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CENTER SUPPORT CARTON

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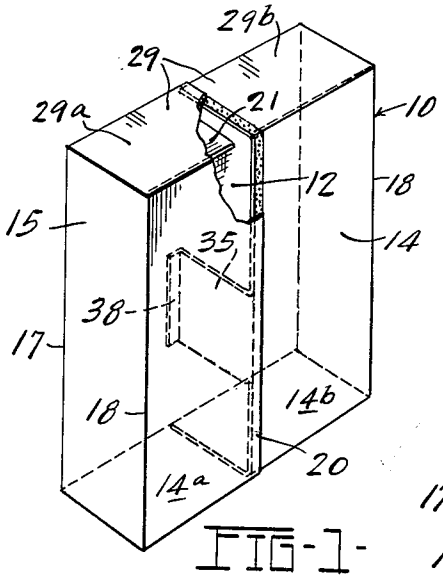


FIG-1-

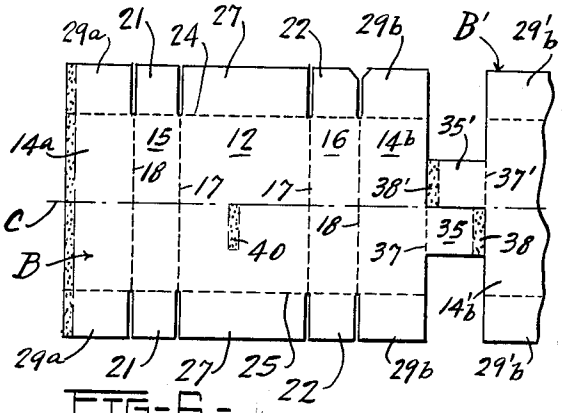


FIG-6-

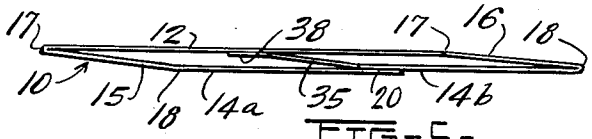


FIG-5-

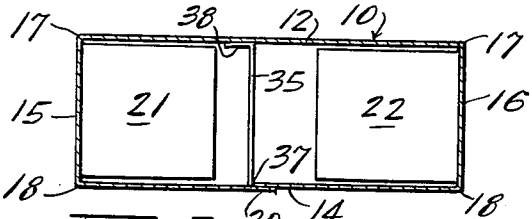


FIG-3-

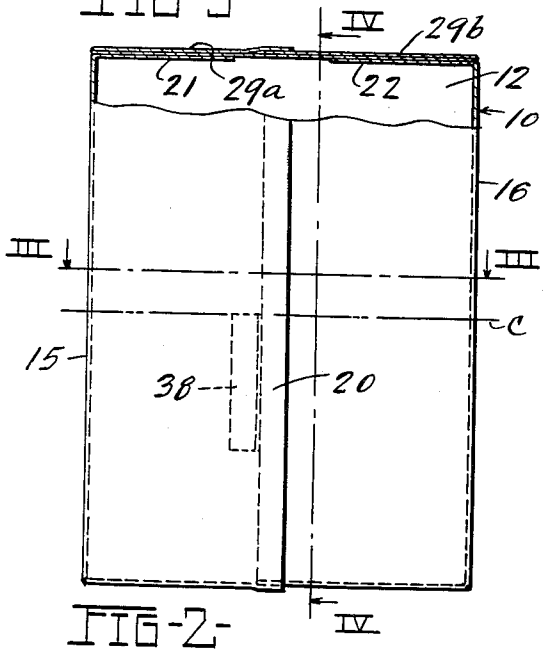


FIG-2-

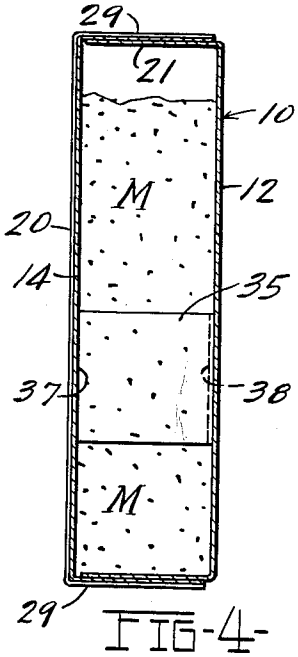


FIG-4-

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CENTER SUPPORT CARTON

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1 Claim. (Cl. 229—16)

This invention relates to folded blank boxes or cartons for packaging bulk materials and is particularly directed to improved cartons for such use that can be made from a single blank of light weight paper board.

An object of the present invention is to provide a carton of the type having opposed broad panels and opposed narrow panels with means to support the broad panels to prevent bulging thereof when the carton contains dense bulk material and help the carton maintain its shape as well as increase the crush factor of the carton without increasing the thickness or weight of the sheet material making up the carton.

Another object of the invention is to provide a carton with a strap or strut means which bridges the space between opposite side panels to maintain such panels substantially in parallelism, particularly when filled with heavy granular or other like material, such means being integral with one such panel portion and securely attached to the opposed panel.

Another object of the invention is to provide a carton with strut means which requires a minimum of additional material and of simple construction so that it can be economically produced by standard carton manufacturing equipment.

