

May 19, 1959

I. E. WRIGHT

2,887,263

END PAD AND CORRUGATED CONTAINER

Filed April 25, 1955

2 Sheets-Sheet 1

INVENTOR:
Ivan E. Wright
by Silverman + Mullin
Attorneys

May 19, 1959

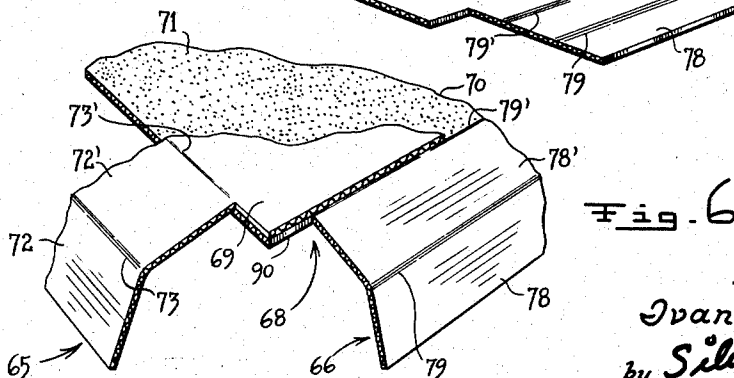
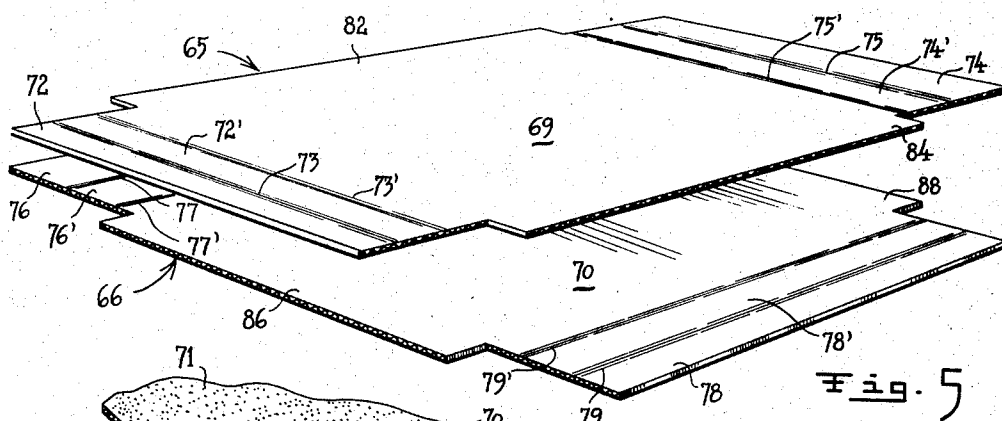
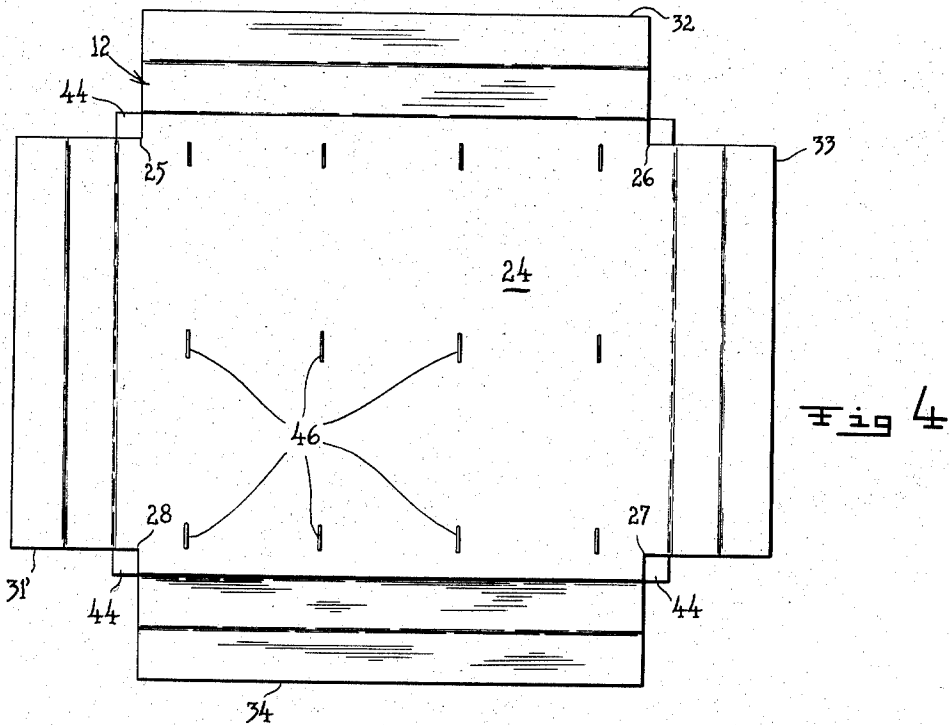
I. E. WRIGHT

