Aug. 31, 1937. W. A. RINGLER 2,091,291

CONTAINER

Original Filed Jan. 21, 1933

Fig. 1.

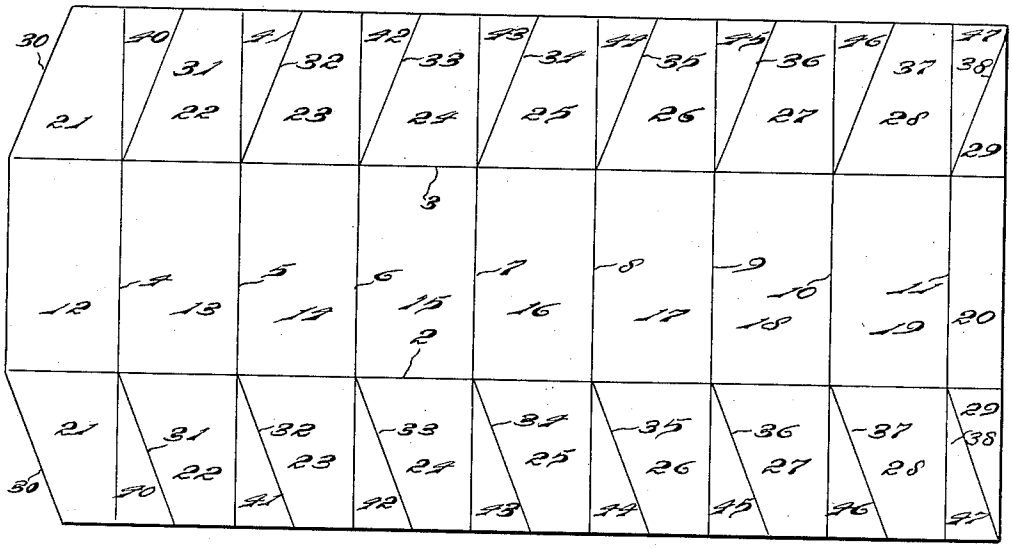


Fig. 2.

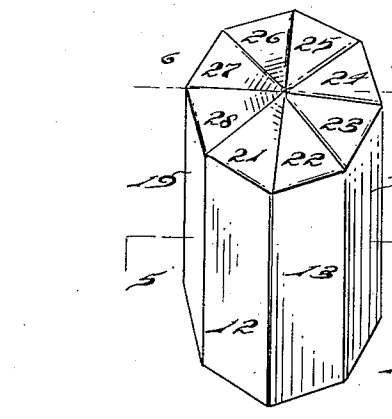


Fig. 3.

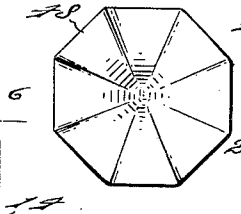


Fig. 4.

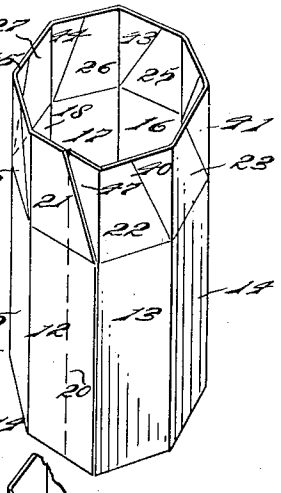


Fig. 5.

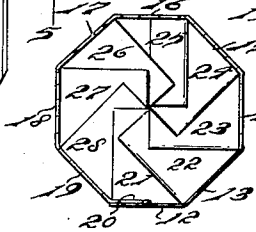


Fig. 6.

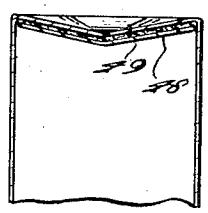


Fig. 7.

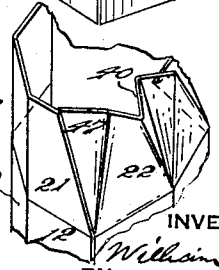
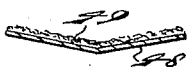


Fig. 8.



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# UNITED STATES PATENT OFFICE

2,091,291

## CONTAINER

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Application January 21, 1933, Serial No. 652,891
Renewed May 9, 1936

8 Claims. (Cl. 229—37)

The object of this invention is to devise a novel construction and arrangement of a container which can be formed from a single blank of sheet material with a minimum amount of waste and wherein the ends are closed and sealed in a novel manner.

A further object of the invention is to devise a novel construction of a container having multiple sides which has its ends closed in such a manner that finely powdered material will not sift from the ends of the container.

With the above and other objects in view, as will hereinafter more clearly appear, my invention comprehends a novel container having the ends sealed in such a manner that it is sift-proof and at the same time the delivery end can be readily opened when the material contained within the container is to be removed or dispensed therefrom.

It further comprehends a novel blank having weakened lines whereby it can be folded to form a multiple wall container and to form end members having overlapping portions, the length of said end members being greater than the radius of the discharge end of the container.

It further comprehends a novel end lock for a container wherein the walls overlap and are adapted to be secured together by adhesive, if desired, and at the central portion the walls also overlap to form a closure at such location.

