April 23, 1963 G. W. WIEDENMEIER 3,086,689

SUPPORT AND SUSPENSION MEMBER FOR ARTICLES PACKED IN CARTONS

Filed Feb. 20, 1961

2 Sheets-Sheet 1

Fig. 1

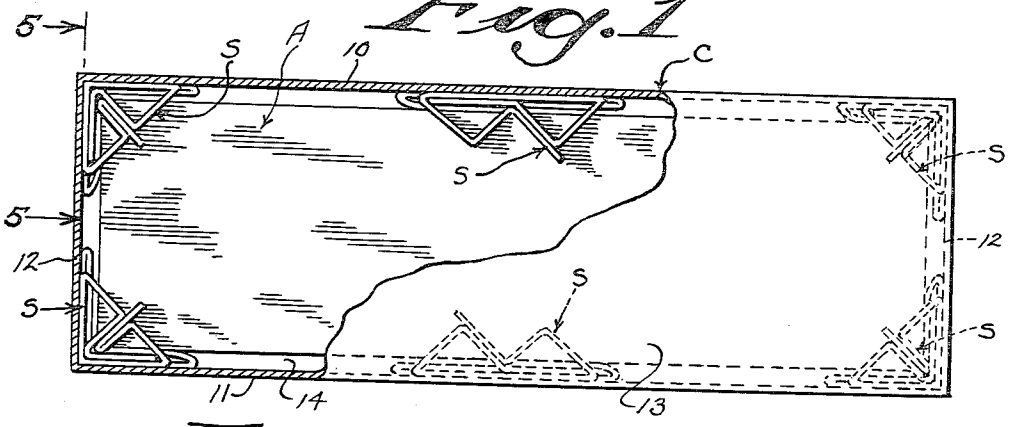



Fig. 2

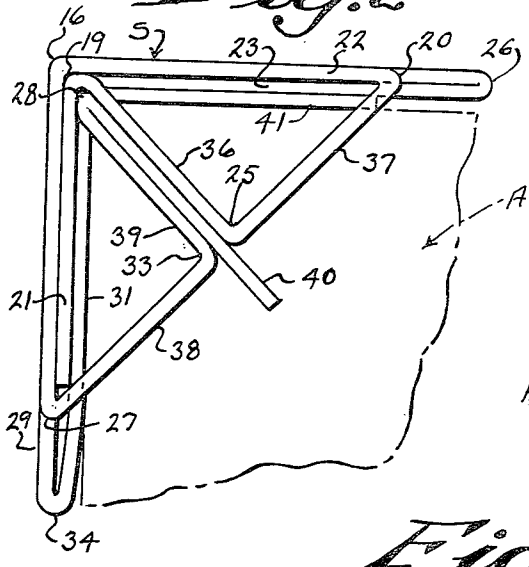



Fig. 3

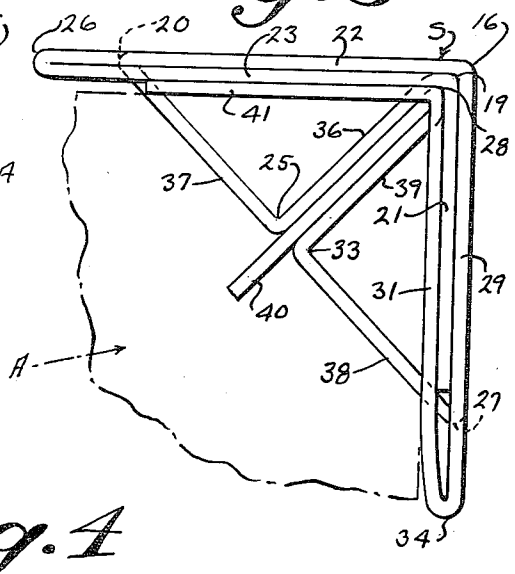
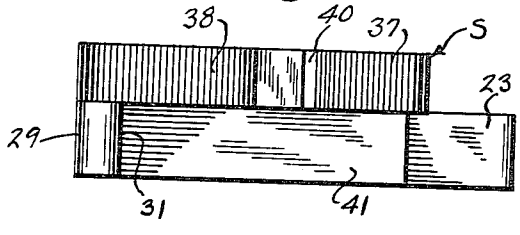



