

Dec. 7, 1965

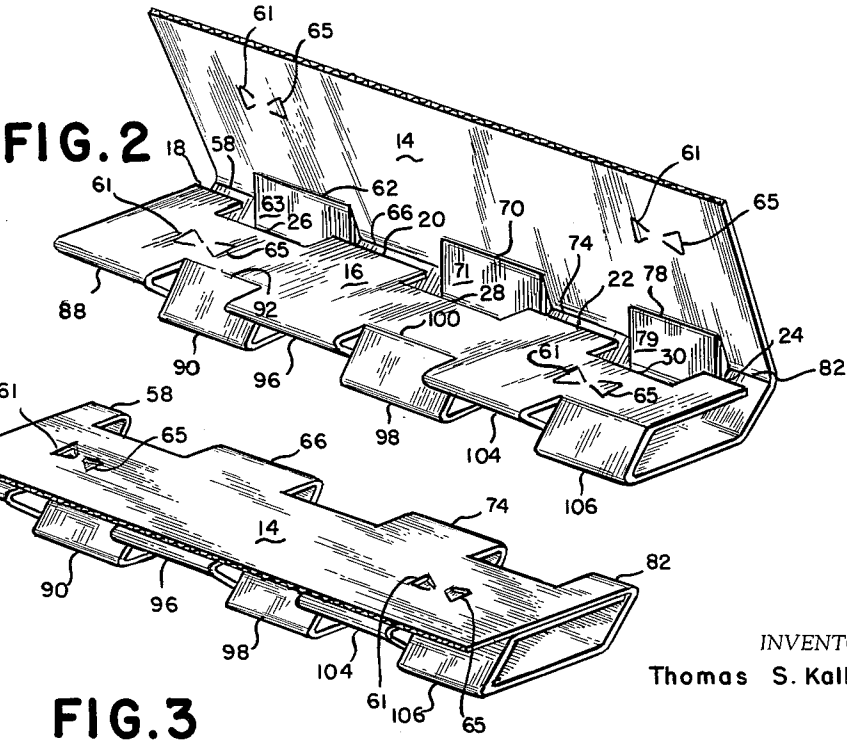
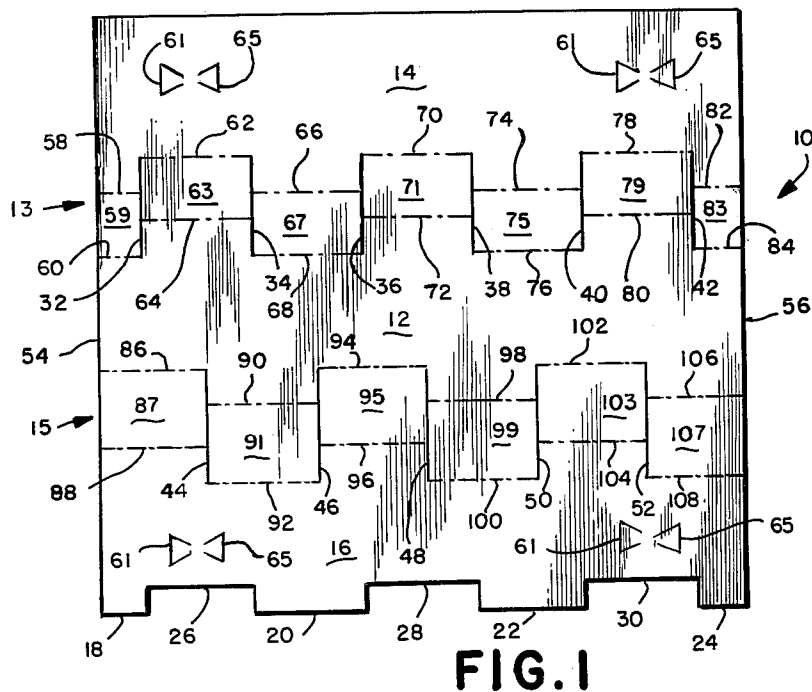
T. S. KALBRENER

