

Dec. 4, 1934.

S. P. BELSINGER

1,983,265

SHIPPING CONTAINER

Filed Jan. 18, 1934

Fig. 2.

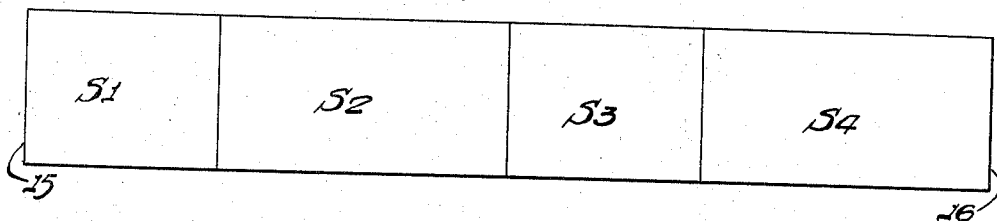


Fig. 1.

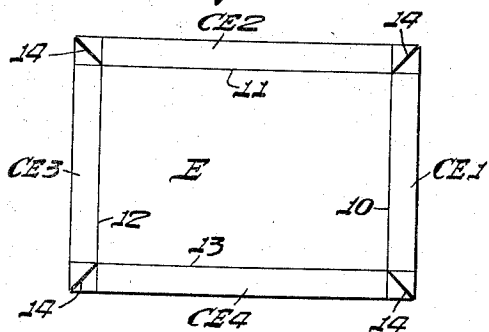


Fig. 3.

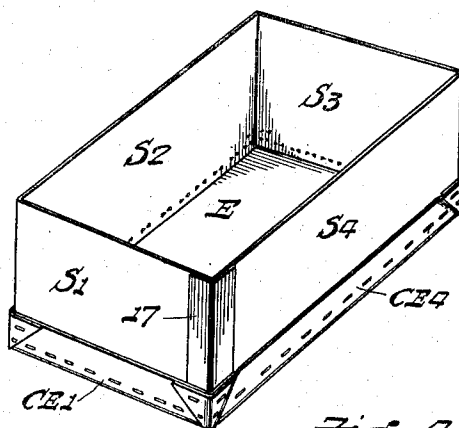


Fig. 5.

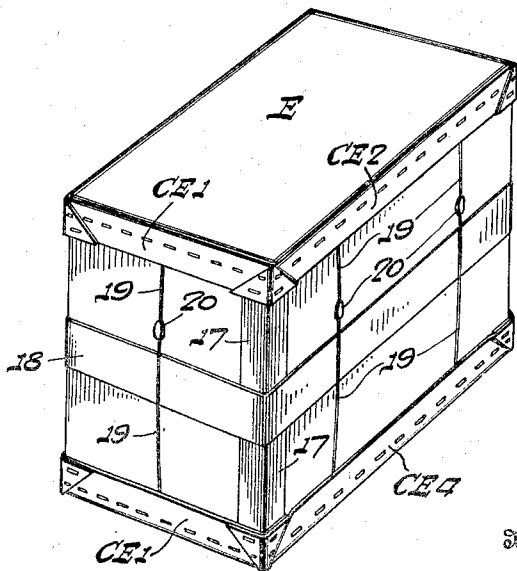
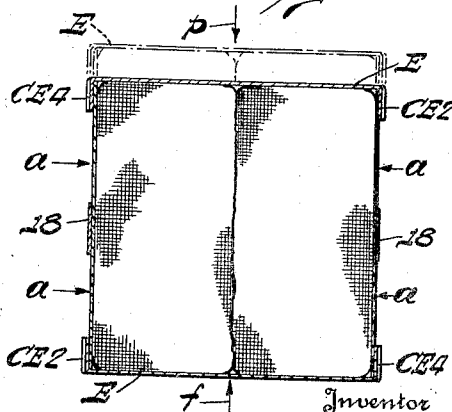


Fig. 4.



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UNITED STATES PATENT OFFICE

1,983,265

SHIPPING CONTAINER

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Application January 18, 1934, Serial No. 707,171

2 Claims. (Cl. 229-23)

This invention relates to the art of shipping containers, and is particularly concerned with the manufacture of a container from blanks of pulp board material, in which the blanks may be of rectangular shape and which in finished form provide a container having flat integral end surfaces presented to the lading.

By "pulp board material" is meant a pulp board product such as fiber board or corrugated board, characterized by its strength of resistance to tension stresses and its relatively great yield and resilience in bending stresses, and its relative weakness in shear and endwise compression, as compared with wood. The low resistance to shear makes it impossible to join the parts of such a container by ordinary nailing, and the use of external bands or ties leads to deformation of the shape of the package produced, by reason of the yielding.