Fig. 4




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Fig. 5

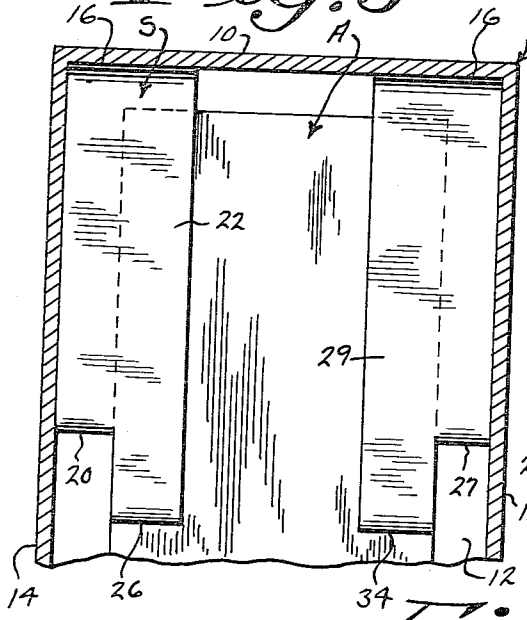



Fig. 7

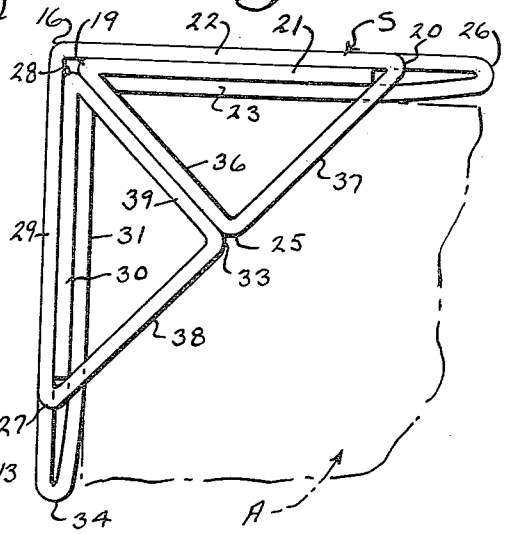



Fig. 6

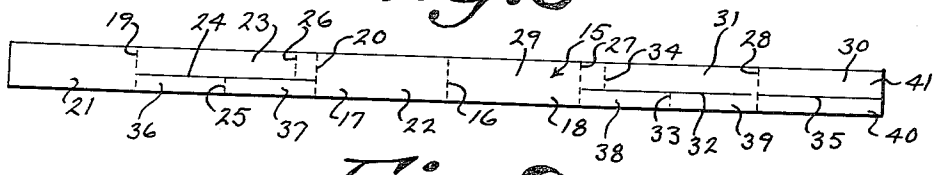



Fig. 9

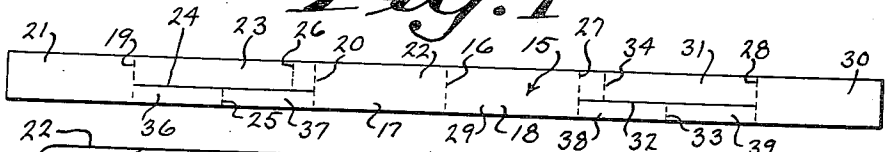
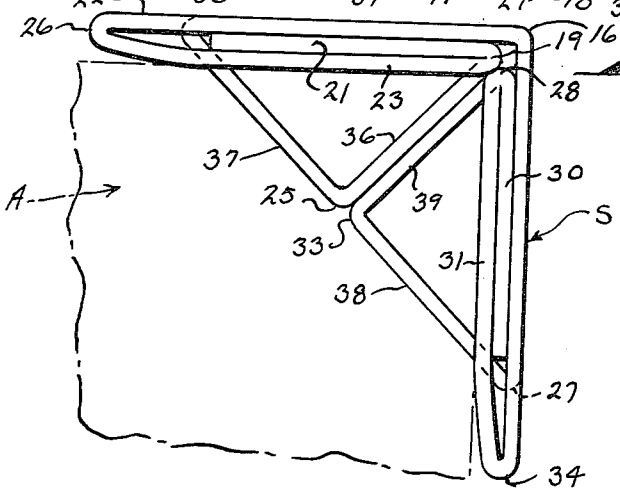



Fig. 8




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3,086,689

# SUPPORT AND SUSPENSION MEMBER FOR ARTICLES PACKED IN CARTONS

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1 Claim. (Cl. 229—14)

This invention appertains to the protection of articles against damage during the shipping and storing thereof in cartons and more particularly, to novel suspension means for articles packed in cartons.

It is extremely desirable to provide some adequate means for supporting an article in a carton against shifting movement and for spacing the article from the walls of the carton, whereby such article will be protected from the rough handling of the carton during shipping and from direct blows which might injure the walls of the carton and the article packed therein. Obviously, such means should be strong, yet have a cushioning effect to absorb shock incident to the dropping of the carton; one that can be easily applied to an article and one which will be economical to manufacture.