2,887,263

END PAD AND CORRUGATED CONTAINER

Filed April 25, 1955

2 Sheets-Sheet 2



1

2,887,263

END PAD AND CORRUGATED CONTAINER

Ivan E. Wright, Des Plaines, Ill., assignor to Stone Container Corporation, Chicago, Ill., a corporation of Illinois

Application April 25, 1955, Serial No. 503,650

3 Claims. (Cl. 229—23)

This invention relates generally to containers and more particularly is concerned with a corrugated container having a novel end pad structure.

In shipping bulky objects such as large appliances, the usual and well-known package consists of a sleeve of corrugated board or the like having its ends capped by double thicknesses of corrugated board, with the appliance disposed on the interior of the package spaced from the walls and ends by any suitable means. It has been known to provide the sleeve ends and the caps or end pads with interlocking flanges to form multiple thickness joints easily strapped by metal bands.

Thus, the end pad has four flaps or flanges, each scored parallel with the respective edges to form two part flanges; and the sleeve end has a single end flange on each side. Interlocking the two part flange with the end flange provides a fold strip of at least three thicknesses of corrugated board about the periphery of each end of the package overlying the sides.

Difficulty has been experienced in forming the resulting package for two principal reasons. In the first place the sleeve must be tightly closed to exclude moisture, dust and vermin and hence the ends of the sleeves must be fully covered by the end caps or pads. This has heretofore required close tolerances in forming the end pads which has increased the expense of manufacturing the package. In the second place, the resulting corners of the fold strips have had a tendency to bind with accompanying buckling of the ends of the sleeves, and often looseness of one or more of the fold strips. Such binding might also result in gapping of the end of the package.

The principal object of the invention is the provision of a corrugated board package having end pads of structure to alleviate the disadvantages of the prior art.

Another object of the invention is the provision of a corrugated board package having at least one end pad formed with foldable flanges or flaps the length of which is less than the width of the respective sides of the sleeve forming the said package.

Still a further object of the invention is the provision of a corrugated board package formed of a sleeve having foldable end flaps at least on one end thereof, and having an end pad of generally cruciform construction having flaps or flanges adapted to interlock with the sleeve end flaps, and the length of each interlocked flange and sleeve end flap being less than the width of the contiguous sleeve side whereby the sleeve corners are exposed at the ends of the interlocked fold strips formed.

Another object of the invention is to provide a package as described in the object above set forth in which the end pad has a cruciform member provided with flaps or flanges for interlocking with the end flaps of a sleeve, and a second member secured to the cruciform member on a face thereof having a configuration geometrically similar to but larger than the rectangular area defined by the four cruciform junctions.

Another object of the invention is the provision of an end pad of the character described which is formed of a

2

pair of elongate members of generally rectangular formation, arranged crosswise of one another so that the protruding ends form the flaps of the resulting cruciform structure, but provided along their longer sides with integral extensions of the members, the distance across the extensions of the members being substantially the distance across the respective dimensions of the sleeve end to which said pad is adapted to be secured.

