Oct. 21, 1958 C. D. FALLERT 2,857,090

CONTAINER FOR HEAVY ARTICLES

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FIG. 1.

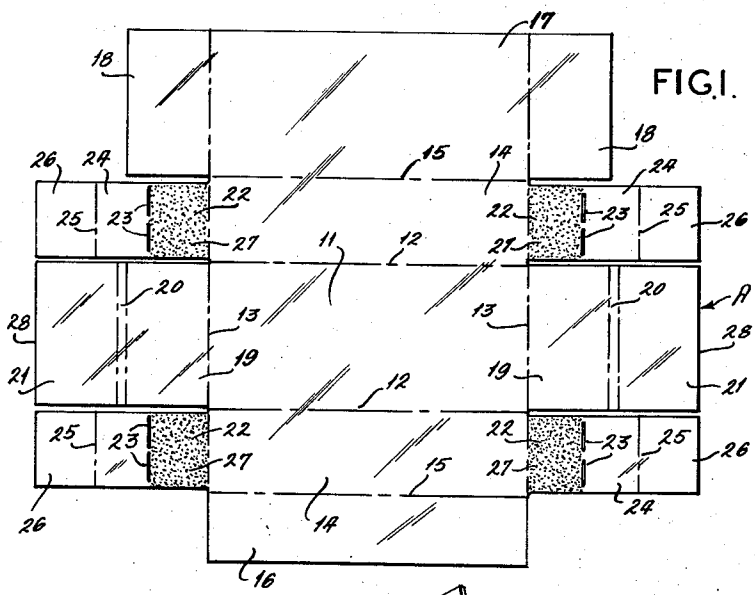


FIG. 2.

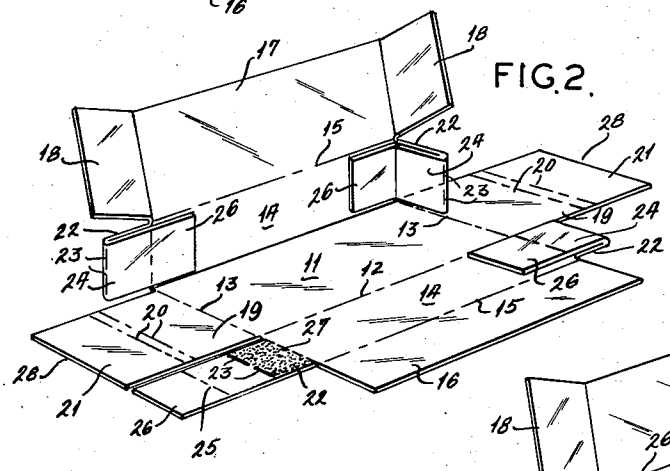


FIG. 4.

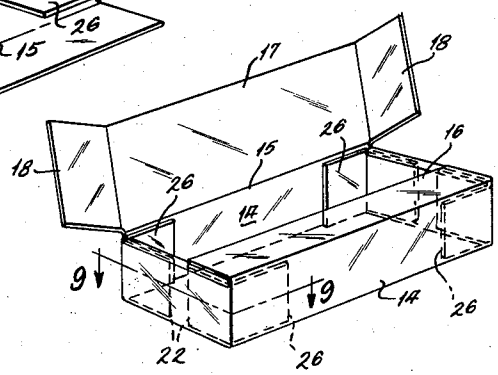
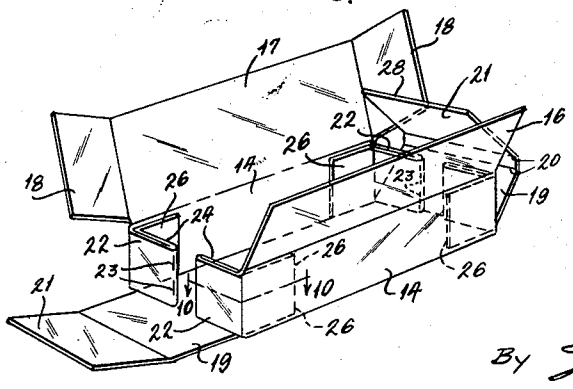


FIG. 3.



INVENTOR:
CLIFFORD D. FALLERT

By William Thyle, ATTORNEY

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FIG.5.

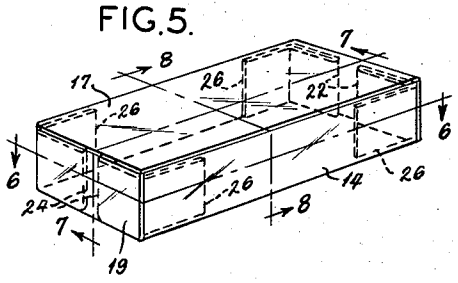


FIG.9.