3,221,973

SPACER PAD

Filed July 15, 1964

2 Sheets-Sheet 1



INVENTOR.
Thomas S. Kalbrener

Dec. 7, 1965

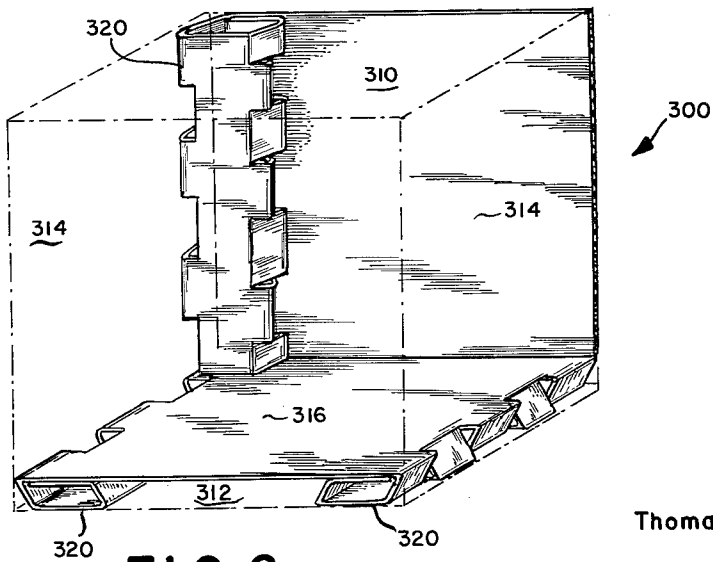
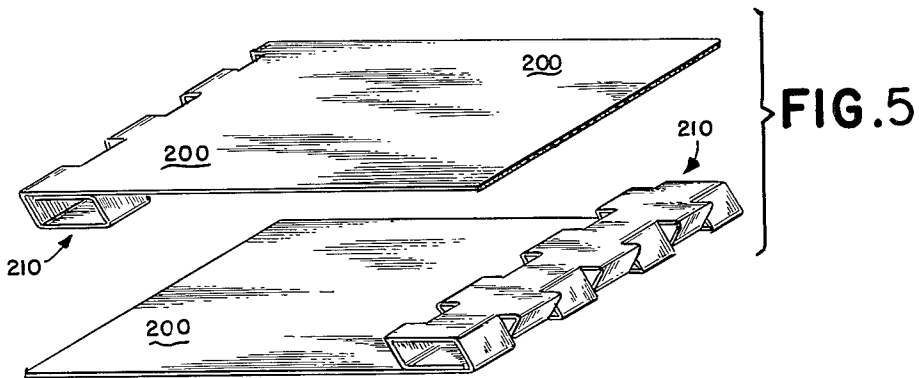
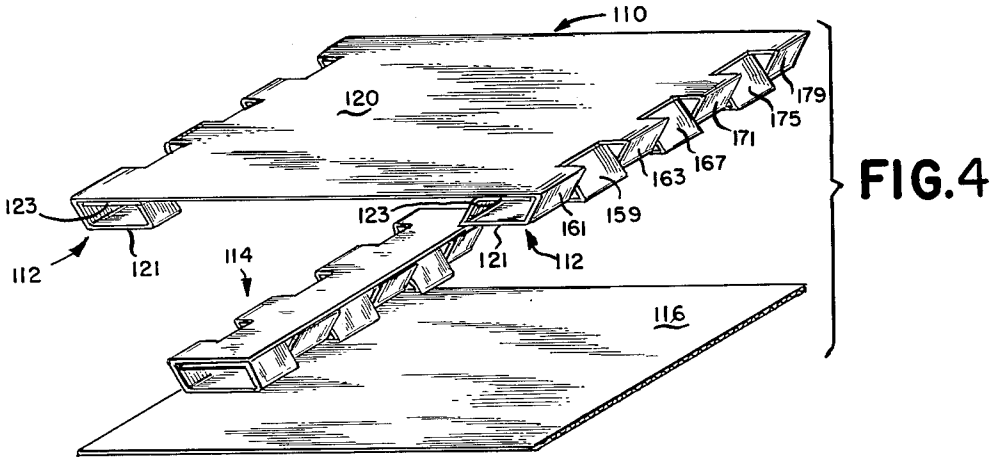
T. S. KALBRENER

3,221,973

SPACER PAD

Filed July 15, 1964

2 Sheets-Sheet 2



INVENTOR
Thomas S. Kalbrener

1

3,221,973

SPACER PAD

Thomas S. Kalbrener, Minneapolis, Minn., assignor to Hoerner Boxes, Inc., Keokuk, Iowa, a corporation of Delaware

Filed July 15, 1964, Ser. No. 382,795

8 Claims. (Cl. 229-14)

This invention relates to an improvement in spacer pads or pallets used in the shipping or handling of goods.

