

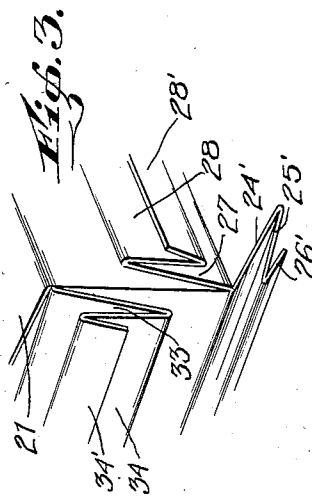
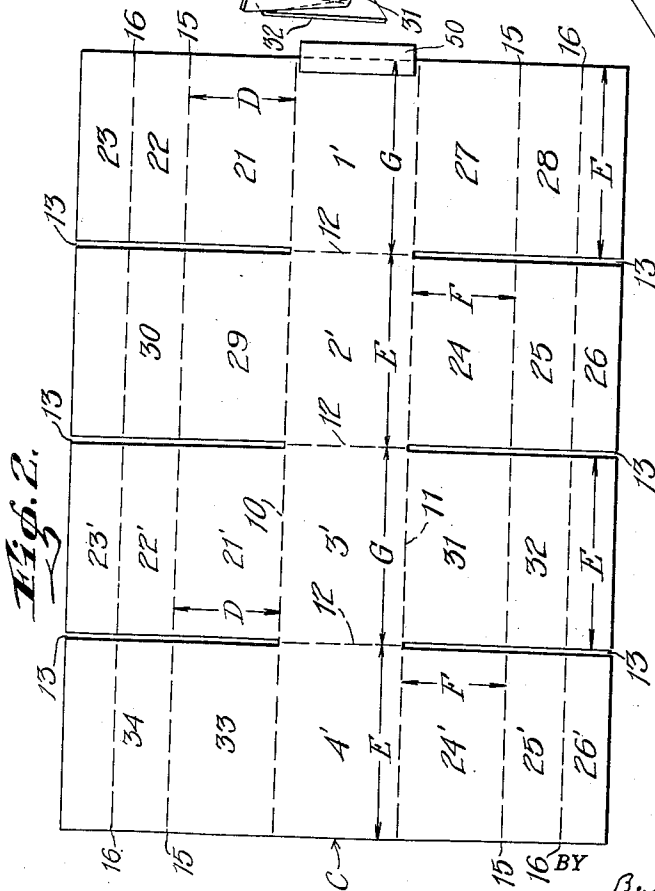
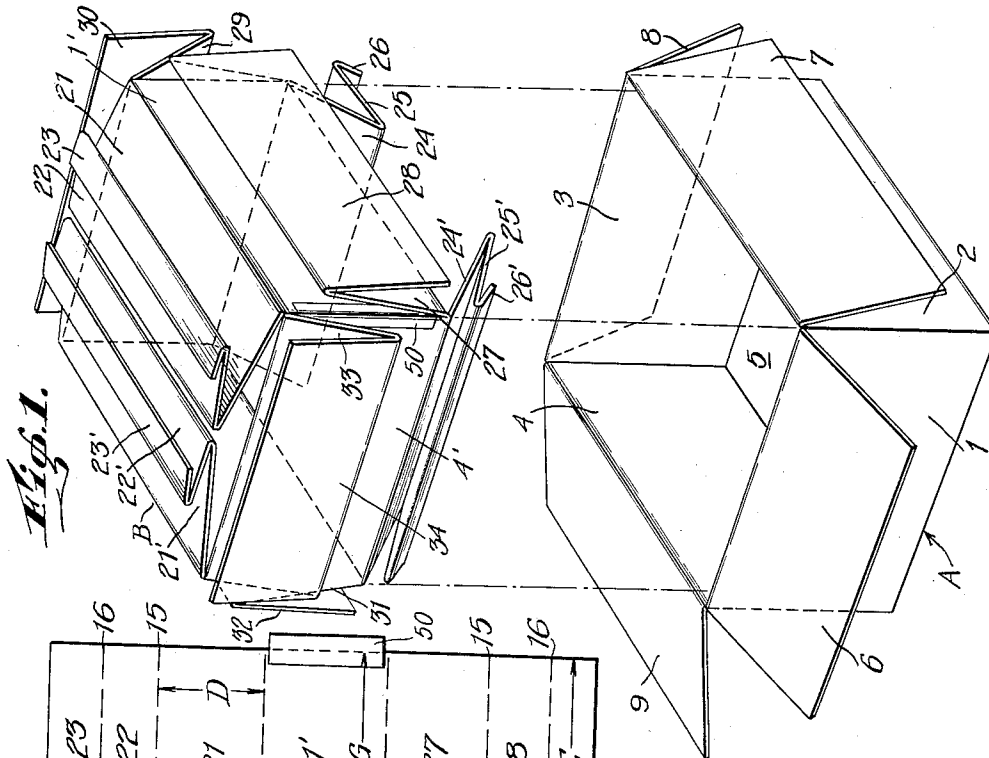
June 11, 1946.