One of the primary objects of my invention is to provide corner supporting means for articles, such as radios, television sets, pieces of furniture, etc., formed from single strips of corrugated board or the like cut and folded into shape to provide seats for receiving and supporting the articles and means for engaging the walls of the carton, whereby the article will be securely suspended within the carton and spaced from the walls thereof, the formation of the suspension means from strips of corrugated board resulting in an exceedingly strong structure.

Another salient object of my invention is the provision of corner suspension members for articles being shipped in cartons which can be cut and scored at a paper converting plant and then folded and fitted into shape at their point of use to save space and shipping costs, or one which can be folded and maintained in shape for transit directly at the plant.

A further object of my invention is the provision of a corner suspension member for articles being shipped in cartons embodying a pair of like folded triangular body members, each having a seat cut in the inside thereof for engaging and supporting the article, the triangular body members being folded at their point of juncture to bring adjacent legs of the bodies into contact to form a right angle shaped device to fit in the corner of a carton.

Still another object of my invention is to so cut and fold the corner suspension members that a series of strengthening plies will be formed and whereby an additional strengthening leg can be provided between the adjacent legs of the folded structure.

A still further object of my invention is to provide novel means for fabricating a corner member from a single strip of sheet material such as corrugated board, whereby the same can be readily folded to a shape possessing great structural strength for supporting an article within a carton and at the same time reinforce the corners of a shipping carton.

With these and other objects in view, the invention consists in the novel construction, combination and arrangement of parts as will be hereinafter more specifically described, claimed and illustrated in the accompanying drawings, in which drawings:

FIGURE 1 is a fragmentary top plan view of a carton partially broken away and in section showing the novel suspension means in the carton and supporting an article being shipped;



FIGURE 2 is a top plan view of one of the corner suspension means applied to the corner of an article, the article being shown in broken lines;

FIGURE 3 is a bottom plan view of the corner supporting means showing the same applied to the corner of an article, the article being shown in broken lines;

FIGURE 4 is an end elevational view looking toward the inner side of one of the corner suspension means;

FIGURE 5 is a fragmentary detailed sectional view taken on the line 5—5 of FIGURE 1, looking in the direction of the arrows and showing a pair of the corner suspension means in side elevation;

FIGURE 6 is a plan view of a cut and scored blank from which the corner suspension means is made;

FIGURE 7 is a view similar to FIGURE 2 but showing a slightly modified form of the corner suspension;

FIGURE 8 is a view similar to FIGURE 3 but showing the modified form of the invention; and

FIGURE 9 is a top plan view of the cut and scored blank from which the modified form is fabricated.

Referring now to the drawings in detail wherein similar reference characters designate corresponding parts throughout the several views, the letter S generally indicates the novel corner supporting means for an article A to be shipped in a carton C.

The carton C can be considered of a type commonly used in the open market for shipping various types of merchandise and the same includes side walls **10** and **11**, end walls **12**, and top and bottom walls **13** and **14**. The article A can be considered, for the purpose of this invention, to be a piece of furniture, but it is to be understood that the corner suspension means can be used with any type of article being shipped or stored in a carton, such as radio sets, television sets and the like.

Each supporting and suspension member S is formed from a blank of sheet material, such as corrugated board and the blank is in the nature of an elongated strip **15** (see FIGURE 6). The strip **15** is weakened by a centrally disposed transversely extending score line **16** to divide the strip in equal halves **17** and **18**. The half **17** is scored by spaced transverse lines **19** and **20**. The score line **19** is spaced the same distance from the adjacent terminal of the strip as the line **20** is spaced from the center score line **16**. This defines equal end portions **21** and **22** and a center portion **23** of a considerably greater length than the end portions **21** and **22**. The strip between the score lines **19** and **20** is provided with a longitudinally extending cut or slit **24** and this slit is preferably located closer to one end of the strip than the other and the strip on one side of the cut **24** is provided with a centrally disposed weakening score line **25**. The portion of the strip lying on the opposite side of the cut or slit **24** is provided with a weakening score line **26** which is disposed in close proximity to the score line **20**.

The half **18** is weakened and cut exactly in the same manner as the half **17** and hence the half is provided with spaced weakening score lines **27** and **28**. These score lines likewise define end portions **29** and **30** and a central portion **31**. The central portion **31** is provided with the longitudinally extending cut or slit **32** and the strip on one side of the cut is provided with central weakening score line **33**. The strip on the other side of the cut **32** is provided with weakening score line **34** which is disposed in close proximity to the weakening score line **77**. The half **18** in addition to the weakening lines and the cut provided in the half **17**, has an additional longitudinally extending cut or slit **35** which extends from the score line **28** to the adjacent terminal of the strip and the cut **32** preferably terminates slightly short of the score line **28**. The purpose of all of the weakening lines and cuts and particularly, the cut or slit **35** will now be pointed out.

