. Heretofore, it has not been considered practicable to employ paper bags as receptacles for the cans so that stacks of such heights may be used, with attendant conservation of storage space, because if the bags were made of single-ply relatively light-weight paper to save on material they would be too easily torn in being filled, or in transport, or even while in the stack, and even a slight tear in a bag might eventually cause collapse of the stack, while if made of heavy or multi-ply paper they would be too expensive. This invention provides a bag economically made of relatively light-weight single-ply paper which is adapted for holding cans in storage in stacks of the stated height and which is resistant to tearing so that stacks of the stated height may be safely used, without danger of collapse. In general, a bag of this invention comprises a bag tube of single-ply paper provided with a generally rectangular cardboard bottom which lies flat when the bag is opened to receive cans, the lower margins of the tube being folded inward and adhered to the bottom. The cans are vertically stacked in the bag in layers of generally rectangular horizontal outline corresponding to the outline of the bag bottom, the cans in each layer being arranged side-by-side in rows extending from one side of the bag to the other and from the front to the back of the bag. Paper reinforcing strips are adhered to the inside of the bag extending lengthwise of the bag generally from the four corners of the generally rectangular bag bottom substantially the full height of the bag to reinforce the corners of the bag, which is expanded by the cans to generally rectangular cross-section corresponding to the generally rectangular outline of the bag bottom, the lower ends of the strips being folded inward with the lower margins of the tube. Other features will be in part apparent and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described, and the scope of the application of

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which will be indicated in the following claims. In the accompanying drawing, in which several of various possible embodiments of the invention are illustrated,

Fig. 1 is a plan view of an open bag of this invention showing in dash lines the position of cans as stacked therein;

Fig. 2 is a vertical section taken on line 2—2 of Fig. 1;

Fig. 3 is an enlarged detail section taken on line 3—3 of Fig. 1;

Fig. 4 is an enlarged fragmentary perspective view from the inside of the bag illustrating details of a bottom corner;

Fig. 5 is an enlarged fragmentary plan view of a bag corner portion illustrating an alternative embodiment;

Fig. 6 is a perspective view of another embodiment of the invention; and,

Fig. 7 is a perspective view of a further embodiment of the invention.

Similar reference characters indicate corresponding parts throughout the several views of the drawing.

Referring to the drawing, Figs. 1-4 illustrate a bag 1 embodying the invention. Figs. 1 and 2 illustrate the bag as it appears when filled with empty cans 3 (shown in dash lines). As shown, the cans 3 are cylindrical cans, all of the same size. By way of example, and as illustrated, the bag is made to hold six dozen cans vertically stacked in three horizontal layers of twenty-four cans each, the cans in each layer being arranged side-by-side in four rows of six cans each extending from one of the side walls 5 of the bag to the other (or six rows of four cans each extending from the front wall 7 to the back wall 9 of the bag).

As shown the bag 1 comprises a bag tube 11 made of a single ply of paper, which may be kraft paper, such as 80 lb. kraft or even somewhat lighter weight kraft. This bag tube is made in conventional manner, having a longitudinal pasted seam 13. It is made of such size that it may be expanded from its nominally flat state to assume a tubular, generally rectangular cross-section corresponding to the generally rectangular outline of the layers of cans which the bag is to receive, with the cans stacked tightly in the bag.

The bag tube is closed at one end by a bottom closure 15 consisting of a generally rectangular blank of sheet material which is heavier than the bag tube paper, preferably, and as herein illustrated, a blank of cardboard. The outline of the blank corresponds to the outline of the stack of cans to be placed in the bag. As shown best in Figs. 3 and 4, the lower margins of the side walls 9 are folded inward to form flaps 17 extending under the bottom closure 15 and ad-

hered thereto, and the lower margins of the front and back bag walls are folded inward to form flaps 19 extending over the bottom closure 15 and adhered thereto. In folding the margins of the side, front and back walls to form the flaps, triangular segments 21 are formed at the ends of the flaps 17. These engage the bottom of the closure 15 and are also adhered thereto.