R. KUHLMAN

2,401,765

CUSHIONED SHIPPING CONTAINER

Filed Dec. 1, 1943



INVENTOR
 RICHARD KUHLMAN
 By *Burton H. Egan* *Harold K. Wilson*
 ATTORNEYS

UNITED STATES PATENT OFFICE

2,401,765

CUSHIONED SHIPPING CONTAINER

Richard Kuhlman, River Edge, N. J., assignor to
Tung-Sol Lamp Works, Inc., Newark, N. J., a
corporation of Delaware

Application December 1, 1943, Serial No. 512,467

4 Claims. (Cl. 229-14)

1

This invention relates to shipping cases or containers and particularly to cases or containers for fragile articles and merchandise, such for example, as radio tubes, incandescent lamps and the like.

One object of the invention is a novel and improved shipping case or container of the general character indicated which is characterized by its resistance to shock and breaking of the contained articles.

A further object of the invention is a shipping case or container having novel and improved shock absorbing walls.

A further object of the invention is a shipping case or container having a novel and improved shock absorbing liner.

A further object of the invention is a shipping case or container embodying a novel and improved shock absorbing liner for the six walls thereof.

A further object of the invention is a shipping case or container having a novel and improved unitary liner for the walls thereof formed of paper or fibrous board.

A further object of the invention is a shipping case or container of the character indicated which is characterized by the economy with which it may be manufactured, assembled and disassembled.

For a better understanding of the invention reference may be had to the accompanying drawing wherein,

Fig. 1 is an exploded view of a container embodying the invention;

Fig. 2 is a plan view of the formed blank utilized in the formation of the inner lining for the container of Fig. 1; and

Fig. 3 shows a slight modification.

Referring to the drawing, I have illustrated the invention as embodied in a case or container having a conventional outer casing A having side walls 1, 2, 3, 4 and a bottom 5. The top of the casing A in the particular embodiment shown is formed of four flaps 6, 7, 8 and 9. These walls form the outer walls of the container and they may be of any suitable material as for example corrugated paper or fibrous board.

The inside of the container is formed of a liner unit B which is formed of a single piece C illustrated in Fig. 2. The length of this piece or blank C is less than the sum of the lengths of the sides 1, 2, 3 and 4 of the container so as to enable the blank, with the cushioning folds to be described, to be folded into a rectangular shape and inserted into the interior of the outer casing

2

A. Intermediate the upper and lower edges of the strip the latter is scored longitudinally along two spaced lines 10 and 11 so as to form between these lines a portion of the strip or blank which in length is somewhat less than the total length of the side walls of the outer casing A measured on the interior. The width of this intermediate portion defined by the scoring lines 10 and 11 is also somewhat less than the depth of the walls 1, 2, 3, 4 of the outer casing measured on the interior. These differences are for the purpose of providing room for the upper and lower portions of the blank C which are constructed and folded so as to form a cushioning or shock absorbing structure adjacent the walls 1, 2, 3 and 4. The strip or single piece C is scored transversely to the lines 10 and 11 along the lines 12 throughout the center portion of the strip defined by the scoring lines 10 and 11, thus dividing the central portion of the strip into sections 1', 2', 3', 4' which correspond to the walls 1, 2, 3, 4 respectively of the outer casing. The cushioning and shock absorbing structure formed integral with the strip C to be described is disposed in part between the walls 1', 2', 3', 4' of the liner and the walls 1, 2, 3, 4 of the outer casing to form the cushioning means between the side walls of the liner and the side walls of the outer casing and in part on the top and bottom of the liner to form the cushioning means at the top and bottom of the container.

The strip or piece C is formed with transverse slits 13 on the bottom side from the scoring line 11 to the lower edge thereof and these slits are formed in line with the scoring lines 12. Similar slits 13 are formed on the upper part of the strip or blank C in line with the scoring lines 12. The transverse slitting of the upper and lower portions of the blank C forms upper and lower flaps integrally attached to the panels 1', 2', 3' and 4'. These flaps are scored longitudinally of the blank along the lines 15 and 16 to provide for the folding of the flaps transversely of the panels 1', 2', 3' and 4'. The upper flaps of panel 1' is folded along the lines 15 and 16 to form a part of the cushioning or shock absorbing means for the top of the casing. Fig. 1 shows the flap partially folded in place and as comprising the portions 21, 22 and 23. Likewise the upper flap on the panel 3' is folded along the score lines 15 and 16 to form complementary shock absorbing means 21', 22' and 23' for the top of the casing. Similarly the bottom shock absorbing means for the casing is formed from the bottom flaps of panels 2' and 4'. The flap on the bottom of the

3

panel 2' is thus formed into the three folds 24, 25 and 26 all superimposed upon each other and the flap on the bottom of the panel 4 is formed of the complementary shock absorbing means 24', 25' and 26', these together forming the cushioning or shock absorbing means for the bottom of the container.

