April 12, 1938. C. J. ALFRED 2,113,927

CONTAINER

Filed Oct. 24, 1936

Fig. 1,

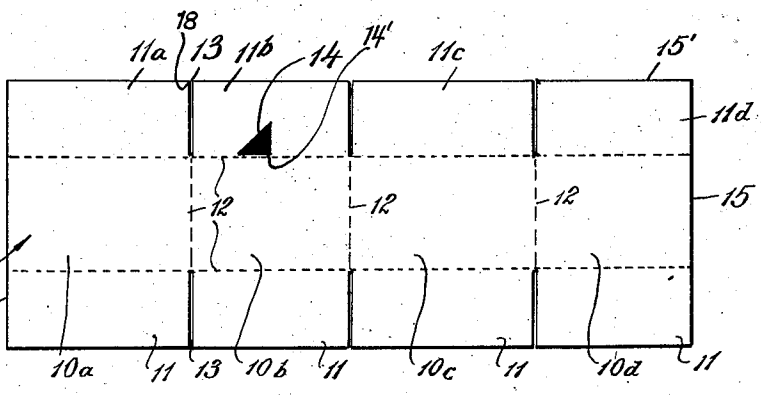


Fig. 2,

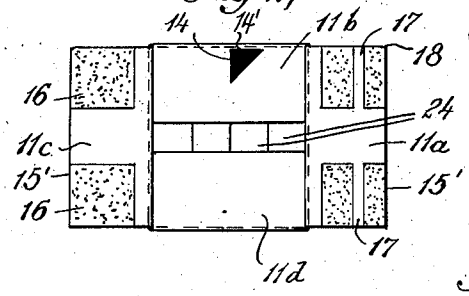


Fig. 3,

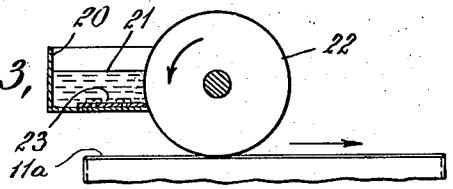


Fig. 4,

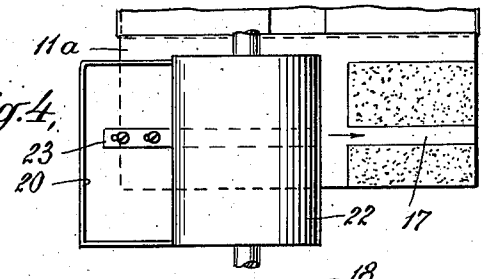


Fig. 5,

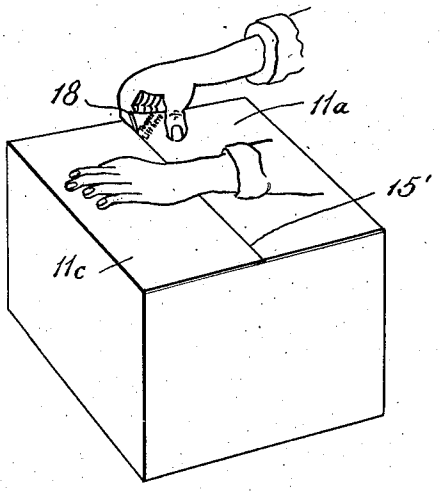
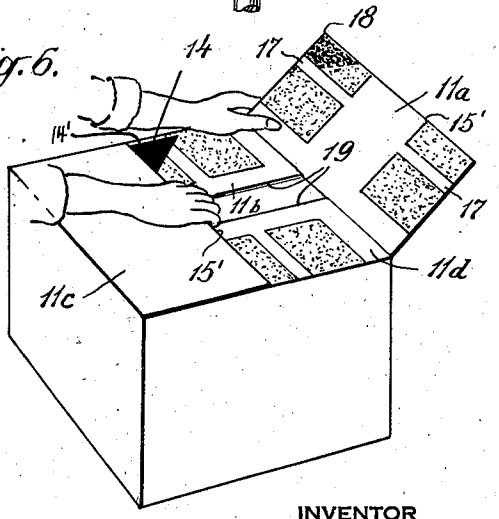


Fig. 6.