The bag tube 11, as shown in Figs. 1-4, is formed with longitudinal paper reinforcing strips adhered to the inside of the tube and extending its full length. Four of these strips, each of which is designated 23, are located to extend lengthwise of the bag on the inside thereof from the four corners of the bag bottom 15 for the full height of the bag. When the bag tube and the bottom closure are secured together in the manner described, the lower ends of these corner reinforcing strips are folded in along with the lower margins of the side, front and back walls of the bag, and adhered to the corners of the bottom closure. Other paper reinforcing strips, designated 25, are located to extend lengthwise of the bag on the inside of its front and back bag walls. The lower ends of these strips 25 are folded in along with the flaps 17 and adhered to the bottom closure 15.

When the bag is filled with cans, and bulged out to generally rectangular cross-section by the cans, its corners are curved around the cans at the corners of the stack of cans in the bag, as indicated at 27. The corners of the bag are particularly susceptible to tearing. The corner reinforcing strips 23, however, reinforce the corners and tend to prevent tearing. As shown in Figs. 1-4, the strips 23 are of such width and so located as to curve with the corners of the bag completely around the corners i. e., each strip has a width corresponding generally to one-fourth the circumference of the particular cans 3 with which the bag is to be filled so that the marginal portions extend generally at right angles to one another. With strips 23 reinforcing the corners, it is possible to use relatively light-weight single ply paper for the bag tube 11. Strips 23 and strips 25 act to stiffen the bag walls to hold them upright while the bag is being filled. Strips 25, however, may not be required in certain sizes of bags and may be omitted.

In the bag illustrated in Figs. 1-4, the corner reinforcing strips 23 are adhered to the bag tube 11 throughout their entire areas. Fig. 5 illustrates a modification wherein the strips 23 are adhered to the bag tube by narrow stripes of adhesive 29 at the margins of the strips and extending the length of the strips. This reduces the stiffness of the reinforced corner otherwise imparted to the corner by the adhesive and makes it easier for the bag corners to curve around the corner cans.

Fig. 6 illustrates an alternate embodiment wherein instead of having a single reinforcing strip at each corner of the bag, two reinforcing strips 33 are used at each corner. Strips 33 are of the same width as the strips 23. The two strips at each corner are spaced apart and extend parallel to one another the height of the bag. They may be adhered to the bag either by adhesive throughout their areas or by narrow stripes of adhesive. With the spaced strips 33 at each corner, the corners are reinforced, but may nevertheless readily curve around the corner cans.

Fig. 7 illustrates a further embodiment similar to the Fig. 6 except that narrow corner reinforcing

strips 43 are used. Where such narrow strips are used, they are adhered to the bag throughout their areas.

In Figs. 6 and 7, the bag wall reinforcing strips 25 of Figs. 1 and 2 are omitted.

It will be understood that a bag of this invention is made of such size as to accommodate a predetermined number of cans of a predetermined standard size stacked in a predetermined way. For example, the bag illustrated in Fig. 1 is made of such size as tightly to receive a stack of six dozen cans all of the same standard diameter and height with three layers of twenty-four cans each in the stack, the cans in each layer having a six by four arrangement. Bags of different sizes to accommodate different numbers of cans stacked in different ways may be made in accordance with the invention. As shown in Fig. 2, a bag of this invention will generally be made of greater height than the height of the stack to be loaded therein to allow for folding over of the top of the bag on the stack of cans contained in the bag.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A paper bag particularly for holding empty cans stacked in horizontal layers of generally rectangular outline, comprising a single-ply paper bag tube having a generally rectangular cardboard bag bottom, the lower margins of the tube being folded inward and adhered to the bottom, and four paper reinforcing strips adhered to the inside of the bag tube extending lengthwise of the bag, one strip extending from each of the four corners of the bottom for the full height of the bag, the lower ends of the strips being folded inward with the lower margins of the tube.

2. A paper bag particularly for holding empty cans stacked in horizontal layers of generally rectangular outline, comprising a single-ply paper bag tube having a generally rectangular cardboard bottom, the lower margins of two opposite sides of the tube being folded inward and adhered to the under side of the bottom, the lower margins of the other two opposite sides of the tube being folded inward and adhered to the upper side of the bottom, and four paper reinforcing strips adhered to the inside of the bag tube extending lengthwise of the bag, one strip extending from each of the four corners of the bottom for the full height of the bag, the lower ends of the strips being folded inward with the lower margins of the tube.

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