The half 17 is folded back on itself on the score lines 20 and 26 and this brings the score line 19 directly over the center score line 16 with the end portion 21 of the strip overlying the inner end portion 29 of the strip half 18. The portion of the strip having the weakened line 25 is bent up on the line 25 and on the score lines 19 and 20 to define a triangular-shaped body member having equal legs 36 and 37. This folded portion of the strip can now be secured in place (if such should be desired) in any desired manner such as by the use of adhesive or metal stitches.

The half 18 is now ready to be folded in shape and this half is folded back on itself on the score lines 34 and 27 so that the score line 28 will overlie the score lines 16 and 19 and if desired, this fold can be secured in place by an adhesive or metal stitch. The portion of the strip lying on one side of the cut 32 and having the weakening line 33 is folded outwardly on the weakened lines 33, 27 and 28 to form a triangularly shaped member having equal sides 38 and 39. The forming of the cut 35 in the end portion 30 of the half 18 defines legs 40 and 41 on opposite sides of the slit or cut 35 and the leg 41 lays on top of the folded strip at one side of the triangular legs 36 and 37 and the leg 40 is disposed between the legs 37 and 38 of the triangular body members. The folding of the strip in this manner defines like triangular shaped body members lying on opposite sides of the weakened line 16 and the strip can be folded on the weakened line 16, line 19 and line 27 to bring the triangular body members toward one another with the legs 37 and 38 into abutting engagement and to form a triangular shape. Actually, the legs 37 and 38 of the triangular body members are separated by the leg 40 which defines an additional center strengthening member for a purpose which will now be set forth.

It is to be noted, however, at this point, that a series of over-lapping cushioning plies are provided for the folded strip and it is these overlapping plies that provide the desired cushioning suspension means.

Now, it is to be noted that the triangular body members lie on one side of the center line of the strip and this provides a corner seat for engaging the article being shipped and the center leg 40 adds additional strength to this seat.

In use, my corner supporting and suspension means is folded as described and placed on the corners of the article to be suspended with the corners of the article fitted in the seats and the sides of the member engaging the side walls of the corners of the carton and the outer face of the folded member engaging the top or bottom walls of the carton as the case may be.

Where large articles are being shipped and center supports are needed for the article between the corners thereof, the triangular body members need not be folded on the center line and the triangular body members can be disposed in longitudinal alignment for engaging the center part of the article being shipped and this is clearly shown in FIGURE 1 of the drawings.



In FIGURES 7, 8 and 9, I have shown a slightly modified form of the support and this support is identical in all respects to the support previously described with the exception that I do not provide the cut 35 in the end portion 30 and hence, I eliminate the center leg 40. In the folding of the modified form of support, the end portions 21 and 30 of the half 17 and 18 are first folded back on the lines 19 and 28, after which the strip is folded on the lines 20 and 26, and 27 and 34, and this is best shown in FIGURE 8 of the drawings.

The folding of the strip produces a series of overlapping cushioning plies and it can be seen that each body member provides a seat for receiving the article being shipped. Thus the triangular portions define the rest on which the article sits and the bases of the triangular members provide walls extending at right angles to the seats and these walls, consisting of the pairs of cushioning plies, engage the inner faces of the walls of the carton.

From the foregoing description, it can be seen that I have provided an effective cushioning member and support for articles being shipped in cartons and that the device provides seats for the articles and means for engaging the walls of the carton to strengthen the carton and to hold the articles in spaced relation to the walls of the carton.

Various changes in details may be made without departing from the spirit of the invention or the scope thereof, but what I claim as new is:

A supporting and suspension member for articles being shipped in cartons comprising a pair of joined like folded triangular body members, each having a seat cut in the same side thereof for engaging and supporting an article, the triangular body members being folded at their point of juncture to bring adjacent legs of the body members into bracing contact to form a right-angularly shaped device to fit the corner of a carton and an additional reinforcing leg forming an extension of one of said triangular body members disposed between and abutting the adjacent legs of the body members, the outer end of said reinforcing leg extending inwardly and beyond the body members.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 2,507,929 | Pennebaker | May 16, 1950 |
| 2,603,349 | Van Antwerpen | July 15, 1952 |
| 2,663,417 | Kincaid | Dec. 22, 1953 |
| 2,684,153 | Freiberg | July 20, 1954 |
| 2,692,720 | Suess | Oct. 26, 1954 |
| 2,896,832 | Lane | July 28, 1959 |