One of the primary objects of the present invention is to provide a spacer pad or pallet which can be formed from a single blank of material in a minimum of time.

Another object of the present invention is to provide a spacer pad or pallet that has increased strength without any substantial increase in weight.

Another object of the present invention is to provide a spacer pad or pallet that is low in cost.

A further object of the present invention is to provide a spacer pad or pallet that can be shipped in a knocked down condition and quickly assembled at the point of use.

A still further object of the present invention is to provide a low cost pallet using a number of the reinforced pads.

Still another object of the present invention is to provide an improved reinforced spacer pad which can be used to reinforce the corners of a carton.

These objects are accomplished by cutting and scoring a single blank of carton forming material so that it is foldable to form a pair of parallel surfaces separated by load supporting legs. The legs are formed by slitting the blank in two rows of parallel slits with the slits in one of the rows offset from the slits in the other row. A pair of parallel score lines are provided in the space between the slits with the score lines in each alternate space offset from the score lines in the adjacent space. The blank is then folded to form the pad with the slit scored sections defining the legs for the pad with each alternate leg lying in a common plane which criss crosses with the common plane of the other legs. The pads can be shipped in a flat condition and set up at the point of use. Once the spacer pad has been formed, it can be used in a number of different ways. It can be made as an integral part of one or both ends of a strip of paperboard which can be used as a pallet or a number of the strips can be combined to form corner braces for a carton.

Other objects and advantages will become more readily apparent from the following detailed description when read in connection with the accompanying drawings, in which:

FIG. 1 is a diagrammatic view of the blank from which the spacer is formed.

FIG. 2 is a perspective view of the spacer partially folded.

FIG. 3 is a perspective view of the spacer completely folded.

FIG. 4 is an exploded view in perspective of a pallet made of a single piece of paperboard having reinforced ends, a reinforced center section and a paperboard bottom sheet.

FIG. 5 is an exploded view in perspective of a pallet made of two sheets having reinforced ends at one end only.

FIG. 6 is a view of a carton lined with the reinforced pads.

In the embodiment shown in FIGS. 1, 2 and 3 of the drawings, a single blank 10 is separated into a central section 12 and overlapping sections 14, 16 by leg defining sections 13, 15. A number of parallel slits 32, 34, 36, 38, 40 and 42 are cut in section 13 and a number of slits

2

44, 46, 48, 50 and 52 are cut in section 15. The space between the first set of slits and edges 54, 56 of the blank are scored at 58-60, 62-64, 66-68, 70-72, 74-76, 78-80 and 82-84 to form legs 59, 63, 67, 71, 75, 79 and 83, respectively. The spaces between the second set of slits are scored at 86-88, 90-92, 94-96, 98-100, 102-104 and 106-108 to form legs 87, 91, 95, 99, 103 and 107, respectively.

It should be noted that score lines 58-60, 66-68, 74-76 and 82-84 are aligned with each other and offset from parallel score lines 62-64, 70-72 and 78-80. The same offset relation exists between parallel score lines 90-92, 98-100 and 106-108 and parallel score lines 86-88, 94-96 and 102-104. With this arrangement, legs 59, 67, 75 and 83 will lie in a common plane which intersects the common plane of legs 63, 71 and 79, substantially, at the midpoint when section 14 is folded to a parallel relation with center section 12. Legs 91, 99 and 107 also lie in a common plane and will intersect the common plane of legs 87, 95 and 103, substantially, at the midpoint when section 16 is folded parallel with section 12. It should be further noted that legs 59, 67, 75 and 83 will be substantially parallel to legs 91, 99 and 107 while legs 63, 71 and 79 will be substantially parallel with legs 87, 95 and 103 when section 14 is folded over section 16.

The outer edge of section 16 has a number of tabs 18, 20, 22 and 24 provided therein to form tabs 26, 28 and 30. When section 16 is tucked under section 14, tabs 26, 28 and 30 will fit into the spaces between slits 32-34, 36-38 and 40-42. This interlocking relation of the tabs assures proper alignment of the sections and prevents the sections from shifting with respect to each other when under load. Section 14 can be secured to section 16 in any number of ways with the application of an adhesive or an adhesive tape being generally acceptable. Triangular tabs 61, 65 may be provided in sections 14 and 16 to interlock the overlapping sections if desired. The criss cross relation of the legs on each side of the spacer provides a very rigid structure which can withstand substantial compressive forces without collapsing. The strength of the spacer pad is further increased by offsetting slits 32 through 42 from slits 44-52 which reduces the possibility of any premature bending or tearing occurring across central section 12.