Many other objects and advantages will occur to those skilled in the art to which this invention pertains as a description of preferred embodiments is set forth hereinafter, and in view of the drawings of said embodiments appended hereto, in which:

Fig. 1 is a perspective view of a corrugated container or package having the structure of the invention, provided with both top and bottom end pads or caps of the new design.

Fig. 2 is a sectional view taken generally through the package of Fig. 1 along the line 2—2 and in the indicated direction.

Fig. 3 is a perspective view of an end cap or pad constructed in accordance with the invention, same being shown disassociated from the sleeve with which same forms a package and a portion being broken away to show structural details.

Fig. 4 is a top plan view of the end cap of Fig. 3, the same being developed to show the formation of the flaps, and illustrating a different manner of securing the parts thereof.

Fig. 5 is an exploded perspective view of an end cap or pad of modified construction.

Fig. 6 is a fragmentary perspective view of a corner of the end pad of Fig. 5 assembled.

The invention, as stated above, is especially adapted for use in corrugated or similar paperboard containers for transporting appliances such as cooking ranges, washers, dryers and the like, although not necessarily limited thereto. The invention also is not limited to a package or corrugated container in which the end pad or cap to be described is used on both ends, but is contemplated as applying to a package in which only one of such structures is used. Thus, some packages are built upon pallets and the end cap or pad may be applied only to the top of the sleeve. In some cases, only the bottom will have the novel end cap.

In Fig. 1 there is illustrated a package 10 which is formed of an upright sleeve member 11 of corrugated board normally open at its top and bottom ends, and capped or covered by end caps 12 top and bottom. These will be referred to hereinafter as pads, the designation by which they are known in the trade. The illustration shows both top and bottom pads 12 of the same structure and hence only one need be described.

The sleeve 11 is of rectangular cross section and hence has four faces or sides only two of which are seen in Fig. 1 and designated 16 and 18. In the specification and claims reference will be made to the width of the sides of the sleeve 11 and the dimensions corresponding to width are 20 for the width of the side 16 and 22 for the width of the side 18. These dimensions are of importance as will be seen, the height of the sleeve being of little or no importance insofar as this invention is concerned. The sleeve 11 will probably have a stapled, stitched or taped seam in accordance with well-known practice but this is not shown.

Looking now at the pad 12 illustrated in Fig. 3, note that there is a cruciform member having a main generally rectangular body 24 and four junctions 25, 26, 27 and 28 (see Fig. 4 also) providing thereby the flaps or flanges 31, 32, 33 and 34. Each flange is made up of inner and outer parts (represented by single and double primed corresponding numerals) separated from one an-

other by elongate score lines 36, 37, 38 and 39 and separated from the body of the member 24 by score lines 36', 37', 38' and 39' parallel to the previously mentioned score lines respectively. It will be noted that the score lines 36', 37', 38' and 39' form a rectangular area substantially greater than but geometrically similar to the rectangular area defined by rectilinearly connecting the junctions 25, 26, 27 and 28.

The effect achieved when the flanges 31, 32, 33 and 34 are bent downwardly as in securing the pad 24 to the top of the sleeve 11 is to provide a relatively shallow rectangular downwardly opening tray the side walls of which do not meet at their ends, and the base of which has a square notch at each corner. The notches are designated 40 in Fig. 1.

The end pad 12 has an interior member 42 of corrugated board in which the corrugations are preferably cross-wise of the corrugations of the body 24 in order to comply with certain regulations promulgated by public carriers. The interior member 42 is rectangular and its dimensions coincide generally with the rectangular area defined by the score lines 36', 37', 38' and 39' but without the notches 40. Thus, the member 42 will have its corners 44 exposed as shown in Figs. 3 and 4. The member 42 may be glued or pasted to the body portion 24 as indicated by the layer of glue shown at 45 in Fig. 3 or may be stapled as indicated at 46 in Fig. 4.