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2,113,927

CONTAINER

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Application October 24, 1936, Serial No. 107,316

5 Claims. (Cl. 229—51)

This invention relates to containers of paper board and the like suitable for the distribution of various products such as packages of sugar, salt, etc., and is concerned more particularly with a container of novel construction having its top closed by flaps which can be firmly secured together to protect the contents during shipment and handling and are provided with means by which they can be readily separated to open the container when it is to be emptied.

Packages of sugar and other commodities have heretofore been commonly distributed in containers of heavy corrugated paper board, and such a container is ordinarily formed of a blank cut to provide side walls with extending flaps, the blank being folded and secured together and the flaps at one end being folded inward and held in place by adhesive between the contacting faces thereof to place the container in condition to be filled. After the contents have been placed within the container, the flaps at the other end are also folded inward and secured by adhesive and the container is then ready for shipment.

In such a filled container, the outer flaps at each end lie with their adjacent outer edges close together and usually substantially in abutment so as to provide a practically continuous outer end wall, and as a consequence, the flaps which are held together tightly by strong adhesive can be separated only with great difficulty when the container is to be opened. For this purpose, it has been common to employ an instrument of some sort which is inserted between the outer and under flaps and is used to pry the outer flaps free, but unless this operation is performed with great care, the instrument may pierce the flaps and do injury to the contents. If such an instrument is not employed, the container may be opened by cutting away parts of the flaps, but this operation again is a difficult one and may result in injury being done to the contents.

The present invention is, accordingly, directed to the provision of a container of the type described which is strong and rugged and may be tightly closed so as to provide proper protection to the contents during distribution, and which is provided with means by which the container can be opened easily and without the use of instruments which might injure the contents.

While the new container may take various forms, it is preferably made of a blank formed so that it may be folded to produce a rectangular body having flaps extending from the opposite walls thereof at both ends. These flaps consist of an inner pair and an outer pair, and the latter are of such size that when folded inward over the inner flaps, their outer edges are substantially in abutment. At the bottom end of the completed container, the flaps are folded inward and secured in place by films of adhesive adhering to the contacting faces thereof. At the top, one or both of the inner flaps are provided with areas of adhesive-repellent material on the outer faces disposed in such position as to be overlain by portions of the outer flaps adjacent to and preferably spaced inward a short distance from the outer edges of the latter. Also, the adhesive films between the contacting faces of the inner and outer flaps may be sub-divided by uncoated areas which extend adjacent to and, preferably, intersect each area coated with adhesive-repellent material. With this arrangement, one or more outer corners of the outer flaps are only lightly held in place by the adhesive so that when the container is to be opened, each such outer corner may be raised with the fingers to such an extent as to permit its flap to be grasped by the hand. Thereafter, the entire flap, which can be securely gripped, can be easily raised and torn free from the inner flaps to which it is secured.

For a better understanding of the invention, reference may be had to the accompanying drawing in which

Figure 1 is a plan view of an unfolded blank used in producing one of the new containers;

Figure 2 is a plan view of the container partially sealed;

Figures 3 and 4 are, respectively, a longitudinal section and a plan view of sealing mechanism suitable for use with the new container; and

Figures 5 and 6 are perspective views illustrating the operations of opening one of the new containers.

Referring to the drawing, the blank 10 shown in Figure 1 is intended to produce a container of oblong cross-section, and it includes four subdivisions designated 10*a*, 10*b*, 10*c*, and 10*d*, respectively. The sub-divisions 10*a* and 10*c* are of the same dimensions and are to form the long side walls of the container, while the sub-divisions 10*b* and 10*d* form the short side walls thereof. Each sub-division is provided with flaps 11 at the opposite ends thereof, and the flaps are separated from the side walls and the side

walls are separated from one another by scored lines 12 along which the blank may be folded.

The adjacent flaps are separated by narrow cutouts 13 and one of the flaps extending from a subdivision 10b or 10d is provided with an area 14 of adhesive-repellent material, such, for example, as printer's ink. This area is illustrated as triangular in form and lying on the flap 11b, and it is placed near but spaced a short distance from the junction of the flap with the side wall portion of its section 10b at the median line of the flap.