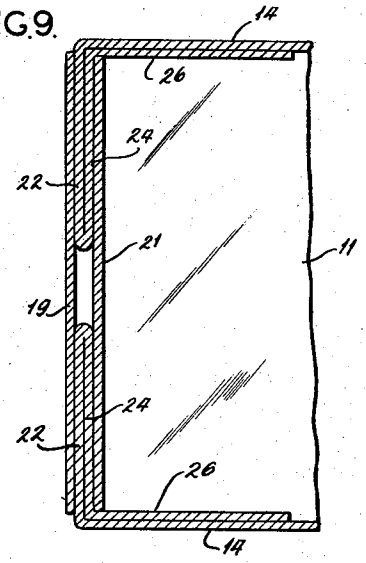


FIG.6.

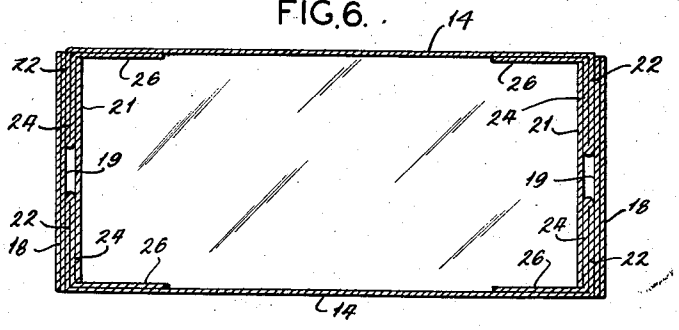


FIG.7.

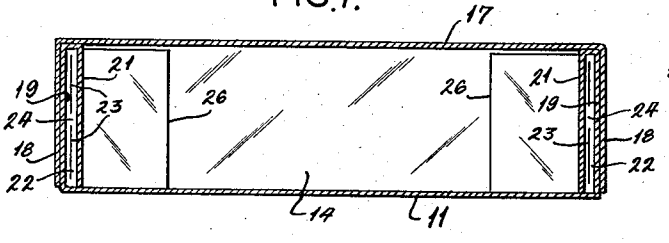


FIG.8.

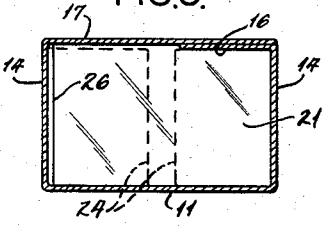
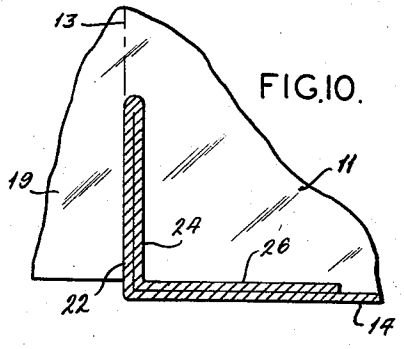


FIG.10.



INVENTOR:
CLIFFORD D. FALLERT

By William Thyle ATTORNEY

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CONTAINER FOR HEAVY ARTICLES

Clifford D. Fallert, St. Louis, Mo., assignor, by mesne assignments, to Crown Zellerbach Corporation, San Francisco, Calif., a corporation of Nevada

Application June 2, 1955, Serial No. 512,615

1 Claim. (Cl. 229—36)

This invention appertains, in general, to containers constructed of fibreboard, paperboard or other suitable, bendable materials and, in particular, to containers formed of solid fibreboard or corrugated fibreboard. It is often desired to package, for shipment, relatively heavy, dense articles, such as welding rods, wire and other similar material. It is often important, especially with materials such as welding rods, which are coated with substances which are likely to chip or flake if improperly handled, to provide an inexpensive container which adequately protects the contents from the impacts of the normal rough handling during shipment. An obvious expedient would be to provide separate interior reinforcing members designed to protect the contents. Another expedient would be to provide a unitary container structure of complicated design which the user is required to expend considerable time to glue, fold and erect. Therefore, it is an object of this invention to provide a reinforced container of the type described which has prefolded and preglued portions which automatically extend into end wall reinforcing position as the container is erected by the user. Another object of this invention is to provide a container of the type described wherein the end wall members are reinforced with up to five thicknesses of material to provide a shock absorbing, reinforcing structure to protect the contents.