The dimensions of the rectangular interior member 42 are chosen so that the open end of the sleeve will be covered thereby. In Fig. 2 it will be seen that each of the sides of the sleeve is provided with an end flap or flange much like those of the pads 12. Thus, the side 16 has an integral hinged flap or flange 48 that is engaged between the portions 32' and 32'' of the flap 32 with the scored line 37' forming an upper corner edge of the resulting package, and the scored line (or group of lines, the thickness of flap 48 requiring consideration) 37 forming the lower border of the resulting fold strip 50. The designation "fold strip" is an arbitrary one chosen to represent the folded interlocked molding-like assemblage formed about the periphery of the package when assembled. The four fold strips at the top and bottom of the sleeve 11 are tightly bound in assembled condition by means of steel strapping 52.

The dimensions of the part 42 are slightly greater than the dimensions 20 and 22, although they may be defined as substantially the same, in order to engage and lie upon the top edges 53 of the down-folded flange 48 and its other three counterparts which are not shown. This top edge is preferably scored in order to facilitate the bending down of the flange 48 and its counterparts. Although the sleeve may have the downbent flanges formed with their long dimensions the same as the width of the respective sides with which the flanges are integral, preferably the flange 48 and its other three counterparts are substantially the same length as the flanges of the pad 12 with which they are intended to interlock. Thus, in Fig. 1, as a result of this structure, the upper corners of the sleeve are exposed. It is of considerable importance to note that at the point of engagement of the member 42 with the top edges 53 the protective thickness of the pad 12 is double.

The corners 44 cover and protect the otherwise exposed corners of the sleeve opening. A better than usual bearing surface for the pad 12 is provided since it is unlikely that the member 42 will be shifted to one side on the sleeve opening. The pad 12 need not be made with close tolerances since the ends of the fold strips 50 do not touch and cannot bind.

It is important to note also that because of the exposed corners 54 of the sleeve, the steel strap 52 can acquire a better purchase, bending inward slightly at the corners as clearly seen in Fig. 1 at 52' and in most cases engaging the sleeve itself at said corners 54.

In Fig. 2, there is illustrated an appliance 60 disposed

in the package 10 and spaced from the walls by spacing blocks 62.

In Figs. 5 and 6 a modified form of the end pad is illustrated. This construction although somewhat more expensive to manufacture provides the advantage that the corners of the opening of the sleeve will be covered by two instead of one thickness of corrugated board.

Two generally elongate members 65 and 66 are secured cross-wise of one another to provide a cruciform structure comprising the end pad 68. The rectangular bodies 69 and 70 are secured by staples, stitching or glue as shown at 71. The illustrated assembly has the member 66 on the bottom. Each of the members has opposite end flaps on two ends formed by scoring, providing flaps 72 and 72' separated from one another by scoring line 73 and from the body 69 by the scoring line 73'; flaps 74 and 74' and score lines 75 and 75'; flaps 76 and 76' and score lines 77 and 77'; and flaps 78 and 78' and score lines 79 and 79'. The resulting configuration will have the flaps on all four sides to cooperate with the end flaps of the sleeve 11.

The distances between the opposed inner score lines 73' and 75' as well as the distance between the inner score lines 77' and 79' are chosen to define the end opening of the sleeve 11 to enable interlocking with the sleeve flaps, but in order to prevent binding and give rise to the advantages referred to above, the length of the respective flaps measured transverse of the members 65 and 66, that is parallel to the dimensions 20 and 22, is less than the length of the side with which the resulting fold strip will be associated. Assembling such a member as 68 to the sleeve would therefore result in openings of generally square configuration at all four corners on the top of the package. In order to provide the equivalent of the corners 44, the members 65 and 66 are provided with integral elongate extensions of their bodies 69 and 70 which extend between points spaced inwardly of the inner score lines.

These extensions are designated 82, 84, 86 and 88.