The shock absorbing means between the panels 1', 2', 3', 4' and panels 1, 2, 3 and 4 are also formed from the flaps on the panels 1', 2', 3' and 4'. The flap on the lower side of the panel 1' is folded along the line 15 to form the portions 27 and 28. The flap on the upper side of the panel 2' is formed into the folded cushioning flaps 29 and 30. The flap on the lower side of the panel 3' is formed of folded cushioning flaps 31, 32. The flap on the upper side of the panel 4' is folded over into the folded cushioning portions 33 and 34.

Fig. 1 shows the liner structure partially folded ready for introduction into the outer casing A. In order to insert this inner structure into the outer casing it is only necessary to crowd the folds of the side cushioning means together flat against the panels 1', 2', 3' and 4' and then insert the liner unit with the bottom cushioning means 24, 25, 26 and 24', 25', 26' lying flat against the bottom 5 of the outer casing and with the cushioning folds 27-28, 29-30, 31-32 and 33-34 disposed respectively between the inner walls 1', 2', 3' and 4' of the inner structure and the outer walls 1, 2, 3 and 4 of the casing. After the container is filled the cushioning means 21, 22, 23 and 21', 22', 23' are folded over to form the cushioning for the top of the casing whereupon the container may be closed in a conventional manner as for example by the flaps 6, 7, 8 and 9.

The case or container shown in the application is of rectangular shape and the width D of the folds 21 and 21' is preferably roughly half the length E of the panels 2' and 4' so that the folds 21-21' form a complete closure across the top of the liner. Likewise the width F of the folds 24 and 24' is roughly half the length G of the panels 1' and 3' so as to form substantially a complete closure of the liner unit on the bottom 5 of the outer casing. In the particular embodiment shown the case or container is of square cross section and accordingly the lengths E are equal to the lengths G and the widths D and F of folds are equal to each other so that the scoring lines 15 of the different flaps on the panels are continuous straight lines throughout the length of the blank. Similarly the scoring lines 16 may be continuous straight lines throughout the length of the blank so as to facilitate the scoring. As shown in Fig. 1 the folds 28, 30, 32 and 34 forming part of the side wall cushioning means are not folded along the scoring lines 16 but it is understood that still greater cushioning effect on the sides may be obtained by folding these panels along the lines 16 so as to form three instead of the two folds shown in Fig. 1 between the inner panels 1', 2', 3' and 4' and the outer walls 1, 2, 3,

4

4 respectively. This is shown in Fig. 3. The blank C may be of any suitable material as for example corrugated paper or fibrous sheets. A conventional sticker 50 is shown for holding the edges of parts 1' and 4' together.

A shipping case or container is thus provided which is particularly adapted to the packaging and shipping of fragile articles like incandescent lamps, radio tubes and similar devices which are peculiarly sensitive to shocks in handling and shipping. The multiple folds formed on the bottom and top edges of the liner and disposed against all the six walls of the outer casing effectively cushion the articles against breakage from shocks in all directions. The containers may be inexpensively manufactured and assembled and may be if desired used over and over again, particularly the inner liner structure.

I claim:

1. A shipping container of rectangular shape comprising an outer casing and an inner liner unit, the latter having side walls corresponding to the side walls of the outer casing, one pair of opposite side walls of the liner each having a triple fold extending inwardly with the two triple folds complementing each other to form a substantial closure of the liner unit at the bottom and the other pair of opposite side walls of the liner having triple folds which form a cushioning closure for the top of the liner and the side walls of the liner having formed from the edges opposite to the edges from which the said triple folds are formed cushioning folds disposed between the side walls of the liner and the side walls of the outer casing.

2. A cushioning liner for a shipping container and the like formed of a single sheet of fibrous material, said sheet being scored longitudinally to define a central strip and which is scored transversely to form the side walls of the liner, said sheet being severed along lines forming continuations of the transverse scoring to form flaps on the upper and lower edges of the side walls of the liner and said flaps being scored longitudinally of the blank along lines parallel with the upper and lower edges of the side walls to form multiple fold cushion closures for the top and bottom of the liner and cushion folds for the sides of the liner.

3. A cushioning liner for a container of the character set forth in claim 2 having triple cushioning folds between the sides of the liner and the casing.

4. A cushioning liner for a shipping container and the like formed of a single rectangular sheet of fibrous material, said sheet being scored longitudinally and transversely and being severed along lines forming continuations of the transverse scoring to form flaps and said flaps being scored longitudinally of the sheet to form multiple fold cushions between the liner and all of the container walls when the liner is assembled and inserted into the container.

RICHARD KUHLMAN,