Generally speaking the carton of the present invention is of rectangular form and comprises four side panels, two of which are wide panels and two are narrow panels, and end closures provided by flaps which are extensions of the side panels. One of the wide panels is formed of two sections, one at each end of the blank from which the carton is made, which are overlapped to provide a central longitudinal seam, and integral with one of these sections is a comparatively narrow extension or strut capable of extending between the two wide side panels. The strut is provided with a flange which is glued to the wide panel to which the strut extends, the strut being located to one side of the longitudinal center line of the blank horizontal center line of the carton to position the strut in the lower half of the formed box to prevent the wide panels from bulging from static pressure of the bulk or granular material in the carton, whether filled or partially filled therewith. This construction also permits a saving of the sheet from which the carton blank is cut, by fitting the two struts side by side with their outer ends abutting the edges of the overlapped portions of the other carton blank.

The above mentioned and other features and objects of this invention and the manner of attaining them will become more apparent and the invention itself will be best understood by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawing, wherein:

FIG. 1 is a perspective view of a carton incorporating the present invention in fully assembled condition, with a part broken away and the center support being shown in dotted lines;

FIG. 2 is an enlarged rear elevation of the carton shown in FIG. 1, with an upper part broken away and the center support being shown in dotted lines in a position below the horizontal center line of the carton;

FIG. 3 is a sectional view taken on a line III—III of FIG. 2;

FIG. 4 is a sectional view taken on a line IV—IV of FIG. 2 showing the carton filled with a bulk material;

FIG. 5 is an end view of a glued up carton in collapsed position for shipping or storage; and

FIG. 6 is a developed plan view of the blank from which the carton is assembled, together with a fragment of another blank to illustrate a method of producing the struts with a minimum of waste material.

Referring to the drawings, and particularly FIG. 1 thereof, a carton **10** incorporating the present invention is shown as of folded blank B, B′ type (see FIG. 6) including four rectangular panels or side walls having top and bottom end closures provided by hinged flaps or extensions of the side walls. Front wall **12** and rear wall **14** are comparatively wide, while side walls **15** and **16**, connecting the front and rear walls together along fold or score lines **17** and **18**, are relatively narrow. To facilitate the production of the present carton from a single blank B, as shown in FIG. 6, one of the wide walls, preferably rear wall **14**, is made of two panels of sections **14***a* and **14***b* at opposite ends of the blank, which overlap to provide a seam at **20** which seam is glued so that panel **14***a* is securely attached to the face of panel **14***b*.

The narrow sides **15** and **16** have flaps **21** and **22**, respectively, as separate extensions of opposite ends thereof cut at ends of score lines **17** and **18** in the blank B, which, when folded inwardly on score lines **24** and **25**, serve to partially close the top and bottom ends of the carton. The front wall panel **12** is also provided with top and bottom end flaps **27** hinged along the lines **24** and **25**. Rear wall **14** has top and bottom end flaps **29** which may be the outer closures due to the seam **20** therein, it being noted with particular reference to FIGS. 1 and 6, that the seam **20** extends the full width of the blank including the flaps **29** dividing them into portions **29***a* and **29***b* corresponding with the wide side portions **14***a* and **14***b*, respectively. Double thickness of material at the seam is not objectionable due to the use of much lighter paper board than that required for cartons of comparable size which are not provided with the wall supporting means now to be described.

Projecting from the panel **14***b* end of the blank is a strut **35** hinged to panel **14***b* at score line **37** so that the strut is to one side of the longitudinal center C of the blank (see FIG. 6) or below the horizontal center line C′ of the set up carton (see FIG. 2). The strut **35** terminates in a flange **38** which is coated with adhesive for securing the flange to the inner face of front wall **12** at spot **40**. Thus, in the assembled carton the strut **35** is located in the lower half thereof with its lower edge spaced from the carton bottom, so that when the carton is filled or partly filled with bulk material M (see FIG. 4) the walls **12** and **14** are prevented from bulging or bowing outwardly thereby. Due to its narrow width, preferably less than one-half the length of panel **14***b*, and being spaced from the bottom of the carton, strut **35** readily permits the passage of material from one section of the carton to another and prevents retention of material

when the carton top is opened and the carton is tipped to be emptied.

By means of the present invention, much lighter paper board may be utilized for cartons of substantial size than would be required to prevent bulging of the front and rear walls without the present center strut or support. The blanks may be cut in pairs from the paper board stock so that the struts 35—35' of adjacent blanks B and B' are alternated so as to be produced from the material therebetween to reduce waste to a minimum. By gluing the seam 20 and the strut flange 38 to the wall 12, the cartons may be shipped and stored in the flat as shown in FIG. 5, it only being necessary to close and seal the bottom flaps prior to and the top flaps subsequent to filling the cartons.

While there is described above the principles of this invention in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation to the scope of this invention.

We claim:

A folded blank box for bulk material made from a unitary, light weight paperboard blank cut and scored to provide when folded into box formation: end and side walls having inner and outer bottom and top walls, one

of said side walls and its associated top and bottom walls being formed from two sections, one at each end of said blank, the outer edges of said one side and its associated top and bottom sections being overlapped and glued to form a seam, one of said side wall sections having an integral strut strip to one side of the center of said overlapped edge and intermediate the top and bottom, said strut strip having a glued flap at its outer end for attachment to the other and opposite one of said side walls and said strut strip having a width less than one half of the length of the side wall from which it extends, whereby said strut strip prevents bulging of said side walls when said box contains bulk material, and whereby two of said blanks may be cut from a sheet with the ends of said glue flaps of said strut strips abutting the edges of said adjacent blanks, and the side edges of said strips being adjacent each other.

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