In FIG. 4 a pallet is shown made up from a single integral strip of paperboard 110 having reinforced pads 112 at each end, a single reinforced pad 114 in the center and a single sheet of paperboard 116 secured to the bottom. The integral strip of paperboard has a main section 120 and is slotted and scored at each end to form the reinforce pads. Each pad has a number of legs 159, 167 and 175 criss crossed with legs 161, 163, 171 and 179. The center section 121 is folded parallel with the main section, and tucked in section 123 is folded under the main section. The center pad 114 is similar to the pad shown in FIG. 3 and is secured to the main section by any appropriate means. The center pad is used only when the width of the pallet requires a separate support in the center and can be omitted whenever it is deemed unnecessary.

In FIG. 5 a pallet is shown which is made from two blanks of paperboard 200 each having a single reinforced pad 210 at one end. The primary advantage of this type of arrangement is that the paperboard blank can be cut and scored as a standard and by reversing one of the blanks and securing it to the other, the pallet is completed. A single space pad may be inserted in the center of this pallet also if it requires any further support.

In FIG. 6 a carton 300 is shown having a top 310, bottom 312 and side walls 314. A pallet 316 having reinforced pads 320 at each end is shown positioned on

3

the bottom of the carton. Pallets of similar design may be placed on opposite side walls of the carton as shown or on all four side walls.

Although only a few embodiments of the present invention have been shown and described, it should be obvious that various changes and modifications can be made without departing from the scope of the appended claims.

What is claimed is:

1. A reinforced pad for supporting heavy loads, comprising

a pair of overlapping sections and a bottom section formed from a single blank of carton forming material, said sections being substantially parallel to each other with the overlapping sections spaced from the bottom section,

a first set of legs and a second set of legs along each longitudinal edge of the bottom section, the legs on one longitudinal edge being connected to one edge of one of the overlap sections and the legs on the other longitudinal edge connected to one edge of the other overlap section, the first set of legs on each longitudinal edge of the bottom section lying in a common plane which intersects the bottom section at a first angle, the second set of legs on each longitudinal edge of the bottom section lying in a common plane which intersects the bottom section at a second angle, the first and second legs intersecting in a criss-cross fashion at their midpoints.

2. A reinforced pad according to claim 1 wherein said first and second set of legs along each longitudinal edge of the bottom section are alternately arranged with respect to each other.

3. A reinforced pad according to claim 1 wherein the first set of legs along one edge of the bottom section are offset from the first set of legs on the other longitudinal edge.

4. A pallet comprising

a single blank of carton forming material having an identical reinforced pad formed integral with each end of said blank, each reinforced pad including a bottom section and a tuck-in section,

a number of legs integral with said blank and connecting one longitudinal edge of the bottom section to the blank and the other longitudinal edge of the bot-

4

tom section to the tuck-in section, said legs being divided into a first set of legs and a second set of legs, the first set of legs intersecting the bottom section on a line offset from the line of intersection of the second set of legs with the corresponding edge of the bottom section, whereby the bottom and tuck-in sections are aligned in a parallel relation with the blank and each set of legs lie in a common plane which intersects the plane of the adjacent leg.

5. A pallet according to claim 4 including a second blank of carton forming material secured to the bottom section of said pads.

6. A pallet according to claim 5 including a reinforced pad having a bottom section and a pair of overlap sections connected along each of their longitudinal edges by legs alternately criss-crossed with each other, said pad being positioned between the two blanks intermediate the two pads.

7. A pallet according to claim 4 wherein the first set of legs in the space between the blank and bottom section are offset from the first set of legs in the space between the bottom section and the tuck-in section.

8. A pallet forming structure, comprising a blank of carton forming material, one end of said blank including a reinforced pad, said pad having a bottom section, a tuck-in section and a number of legs integral with and connecting the bottom section to the blank and to the tuck-in section, and said legs being alternately arranged to lie in common planes which intersect midway between the bottom section and the tuck-in section.

References Cited by the Examiner

UNITED STATES PATENTS

2,636,600	4/1953	Denton.	
2,696,356	12/1954	Baumann	229—42 X
2,741,417	4/1956	Rossum	229—42

FOREIGN PATENTS

1,238,112	6/1960	France.
-----------	--------	---------

GEORGE O. RALSTON, *Primary Examiner*.

FRANKLIN T. GARRETT, *Examiner*.