CORNER PROTECTOR FOR ENCLOSED BODIES

Ernest J. Bergeron, Fitchburg, Mass.

Application January 26, 1948, Serial No. 4,377
6 Claims. (Cl. 229—1.5).

Fig. 1 is a plan view of a blank of corrugated paper-board stock from which one of my improved protective corner units may be quickly formed by a mere folding of the blank;

Fig. 2 is a similar view but showing the blank partially folded;

Fig. 3 shows the same blank at a subsequent stage of the folding thereof.

Fig. 4 is an elevational view looking from the right at the partially folded blank of Fig. 3;

Fig. 5 is an elevational view of the completely folded protective corner unit;

Fig. 6 is a perspective view of the completely folded unit, on a larger scale; and

Fig. 7 is a perspective view showing one of my improved corner units arranged over a corner of a table top.

Referring to the drawing, the blank represented in Fig. 1 may be cut from a single-thick sheet of commercial corrugated paper-board stock, the stock preferably being of a variety having its corrugated sheet confined between two opposite generally plane sheets, so that both faces of the blank present generally plane surfaces.

The blank comprises two generally parallel longitudinal panels indicated generally at 10 and 12 which are partially severed from each other by the longitudinal slit 14 and the generally longitudinal cut-out 16. The panel 10 is divided by transverse fold lines 18 into a series of generally square sections 20, 22, 24, 26, 28 and 30, and has relatively narrow sections 32, 34, 35 and 36 intervening between certain of the square sections.

Panel 12 is divided by transverse fold lines 40 into a series of generally square sections 42, 44, 46, 48, 50 and 52, and has relatively narrow sections 54, 56, 58 and 60 intervening between certain of its square sections. A single longitudinal fold line 62 extends in the plane of the slit 14 between the panel sections 24, 46, so that the panel 12 may be folded on line 62 into generally right angular relation to panel 10.

It will be observed that the slit 14 extends inward a little beyond the fold line 18 between the sections 22, 24 of panel 10, and that the fold line 40 between sections 44, 46 of panel 12 is located at the inner end of slit 14. Also, the fold lines 40 defining the narrow section 54 between sections 42, 44 of panel 12 are set to the right and closer together in Fig. 1 relative to the fold lines 18 between the adjacent sections 20, 22 and 24 of panel 10, with panel 12 terminating at its left-hand end somewhat short of the adjacent end of panel 10. As a result, the section 42 of panel 12 may be folded over upon section 44 with the intervening narrow section 54 serving as a connecting hinge, and the entire panel 12 then may be folded on longitudinal fold line 62 to set the superposed panels 42, 44 perpendicularly across...
the section 24 of panel 10, at the left-hand end of that section, and to set the remainder of panel 12 in right-angular relation to the sections 42, 44 and the plane of panel 10, as represented in Fig. 2.

Next, the section 22 of panel 10 is folded on the fold line 18 between it and section 24 into perpendicularity with section 24 and against the section 44 of panel 12, after which section 26 of panel 10 is folded inward over the sections 42, 44 of panel 12, so that the latter two sections stand between sections 22, 20 of panel 10, with the narrow section 32 constituting a connecting hinge between sections 22, 20 over the side edges of sections 42, 44, as shown in Fig. 3. While sections 26, 22 are held in their folded condition, section 52 of panel 12 is folded over upon section 50, and again over upon section 48, and still again over upon section 46, with the narrow sections 50, 58 and 56 serving as hinge connections between the respective larger sections. This produces a structure as represented in Fig. 5, in which the folded sections 50, 48 and their hinge connections in position holding section 20 in its folded relation.

Referring again to Fig. 1, the cut-out 16 reduces the width of the sections 26, 28, 30, 32 and 34 of panel 10 sufficiently to permit their folding substantially to the fold line of the sections 48, 50 and 52 of panel 12, with the cut-out accommodating for the accumulated thickness of the latter sections. Also, it should be observed that the sections 48 and 50 of panel 12 are substantially narrower than the adjacent sections of panel 12, due to a shortening of the cut-out at 64, opposite sections 48, 50. This provides for self-locking of the completely folded unit as presently will appear.