The trade demands a container which is closed by permanent means of nature other than cementing, in the packaging of many articles, as the use of cementing solutions such as silicate of soda is often accompanied by the contacting of spots thereof with the lading, resulting in serious damage to the latter. Further, it is desirable to present integral flat wall surfaces at top and bottom, both for strength at these points, and for better reception of the lading.

It has heretofore been proposed to make such containers by using tray-like end pieces which are inserted into a general tubular body wall structure and secured by stitching, i. e. stapling, through the double thicknesses provided by the ends of the body wall and outwardly extending flanges of the tray. Such containers, however, have the disadvantage of a reduced internal volume within the container, and also in that these ends are relatively weak, owing to the lack of compression resistance of the material, so that they become deformed when stood on end, and a permanent weakness is developed in the material so that the container may break and open.

It has also been proposed to construct such a container by reversing the upper edge of a body wall and stitching this reversed edge flange to the downwardly extending flange of a top. Such a container requires special mechanism for the stitching, with careful supervision, and the strains of the lading may cause a reversal of the flanges and the stripping of the staples employed in stitching, owing to the yield of the material to bending stresses, and the weakness in shearing strength.

Attempts to provide a container of this type

by duplicating the body walls and telescoping them together requires a quantity of material equal to the area of the body walls for this purpose, over and above that required for a single-thickness container; and the manufacture has been found uneconomical for normal uses.

The present invention departs from this prior art in permitting the definite and rigid stitching of the top and bottom members to the body wall while the container is yet empty, with the employment of a sufficient number of staples, at any desired point, to assure an ample distribution of stresses and to avoid the difficulties of shearing weakness of the material being employed.

One form of construction according to the invention is shown illustratively in the accompanying drawing, in which:

Figure 1 is a plan view of a blank for a cover with flanges.

Figure 2 is an elevation of a blank for a body portion.

Figure 3 is a perspective view showing an assembled body portion with the body wall and cover stitched together.

Figure 4 is a transverse sectional view through the closed container with the lading therein.

Figure 5 is a perspective view of the assembled and closed container.

In this drawing, a cover blank includes an end surface E having the four flanges CE1, CE2, CE3, CE4 integrally formed therewith, by the usual operation of cutting to size and providing scoring lines 10, 11, 12, 13 in the blank. At the corners, in this illustrative form, the scoring lines have been extended to the edges of the blank, and kerfs or gashes 14 have been formed diagonally at the four corners, extending from the corners of the blank to the junctions of the aforesaid scoring lines.

The body blank shown in Figure 2 is illustratively formed of a rectangular sheet of pulp board material with side and end walls S1, S2, S3 and S4, joined at scoring lines.

The operation of assembling the container comprises joining the free ends 15 and 16 of the body wall blank, illustratively by the cemented tape 17. This tape is manufactured with the cement thereon, this cement being moistened and the tape applied to the pulp board material; owing to the regulated quantity of cement thus used and its already adherent condition, there is no normal difficulty with the penetration of it to contact with the goods. This body blank, now folded and held in rectangular condition as a sleeve-like structure, is then brought into

relationship with the cover which may or may not have previously been shaped by folding the flanges CE1, etc. to a position at right-angles to the end wall E, with each corner flap defined by the scoring lines and gashes 14 in overlapping relationship with the adjacent flange and held therewith by a staple. In either event, upon bringing the cover blank and body portion blank together, the flanges are brought into overlapping relationship and association each with the corresponding side of the body portion blank and then are stitched thereto. It will be noted that all parts are accessible at this time, and that ordinary stitching machines of commerce may be employed for the operation, and the staples may be inserted in any desired number and at any desired point. When completed this body portion has the appearance shown in Figure 3. It comprises one-half of the finished container, in this illustrative form; two such body portions being conjoined to provide the finished container.

The container is loaded by placing the integral flat end wall E upon a suitable support and inserting the material into the body portion. The container is shown illustratively in Figure 4 as holding two folded masses of textile material, which closely fit the side walls, and which extend above the upper edge thereof a distance greater than the depth of the body wall of the other body portion, with such material. The second body portion is then slid over the projecting textile mass and the side walls are preferably confined by an enclosure which prevents any outward yielding, as represented by the arrows *a* in Figure 4. Pressure is now applied as shown by the arrow *p*, against the resistance of the support indicated by the arrow *f*, and the lading is compressed until the free edges of the two body portions are in abutting relationship. A closing strip 18 is now cemented to both body portions so that they are held together by the tensional resistance of this strip in a transverse direction. When the strip cement has dried, the pressures are relieved and the package is ready for shipment. With valuable goods, where pilfering is a problem, it is preferred, as shown in Figure 5, to secure wires 19 in the body portions, with outwardly extending free ends which are now joined by appropriate seals 20.