It further comprehends a novel container wherein a novel construction of a retaining member is employed which prevents bulging of the container at its ends and which, if desired, can be provided with a layer of fibrous material, preferably a material which will mat, such as, for example, cotton so that when the adhesive is applied a sift-proof seal will be formed and the pressure of the material against such sealing member tends to cause its peripherial portion to more closely engage the inner walls of the container.

Other novel features of construction and advantage will hereinafter appear in the detailed description and the appended claims.

For the purpose of illustrating the invention, I have shown in the accompanying drawing a typical embodiment of it, which, in practice, will give satisfactory and reliable results. It is, however, to be understood that this embodiment is typical only and that the various instrumentalities of which my invention consists can be variously arranged and organized, and the invention is not limited to the precise arrangement and organization of these instrumentalities as herein set forth.

Figure 1 is a top plan view of a blank formed from sheet material and from which a container embodying my invention can be formed.

Figure 2 is a perspective view of a container embodying my invention with the ends in closed and sealed condition.

Figure 3 is a plan view of a sealing member employed.

Figure 4 is a perspective view of the container with the top end opened and ready for sealing.

Figure 5 is a section on line 5—5 of Figure 2.

Figure 6 is a section on line 6—6 of Figure 2, the bottom portion being omitted.

Figure 7 is a perspective view of a portion of the container showing more clearly the manner in which an end closure is folded inwardly.

Figure 8 is a sectional view of the sealing member having a layer of fibrous material on one face thereof.

Similar numerals of reference indicate corresponding parts.

Referring to the drawing:

1 designates a blank formed from sheet material and provided with weakened lines in order to adapt it to be folded into a container embodying my invention. The blank is of substantially rectangular formation so that there is a minimum waste of material. The blank 1 is provided with the longitudinally extending weakened lines 2 and 3 and the transversely extending weakened lines 4, 5, 6, 7, 8, 9, 10 and 11, which contribute to form the side wall folds 12, 13, 14, 15, 16, 17, 18 and 19, and a securing flap 20. These lines also contribute to form the end folds 21, 22, 23, 24, 25, 26, 27, 28 and 29 at opposite sides of the blank. One end of the blank is cut away as indicated at 30. The folds 22 to 29 inclusive are each provided with lines extending at an angle to the lines 2 and 3 and the juxtaposed transversely extending weakened line. These lines are indicated at 31, 32, 33, 34, 35, 36, 37, and 38, respectively, which contribute to form the subfolds 40, 41, 42, 43, 44, 45, 46 and 47. The securing flap 20 and folds 29 are provided with adhesive so that when the fold 12 and the fold 21 are folded over then the free ends of the blank will be secured together.

Prior to this operation the blank is preferably run over means which will bend the blank on the weakened lines so that the different folds will be the more readily bent into formation. The free ends of the blank can be secured together when the blank is folded upon itself and

flat and the blank is now opened out into the form seen in Figure 4, both ends however being open. The bottom of the container may now be permanently sealed by folding inwardly the folds 21 to 28 inclusive so that the folds progressively overlap circumferentially of the folds. Prior to this infolding of the end folds of the container adhesive may be applied thereto and a block or anvil placed within the container so that the end folds are secured together under pressure and at the bottom the folds now appear as shown in Figure 5.

In some cases it is advisable to employ a sealing member which may be in the form of that shown in Figure 3 or have in addition a layer of fibrous material applied to a surface thereof, as shown in Figure 8.

48 designates a sealing member formed from sheet material and having its outer perimeter having the same number of sides as the sides of the container in order that it will closely engage the inner walls of such sides. As I have preferred to illustrate the container as having eight walls, the sealing member 48 has an octagon shape, and it is also preferably dished as will be understood by reference to Figures 3, 6 and 8.

Assuming that the bottom of the container is to be sealed, this sealing member can be placed in the bottom and, if desired, glued to the overlapping bottom end folds. A similar sealing member can be placed in the upper end of the container after it has been filled and the end flaps folded down and sealed by gluing or similar means, or the top end folds may be left unsealed.

If a finely powdered or comminuted material is packed in a container, such as, for example, flour, it has been found very difficult to seal the ends in such a manner that the material will not sift through the glued ends. In case such material is packed in a container of my construction I find it especially advantageous to use a sealing member as shown in Figure 8 which has had applied to the face of it a fibrous material 49 such as, for example, cotton. It will be seen that when the end folds are folded down in overlapping relationship with the glue applied thereto that this glue will adhere to the cotton and there will be no possibility of the glue contaminating the material which has been packed in the container.

If the package is shaken the pressure of the material against the sealing members 48 will cause their outer perimeter to more closely engage the inner edges or corners between the end folds and the side walls and thus prevent any seepage or leakage of material at such point.

Due to the fact that the end folds are longer than one-half the diameter of the opening into which they are folded, it will be apparent that they overlap at the central portion so that there is no central opening in an end closure.

With many types of material it is not necessary to seal the end folds especially in case a sealing member, such as 48, is employed since the end folds can spring inwardly as shown in Figure 6.