When the blank is to be formed into a container, it is folded along the lines 12, separating the sub-divisions from one another, and this brings the outer edges 15, 15, of the blank into juxtaposition, after which the edges are secured together in any suitable way, as, for example, by means of a strip of tape which is secured against the outer faces of the sub-divisions along the corner by a suitable adhesive. The containers are thus formed by the manufacturer and supplied to the user in flattened condition. When one of the containers is to be filled for shipment, it is first opened up to rectangular section and the bottom end is closed. For this purpose, the flaps extending from the subdivisions 10b and 10d are first folded inward. Both these inner flaps are free of adhesive-repellent material and, after they have been folded as described, the outer flaps extending from the sub-divisions 10a and 10c receive a film of adhesive on their inner surfaces and are then folded inward to overlie and adhere to the inner flaps. The container is now filled, for example, with packages 24 of sugar or the like, and is then to be closed.

In the closing operation, the small flaps 11b, 11d extending from the subdivisions 10b, 10d at the other end of the container are first folded inward as illustrated in Figure 2. Thereafter, the outer flaps are passed through a sealing mechanism and receive films of adhesive on the surfaces which are to lie inmost when the flaps are folded inward. In the container illustrated in Figure 2, films of adhesive are applied over rectangular areas 16, 16 on one of the outer flaps, while on the other, the areas coated with adhesive are sub-divided by uncoated areas 17. The uncoated areas are illustrated as having the form of strips extending parallel to the outer edge 15' of the flap on which they are applied and lying at a short distance inward from this edge.

After the adhesive has been applied to the outer flaps, they are folded inward to lie with their edges 15' in substantial abutment, as illustrated in Figure 5. The flap 11c attached to the sub-division 10c is held firmly in place by its adhesive coatings 16, while the flap 11a when folded inward lies with its corner 18 overlying the area 14 of adhesive-repellent material. Also, one of the uncoated areas 17 on the flap 11a extends adjacent to and preferably intersects the triangular area 14 near one of its corners, as illustrated in Figure 6. Because of the presence of the adhesive-repellent material, the corner 18 of flap 11a is held lightly in position with its extreme outer edge held in place by adhesive to the area 14' between the adhesive-repellent area and the line of junction of the flap 11b and its section 10b. When the container is to be opened, the corner 18 may be readily raised by the fingers by the breaking of the adhesive on the area 14', as illustrated in Figure 5 and the raising of the corner is facilitated by the presence of the uncoated area 17 extending close to or, preferably, intersecting the triangular area 14. In this manner, the corner may be easily lifted to the extent necessary to provide a hand hold, which is of such size that it may be easily gripped by the person opening the container and used as a means for separating the flap 11a from the inner flaps. When the flap 11a has thus been raised, the corresponding outer flap 11c can be gripped at its midpoint between the spaced outer ends 19, 19 of the inner flaps 11b and 11d, and freed from the inner flaps. The inner flaps are then folded outward and the entire contents of the container are exposed.

In applying the adhesive, the mechanism illustrated in Figures 3 and 4 may be employed. This mechanism includes a vessel 20 containing adhesive 21 and closed along one side by a roll 22 which rotates in the direction indicated by the arrow. Two such devices are employed, each one applying adhesive to one of the outer flaps 11a, 11c, and in the operation of applying the adhesive, the filled container with its outer flaps in the position shown in Figure 2 is passed beneath the two devices in contact with the rolls 22. As these rolls rotate, they pick up films of adhesive from their vessels and apply the adhesive to the surfaces of the flaps. The adhesive may be applied in bands extending the full length of the flaps, or if desired, the mechanism may be so constructed as to apply the adhesive on separate areas as indicated at 16. In order to provide the uncoated areas 17 on one of the flaps, in this case the flap 11a, the device used in connection with that flap is provided with a doctor blade 23 mounted on the bottom of its vessel in position to contact the roll 22, and as the roll rotates, this blade removes adhesive from the area on the roll which moves past its outer end. Accordingly, the adhesive is applied by that device on areas separated by uncoated areas 17, and the blade is positioned to provide uncoated areas so positioned so that when the flap 11a is folded inward, one of these areas will be close to and, preferably, intersect the area 14 which is provided with adhesive-repellent material.