The total width of the members 69 and 70 at the extensions and including the extensions is determined by the distance between inner score lines of the opposite member. Thus, the width across the member 69 at the extensions 82 and 84 and including the width of the extensions is substantially the same as the distance between score lines 77' and 79', while the width across the member 70 at the extensions 86 and 88 and including the width of the extensions is substantially the same as the distance between score lines 73' and 75'. These distances are adjusted of course so that the resulting rectangular area in the center of the pad 68 will overlie the top edges 53 of the folded down flaps 48 and counterparts of the sleeve 11. In defining the lengths as substantially the length of the sides of the sleeve, it is intended that the added length to enable this overlying will be included.

As a result of this construction, the corners of the member 68 are of double thickness as shown at 90 in Fig. 6 with added protection for the package.

The applicability of the invention to cartons or packages in which the cross sectional configuration of the sleeve 11 is polygonal generically instead of rectangular specifically is believed obvious, and likewise, the use of any kind of paperboard, whether corrugated or not is also contemplated by the invention. Either of the structures of end pad illustrated can be used either on the top or bottom of the resulting carton or package or both places with advantage.

It is felt that the invention has been fully explained to enable those skilled in this art to understand and practice the same and manufacture the end pads and cartons of the invention, and from what has been said, it should be understood that considerable variation from the specifically illustrated examples is possible without

5

departing from the spirit or scope of the invention as defined in the appended claims.

What it is desired to secure by Letters Patent of the United States is:

1. A paperboard container comprising, an elongated sleeve of rectangular cross-section having an open end and a plurality of foldable flanges integral with the end faces of the sleeve surrounding said open end, each flange being shorter than the width of the side of the sleeve to which it is connected whereby each corner of the sleeve is exposed between the adjacent ends of the flanges, a closure structure for said open end comprising, a pair of imperforated rectangular panels secured together in superimposed relationship to provide a two-ply wall of substantially the same size and configuration as said open end, said wall having a flap hingedly connected to each side edge thereof and arranged normal to the plane of the said wall, said closure telescoped over said open end with said two-ply wall engaged against said end faces of the sleeve to close the open end and said flaps and flanges interlocked in planes parallel to the axis of the sleeve, each pair of interlocked flanges and flaps being of substantially equal length and shorter than the width of the side wall of the sleeve adjacent thereto to provide an open formation parallel with each corner of the sleeve and extending on opposite sides thereof, each said corner being exposed in a said open formation for the entire width of the interlocked flanges and flaps adjacent the said open formation, said two-ply wall having at each corner thereof a planar right angular projection coinciding with a corner of said open end to close the corner of said open end, and a metal strap engaging

6

around the flaps and contacting the corners of the sleeve through said open formations for holding the closure firmly on the sleeve.

2. A container as described in claim 1 in which each flap is integral with a side edge of the outer panel, each flap is shorter in length than the lateral edge of the inner panel adjacent thereto whereby the outer panel has a notch at each corner thereof and the inner panel has each corner thereof extending into a notch to close the same and complete the rectangular configuration of the two-ply wall, the inner panel being engaged upon said end faces.

3. A container as described in claim 1 in which each panel has a pair of flaps integral with a pair of opposed side edges thereof, said pair of panels being secured cross-wise one relative to the other with juxtaposed corners of the panels coinciding with said corners of the open end, each flap being shorter in length than the side edge to which it is secured.

References Cited in the file of this patent

UNITED STATES PATENTS

1,108,289	Weiss	Aug. 25, 1914
1,368,102	Bicker	Feb. 8, 1921
1,962,043	Usher et al.	June 5, 1934
2,149,720	Becker	Mar. 7, 1939
2,244,282	Bergstein	June 3, 1941
2,453,829	Blackman	Nov. 16, 1948
2,575,784	Baumann	Nov. 20, 1951
2,620,119	George	Dec. 2, 1952
2,665,047	Belsinger	Jan. 5, 1954