The container, with the contents therein, is characterized by the fact of the presence of an ample number of properly located staples to prevent tearing, by the provision of flat top and bottom walls, and by the increased strength along the top and bottom edges by the girder effect of flanges CE1, etc. which are tightly secured to the body walls adjacent these edges. No reverse pull can be placed at the stapling points by the action of the load, as no deformation of the package in normal handling can cause a release of any staple, nor a separation of the flanges from the corresponding body walls so that the staples may "tear through." In the illustrative example, the lading itself assists in maintaining the direct abutting relationship of the free edges of each body portion with respect to one another, as the portions are of substantially identical cross-section by reason of the similarity of their manufacture, and are held therein against separation and shifting by the action of the closing strip 18. The lading also tends, owing to its initial compression, to force the top and bottom cover walls E away from

one another and settling of the contents is likewise avoided.

As a matter of economy, it will be noted that both the cover and body wall blanks are rectangular and rectangular in form and can be made from the relatively narrow widths of pulp board material, compared with the widths required for making the standard type of container. The only excess of material over that required by the dimensions of the six walls themselves, is that contained in the cover flanges C1, etc. and the corner flaps, and these corner flaps may even be omitted if desired. These cover flanges are merely made sufficiently wide for the stitching operations and for assuring the desired degree of strength at the corresponding edges of the closed container.

It will be noted that the cover or end closures E are identical as to dimensions and construction and therefore these end closures can be cut or shaped at the same time and stitched on the same machine. This greatly reduces the labor costs and the amount of material used. It will also be noted that the two body sections may be cut and shaped at the same time and similarly formed on a single machine. This further reduces the cost of labor and material and produces a container which is of simple construction and wherein a maximum capacity is obtained by the use of a minimum amount of material. It will also be noted that the outer faces of the end closures or covers are smooth and the surface is unbroken. This greatly aids in the moving of the container on the floor or the inserting of the lifting arms of a truck therebeneath. It also greatly facilitates the movement of the containers on conveyors.

A particular feature of the invention is that the material is employed in such a manner as to attain the maximum effect of its valuable property of strength in tension, while its weakness in shear and compression have been overcome by the particular arrangement of parts selected so that stresses of such nature are assumed by the load, or are distributed over large areas.

It is obvious that the invention is not restricted to the particular embodiment shown, but that it may be employed in many ways within the scope of the appended claims.

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

1. A shipping container of pulp-board material, comprising upper and lower body portions, each formed from a rectangular blank folded at the vertical corners and having its ends joined whereby to provide portions of the side walls of the completed container, said body wall portions at their free edges being substantially identical in cross-section and located in abutting relationship, said body portions having identical end closure members each having an integral central portion providing a solid, smooth surface forming respectively the top and bottom members of the completed container and peripheral flanges each overlapping a corresponding outer face of said side wall portion, means passing through said flanges and said side wall portions for rigidly and fixedly uniting said end portion to said body portion, and an external strip overlapping the free edges of both said body portions and secured to both said body portions throughout the length of the free edges for holding the sections against separation and against relative shifting.

2. A shipping container of pulp-board material, comprising upper and lower body portions, 15

each formed from a rectangular blank folded at the vertical corners and having its ends joined whereby to provide portions of the side walls of the completed container, said body wall portions at their free edges being substantially identical in cross-section and located in abutting relationship, said body portions having identical end closure members each having an integral central portion providing a solid, smooth surface forming respectively the top and bottom members of the completed container and peripheral flanges each overlapping a corresponding outer face of said side wall portion, means passing through said flanges and said side wall portions for rigidly and fixedly uniting said end portion to said body portion, an external strip overlapping the free edges of both said body portions and secured to both said body portions throughout the length of the free edges for holding the sections against separation and against relative shifting, sealing wires secured to each body portion and extending externally between the flanges and side wall portions thereof, and seals each operating for connecting a wire of the upper structure with a wire of the lower structure externally of the container.

SAMUEL PERRY BELSINGER.

15	90
20	95
25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150