The new container can thus be securely closed in the manner described, and when so sealed, the outer flaps 11a and 11c at the top lie with their outer edges 15' substantially in abutment so as to provide a practically continuous outer wall. Both flaps are held sufficiently securely in position to insure that the container will withstand ordinary handling and shipment, but the outer corner of one of the outer flaps is held so lightly in place, by reason of the area of adhesive-repellent material beneath it, that this corner may be easily raised by the fingers and without the use of any instrument. Once the corner is freed, the separation of the outer flaps from the inner ones is a simple operation. The opening of the container can thus be carried on without the use of tools, and damage to the contents, when the carton is to be emptied, is thereby avoided.

I claim:

1. In a container, the combination of a pair of inner flaps extending from opposite walls of the container at one end thereof and folded inwardly, a pair of outer flaps extending from other opposite walls of the container at said end and folded inwardly to overlie and contact with the outer faces of the inner flaps, the outer edges of the outer flaps lying close together, a film of adhesive-repellent material covering an area on the top face of at least one of the inner flaps, said area lying beneath a corner of an outer flap, and

films of adhesive between the contacting faces of the inner and outer flaps and overlying the adhesive-repellent film, said faces having an adhesive-free area lying closely adjacent to the area covered by the adhesive-repellent film and extending substantially the length of an outer flap.

2. In a container, the combination of a pair of inner flaps extending from opposite walls of the container at one end thereof and folded inwardly, a pair of outer flaps extending from other opposite walls of the container at said end and folded inwardly to overlie and contact with the outer faces of the inner flaps, the outer edges of the outer flaps lying close together, a film of adhesive-repellent material covering an area on the top face of at least one of the inner flaps, said area lying beneath a corner of an outer flap, and films of adhesive between the contacting faces of the inner and outer flaps and overlying the adhesive-repellent film, said faces having adhesive-free areas intersecting the area covered by the adhesive-repellent film and extending generally lengthwise of said outer flaps.

3. In a container, the combination of a pair of inner flaps extending from opposite walls of the container at one end thereof and folded inwardly, a pair of outer flaps extending from other opposite walls of the container at said end and folded inwardly to overlie and contact with the outer faces of the inner flaps, the outer edges of the outer flaps lying close together, a film of adhesive-repellent material covering an area on the top face of at least one of the inner flaps, said area lying beneath a corner of an outer flap, and films of adhesive between the contacting faces of the inner and outer flaps and overlying the adhesive repellent film, said faces having adhesive-free strips extending across the faces parallel to the outer edges of the outer flaps and lying closely adjacent to the area covered by the adhesive-repellent film.

4. In a container, the combination of a pair of inner flaps extending from opposite walls of the container at one end thereof and folded inwardly, a pair of outer flaps extending from other opposite walls of the container at said end and folded inwardly to overlie and contact with the outer faces of the inner flaps, the outer edges of the outer flaps lying close together, a film of adhesive-repellent material covering an area on the top face of at least one of the inner flaps in position to be overlain by a corner of one of the outer flaps, said area having an edge spaced inward from the adjacent side edge of said outer flap, and films of adhesive between the contacting faces of the inner and outer flaps and overlying the adhesive-repellent film, said faces having adhesive-free areas lying closely adjacent to the area covered by the adhesive-repellent film and extending generally lengthwise of said outer flaps.

5. In a container, the combination of an outer flap extending from one of the walls of the container, an inner portion engaged by the flap to close the container, said portion and flap having opposed faces secured together by adhesive, and a film of adhesive-repellent material on one of said faces adjacent a corner of said flap, one of said faces having an adhesive-free area lying closely adjacent to the area covered by said film and extending generally lengthwise of said flap.

CLARENCE J. ALFRED.