The sealing member also serves to prevent the deformation or bulging of the container at its outer end.

The purpose of having the angularly directed lines on the end folds run in different directions at opposite sides of the blank is so that all of the score lines can be broken at the same time by running the blank, for example, through rollers in the same direction although, of course, they may, if desired, be directed in the same direction.

It will be noted that the free end of one end fold passes beneath a juxtaposed end fold and as the glue is applied to both the inner and outer marginal portions of the end folds the overlapping folds are secured together at the central portion.

The sealing member is preferably dished so that when the top is sealed by the infolding of the end folds at the top they will move inwardly so that the enclosure thus formed is dished or in other words inwardly deflected so that it cannot bulge o. ardly and a firm support is formed for the container.

Since the sealing member is preferably dished or slightly cone-shaped, the pressure of the material packed in the container against it will be passed to the peripherial portion of the sealing member and not to the central portion thereof so that the pressure is imparted to the outer container at the places where the end folds join with the side walls of the container. It will thus be seen that if the container is shaken the end folds will still be retained in their closed position since the pressure of the material will not be imparted to the central portion of the closure formed by such end folds. The free marginal portions of an end fold when in sealed position overlap the end fold beneath it and when these folds are secured together, for example, by gluing, a very rigid enclosure is provided.

The main function of the fibrous material on the sealing member, such as, for example, cotton, is to provide a filling which will fill the crevices between the folds of the closure and the sealing member so as to positively prevent any sifting or leakage of the material packed in the container through the closed ends of the container. When an end closure to which glue has been applied is folded inwardly and sealed the glue will adhere to the cotton.

It will, of course, be apparent that the sealing member itself may consist of a fibrous or textile material, such as, for example, cotton, and the sealing member proper, such as, for example, a piece of cardboard, or the like, may be dispensed with.

It will now be apparent that I have devised a new and useful container which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described a preferred embodiment thereof which will give in practice satisfactory and reliable results, it is to be understood that this embodiment is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:

1. A container, comprising a blank sheet of material having fold lines to provide for its folding into a polygonally sided container, said blank having end folds of greater length than width and of greater length than one-half the diameter of the open end of the container, the end folds being formed by fold lines extending at an angle towards their free ends, the fold lines at one end extending in a different direction than those at the opposite end, whereby when they are folded inwardly they are in overlapping relationship,

said blank having at one end a securing flap extended to form end folds which latter have angularly extending fold lines.

2. A container, comprising a blank of sheet material having fold lines to provide for its folding into a polygonally sided container having end folds of greater length than width and of greater length than one-half the diameter of the open end of the container, the end folds having fold lines extending at an angle toward their free ends, the fold lines at one end extending in a different direction than those at the opposite end whereby when they are folded inwardly they are in overlapping relationship, said blank having at one end a securing flap extended to form end folds which are provided with diagonally extending fold lines, and a polygonally sided sealing member inwardly of the folded end folds and contacting said sides.

3. A container, comprising a blank of sheet material having fold lines to provide for its folding into a polygonally sided container having end folds of greater length than width and of greater length than one-half the diameter of the open end of the container, the end folds having fold lines extending at an angle towards their free ends whereby when they are folded inwardly they are in overlapping relationship, said blank having at one end a securing flap extended to form end folds which have fold lines diverging towards an end of the blank, and a polygonally sided sealing member inwardly of the folded end folds and contacting with said sides, said sealing member having cotton glued to the outer face thereof.

4. A container, comprising a blank of sheet material having fold lines to provide for folding it into a polygonally sided container with end folds substantially rectangular except an end fold at the free end of the blank, said end folds being of greater length than one-half the diameter of the open end of the container, said end folds being of greater length than width and provided with fold lines which at opposite ends extend in different directions to form triangularly shaped sub-folds providing for the infolding of the end folds in progressively overlapping relationship, said blank having at one end a securing flap extended into end folds having fold lines diverging towards an end of the blank.

5. A container having overlapping end folds, and a sealing member having fluffy fibrous material between it and the end folds and preventing the material packed in the container sifting therefrom.

6. A container having overlapping end folds, and a dished sealing member having fluffy fibrous material between it and the end folds and preventing the material packed in the container sifting therefrom,

7. A container formed from a sheet of blank material of uniform width throughout its length and foldable to form polygonal sides and end folds, said blank having at one end a securing flap extended into end folds having fold lines diverging towards an end of the blank, said end folds comprising inwardly converging folds alternating with outwardly converging folds, said end folds being of greater length than one-half the diameter of the open end of the container whereby the end folds are folded inwardly and secured in overlapping relationship, the juxtaposed end opening of the container being sealed and inwardly deflected.

8. A container, comprising a blank of sheet material of uniform width throughout its length having fold lines to provide for its folding to form a polygonally sided container having a number of end folds corresponding to the number of sides adapted to be folded inwardly and of greater length than width and of greater length than one-half the diameter of the open end of the container, to form a dished closure with the free ends of one end fold overlapping a juxtaposed fold beneath it, said blank having at one end a securing flap extended into end folds having fold lines diverging towards an end of the blank.

WILLIAM A. RINGLER.