A still further object is to provide a container having corner reinforcing extensions integrally connected to the end walls of the container and having rebent portions which may be pre-secured together to form a 2-ply end wall strengthening portion.

The accompanying drawings form a part of this specification and like numerals and symbols herein appearing refer to like parts wherever they occur.

Fig. 1 is a plan view of a blank embodying a preferred form of the invention;

Fig. 2 is a perspective view of the blank illustrated in Fig. 1 wherein certain of the end wall reinforcing members are shown glued together;

Fig. 3 is a view of the blank shown and illustrated in Fig. 1 shown in a partial form of erection;

Fig. 4 is a view of the blank shown in Fig. 1 shown in a still further stage of erection;

Fig. 5 is a view of a completed container erected from the blank shown in Fig. 1;

Fig. 6 is a horizontal, sectional view taken along lines 6—6 of Fig. 5;

Fig. 7 is a vertical, sectional view taken along lines 7—7 of Fig. 5;

Fig. 8 is a vertical, sectional view taken along lines 8—8 of Fig. 5;

Fig. 9 is a horizontal, fragmentary, sectional view taken along lines 9—9 of Fig. 4; and

Fig. 10 is a horizontal, fragmentary, sectional view taken along lines 10—10 of Fig. 3.

A blank A, shown in Fig. 1, embodies a preferred form of the invention and is provided with a bottom panel 11 defined by parallel bottom side scores 12 and parallel bottom end scores 13. Longitudinal side wall panels 14 are foldably connected to the bottom panel 11 along the bottom side scores 12. Continuations of the bottom end scores 13 define the end margins of the side wall panels 14.

Top side scores 15 define the top margins of the side wall panels 14. A relatively short top flap 16 is foldably connected to one of the side wall panels 14 along the adjacent side wall score 15. The top flap 16 in the embodiment illustrated is substantially narrower in width than the width of the bottom panel 11, however, the width dimensions of the top flap 16 may be varied if desired. The side wall panel 14, disposed opposite the side wall panel 14, which carries the top flap 16, is provided with a full width top panel 17 foldably connected thereto along its top side score 15. In the particular embodiment illustrated, the top panel 17 is preferably equal in width to the bottom panel 11. Continuations of the bottom end scores 13 define the ends of the top panel 17 and the inner margins of foldably connected outer end flaps 18. End wall panels 19 are foldably connected to the bottom panels 11 along the bottom end scores 13. A parallel pair of double top scores 20 define the top margins of the end wall panels 19 and the inner margins of foldably connected end wall reinforcing panels 21.

The side wall panels 14 are provided with corner panels 22 which are foldably connected thereto along extensions of the bottom end scores 13. The outer margin of the corner panels 22 is defined by cut scores 23. In the particular embodiment of the invention illustrated, the cut scores 23 are formed by slitting or cutting intermittent portions of the end margin of the corner panels 22 as illustrated, however, other forms of scoring, such as creasing, may be satisfactorily employed.

Corner reinforcing panels 24 are foldably connected to the corner panels 22 along the cut scores 23. Corner scores 25 define the outer edge of the corner reinforcing panels and the inner edge of side wall reinforcing panels 26.

The distance between the cut scores 23 and the corner scores 25 will be, in the embodiment illustrated, slightly less than the distance between the cut score 23 and the adjacent extension of the bottom end score 13. In this manner, the length of the corner reinforcing panels 24 is preferably slightly less than the corner panels 22. The reason of this preferred length relationship will be fully described later in the description of the erected container. In the particular container blank illustrated, the actual free edge of the side wall reinforcing panel 26 is substantially co-linear with the outer free edge of the adjacent end wall reinforcing panel 21. In this manner, the most effective utilization of the material is assured, however, the length of the side wall reinforcing panel 26 may be varied if desired.

A preferred method of forming the container from the blank A is to apply adhesive 27 to the inner face of the corner panels 22 as shown in Figs. 1 and 2. The corner reinforcing panels 24 and the side wall reinforcing panels 26 are then folded upwardly and inwardly about the cut scores 23 so that each corner reinforcing panel 24 is securely and adhesively fixed to its adjacent corner panel 22. If desired, of course, the adjacent panels 22 and 24 may be fixed together by means of stitches or any other suitable securing means.

After the corner panels 22 and 24 are secured together as above described, each side wall reinforcing panel 26 will be disposed in flatwise, contacting relation to its adjacent side wall panel 14 as shown in Fig. 2. The corner panels 22 and 24 are ordinarily glued together by the manufacturer of the container blank prior to shipment to the user of the container.