When the unit is folded to the stage represented in Fig. 2, the narrower section 50 constitutes the surface layer at the inner face of the plural-thick wall composite of the sections 52, 50, 48 and 46. Hence, as best seen in Fig. 4, this section 48 provides an edge shoulder at 66 which locks the final folds of the unit. When section 50 of panel 12 is folded over upon section 26, and again upon section 26 and yet again upon section 26, this composite folded wall snaps into place against the locking edge 66 of section 48 which holds these finally folded sections against unfolding. And the edges of the sections 34, 26 and 26 rest against section 30 of panel 12 preventing unfolding of the sections 52, 50, 48. Figs. 5 and 6 show the completely folded unit ready for use, and Fig. 7 illustrates its application to a table top corner preliminarily to encasing the table for shipment, or the like.

It will be apparent from the foregoing description, in connection with the drawing, that I have provided an improved protector unit which may be economically and quickly made from single-thick commercial corrugated paper-board stock, with each wall of the unit having four thicknesses of the initial stock, and with the folds self-locking when the final composite wall is folded into place. The units may be shipped flat, and easily may be folded to protective unit form as needed.

I claim as my invention:

1. A protector for a corner of an article which is to be enclosed in a shipping container, comprising three integrally connected generally right angularly related walls of folded paper-board stock, each wall having four superimposed sections of the paper-board stock therein, a first one of said walls having its two inner sections folded into superimposed relation to each other on a hinge at one edge of the wall, and having its two outer sections folded into embracing relation to the inner sections on a hinge at an edge of the wall which is perpendicular to the first-mentioned edge, one of said inner sections being hinged to an outer section of a second one of said walls along the edge of said first wall opposite the first mentioned edge, and one of said outer sections of said first wall being hinged to an outer section of a third wall along the edge of said first wall opposite that edge at which the hinge between the outer sections of the first wall is located, all of the sections of said second wall being folded into superimposed relation to each other on hinges all of which are generally parallel with each other and with said hinge between one of its outer sections and one of the inner sections of said first wall, and all of the sections of said third wall being folded into superimposed relation to each other on hinges generally parallel with each other and with said hinge between one of its outer sections and one of the inner sections of said first wall, one hinge portion of each of said second and third walls being in butted relation to different marginal portions of said first wall, thereby maintaining the folded condition of the first wall sections, and there being an edge of at least one section of said second wall in butted relation to a marginal portion of a section of said third wall, and an edge of at least one section of said third wall in butted relation to a marginal portion of a section of said second wall, whereby the sections of the latter said two walls are maintained in their folded conditions.

2. A protector for a corner of an article which is to be enclosed in a shipping container, comprising three generally right angularly related walls of folded paper-board stock, each wall having four superimposed sections of the paper-board stock therein, one of said walls having its two inner sections hinged together along one edge of the wall and having its outer two sections hinged together along another generally right angular edge of the wall with the latter said hinge extending over edges of said two inner sections, one of said inner sections being hinged to an outer section of one of the adjacent walls, with the hinge generally parallel with the hinge between said inner two sections, and one of said outer sections being hinged to an outer section of the other adjacent wall with the hinge generally parallel with the hinge between said outer two sections, each of said adjacent walls having one of its inner sections being hinged to the other outer section with each hinge of each of said adjacent walls generally parallel with each other in the same wall and in generally right angular relation to the hinges in the other of said adjacent walls, one outer section of one of said adjacent walls having a reduced width adjacent to the other adjacent wall for lateral engagement of a marginal portion of the latter wall, thereby to prevent unfolding of the latter said wall, and the latter said wall having at least one section of width for edgewise engagement of the shipping container inner margin or wall to prevent unfolding of the sections of the latter said wall.

3. A protector for a corner of an article which is to be enclosed in a shipping container, comprising a blank of foldable sheet material having
two longitudinal panels each divided by transverse fold lines into a series of wall sections, and one wall section of each panel being a mid-section integrally connected with the mid-section of the other panel along a longitudinal fold line, and the panels being otherwise free of integral connection together, the first one of said panels having a plurality of its said wall sections at one side of its mid-section folded into superimposed relation to each other, and into generally perpendicular relation to its mid-section, and having a plurality of its said wall sections at the other side of its mid-section folded into superimposed relation to each other, and to its said mid-section, and said folded first panel being folded on said longitudinal fold line thereby to set one plurality of its folded sections in one right angular relation to the second panel and to set another plurality of its folded sections perpendicularly across the second panel in a different right angular relation thereto, said second panel having a plurality of its said wall sections at one side of its mid-section folded into superimposed relation to said perpendicularly set sections of the first panel, or into generally right angular relation thereto, and with a fold extending around edges of the perpendicularly set sections, and having a plurality of its said wall sections at the opposite side of its mid-section folded into superimposed relation to each other and to its said mid-section, there being edges of said superimposed sections disposed in section-abutting positions whereby the abutting edges alone maintain all of said wall sections in their said folded relationships.