The user of the container may erect the preglued blank

in any suitable manner, however, a preferred means is to fold the side wall panels **14** vertically upwardly about the bottom side scores **12** into right angular relationship with the bottom panel **11**.

Each of the glued together corner panels **22** and **24** are folded right angularly inwardly about their adjacent extension of the bottom end score **13**. In this position, it will be apparent that the side wall reinforcing panels will be in firm contacting relation with the inner face of the adjacent portions of the side wall panel **14**. With the panels **22** and **24** folded in this position, the end wall panels **19** are folded upwardly about their bottom end scores **13** into vertical flatwise relation against the previously positioned adjacent corner panels **22**. The end wall reinforcing panels **21** are then folded inwardly and vertically downwardly over the corner reinforcing panels **24**. In the embodiment illustrated, the free outer edge **28** of the end wall reinforcing panels **21** are in firm contacting relationship with the upper face of the bottom panel **11**. In this manner, the frictional engagement assists in maintaining the end wall reinforcing panel in vertical position.

The container may then be loaded. To seal the container, the top flap **16** is folded horizontally inwardly about its adjacent top side score **15** as shown in Fig. 4. The top panel **17** is then folded horizontally inwardly in overlapping relation with the previously positioned top flap **16**. The outer end flaps **18** may then be folded vertically downward in contacting relation with the outer face of the end wall panels **19** and then fixed in place by adhesive, stitching, or other suitable means. For example, it may be desired to secure the top panel **17** and the outer end flaps **18** into position by girding means, such as steel strap, wire, tape or the like.

The container thus provided, and illustrated in completed form in Fig. 5, affords a substantially dust-proof reinforced package for carrying heavy, dense articles. The reinforced corner portions and end wall portions are proof against failure during transit. As shown in Figs. 6 and 7, a multiple thickness reinforcing and cushioning end wall structure is provided, with up to five layers of material being utilized. Also, as readily apparent from Fig. 9, there are provided reinforced corner structures which are formed by two continuous plies of material thereby affording at least twice the strength found in ordinary containers of this general type.

Furthermore, the reinforced corner structures and side and end wall structures provide unusual vertical strength which permits containers employing this invention thereby stacked one upon another.

Not only are the end walls of the container substantially reinforced, but the side wall structure is reinforced by the use of the side wall reinforcing panels **26**.

In the embodiment illustrated, it is important to note that the side wall reinforcing panels **26** are not adhesively secured to the adjacent inner faces of the side wall panels **14** since as the glued together corner panels **22** and **24** are folded about the extension of the bottom end score **13** into position, the side wall reinforcing panel **26** will actually slide along the inner face of the adjacent side wall panel **14**. Also, as readily apparent from an examination of Figs. 9 and 10, corner panel **22** is of greater length than corner reinforcing panel **24** by an amount at least equal to the thickness of the material from which the container is constructed.

It is to be understood that the embodiments herein described are illustrative and not restrictive, and it is also to be understood that the invention may be susceptible of embodiment in other modified forms, and that all such modifications which are similar or equivalent hereto come equally within the scope of the claim next appearing.

What I claim is:

A unitary container having a bottom with foldably connected, upstanding side and end walls, and a bottom, a substantially similar side wall, corner and end wall reinforcing extension foldably connected to each end of each side wall at substantially a right angle thereto and with the extensions from one side wall extending forward and in alignment with the extensions from the other side wall, each extension including reversely folded over similar permanently secured together overlapping portions forming part of an end wall structure and a further similar extension at a right angle thereto in free engagement with an adjacent inside portion of the side wall, the overall dimension of all extensions being substantially the same and the height of all the extensions being substantially the height of the side walls but of lesser length than the side walls, inner and outer end wall panels foldably connected together and integral with the bottom, with the inner panels extended over the said inside of each folded over end wall structure and with the outer panels extending over and in engagement with the outside of each folded over wall structure thus resulting in four-ply end walls, one upstanding side wall having a flat ledge integral with and extending inwardly at the right angle from its edge and spacedly overlying substantially one-half the width of the bottom and throughout the length thereof and with its respective end marginal edges supported on and by the end walls, the opposing upstanding side wall having a top closure flap substantially coextensive in length and width with said bottom of the container, said top closure flap being disposed generally horizontally inwardly over and with a portion thereof in flatwise contacting relationship throughout its length with said ledge, said top closure flap having end marginal edges in alignment with said container end walls and having similar outer end flaps disposed downward and secured in flatwise reinforcing relation to respective outer faces of the outer end wall panels.

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