4. A protector for a corner of an article which is to be enclosed in a shipping container, comprising a blank sheet having first and second longitudinal panels each divided by transverse fold lines into a series of wall sections which are folded to provide three integrally connected angularly related walls, each composite of four superimposed wall sections of the panels, each said panel having a mid-section integrally connected to the mid-section of the other panel along a longitudinal fold line, and said panels being folded along the latter said fold line to set one of said mid-sections in generally right angular relation to the other mid-section, one of said angularly related walls having three wall sections of the said first panel superimposed upon each other and upon the mid-section of said first panel, the second angularly related wall having three wall sections of the said second panel superimposed upon each other and upon the mid-section of said second panel, and the third angularly related wall having two sections of one of said panels engaged between two sections of the other of said panels, there being edge portions of said first and second angularly related walls abutting marginal portions of wall sections of each other and of said third angularly related wall whereby the folded condition of the wall sections of all three of the angularly related walls is maintained.

5. A protector for a corner of an article which is to be enclosed in a shipping container, comprising three integrally connected generally right angularly related walls of folded paperboard stock, each wall having at least three superimposed sections of the paper-board stock therein, a first one of said walls having its two inner sections folded into superimposed relation to each other on a hinge at one edge of the wall, and said outer sections folded into interlocking relation to the inner sections on a hinge at an edge of the wall which is perpendicular to the first mentioned edge, one of said inner sections being hinged to an outer section of a second one of said walls along the edge of said first wall opposite the first mentioned edge, and one of said outer sections of said first wall being hinged to an outer section of a third wall along the edge of said first wall opposite that edge at which the hinge between the outer sections of the first wall is located, all of the sections of said second wall being folded into superimposed relation to each other on hinges all of which are generally parallel with each other and with said hinge between one of its outer sections and one of the inner sections of said first wall, and all of the sections of said third wall being folded into superimposed relation to each other on hinges all of which are generally parallel with each other and with said hinge between one of its outer sections and one of the outer sections of said first wall, one hinge portion of each of said second and third walls being in Butted relation to different marginal portions of said first wall, thereby maintaining the folded condition of the first wall sections, and there being an edge of at least one section of said second wall in butted relation to a marginal portion of a section of said third wall, and an edge of at least one section of said third wall in butted relation to a marginal portion of a section of said second wall, whereby the sections of the latter said two walls are maintained in their folded conditions.

6. A protector for a corner of an article which is to be enclosed in a shipping container, comprising a blank sheet having first and second longitudinal panels each divided by transverse fold lines into a series of wall sections which are folded to provide three integrally connected angularly related walls, each composite of at least three superimposed wall sections of the panels, each said panel having a mid-section integrally connected to the mid-section of the other panel along a longitudinal fold line, and said panels being folded along the latter said fold line to set one of said mid-sections in generally right angular relation to the other mid-section, one of said angularly related walls having at least two wall sections of the said first panel superimposed upon each other and upon the mid-section of said first panel, the second angularly related wall having at least two wall sections of the said second panel superimposed upon each other and upon the mid-section of said second panel, and the third angularly related wall having two sections of one of said panels interlocking with two sections of the other of said panels, there being edge portions of said first and second angularly related walls abutting marginal portions of wall sections of each other and of said third angularly related wall whereby the folded condition of the wall sections of all three of the angularly related walls is maintained.

ERNEST J. BERGERON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,285,485</td>
<td>Saс</td>
<td>July 5, 1918</td>
</tr>
<tr>
<td>2,271,265</td>
<td>Kirby</td>
<td>Jan. 27, 1942</td>
</tr>
</tbody>
</table>