

PATENT SPECIFICATION

(11) 1 580 648

1 580 648

- (21) Application No. 44735/77 (22) Filed 27 Oct. 1977
(44) Complete Specification Published 3 Dec. 1980
(51) INT. CL.³ B65D 81/02
(52) Index at Acceptance
B8P E2C E2J

(19)



(54) BOX OR CASE

(71) I, FRANCIS EDWARD TAT-
TAM, a British subject of Neild House,
Beaumont End, near Amersham, Bucking-
hamshire, do hereby declare the invention
for which I pray that a patent may be granted
to me, and the method by which it is to be
performed, to be particularly described in
and by the following statement:-

The invention relates to improved boxes
or cases.

According to the invention there is pro-
vided a box having a plurality of panels, at
least two mutually oppositely lying panels
being provided with undercut recesses, and a
locking bar of resilient material shaped and
dimensioned so that on compression it can be
introduced into said recesses of said oppo-
sitely lying panels and on release of compres-
sion it expands back into its original shape to
engage in and be retained by the said under-
cut recesses.

The or each said panel and/or the locking
bar may be made of a structural laminated
material comprising two outer sheets of
paper, board or any other suitable "skin"
material, a central core of a mesh or net of
e.g. plastics or metal, and expanded polys-
tyrene (or other expanded cellular or foamed
material) bonded to said sheets and said
mesh or net so that the polystyrene or equi-
valent penetrates into the interstices of said
mesh or net.

The invention will now be described, by
way of example only, with reference to the
accompanying drawings, wherein:

Figure 1 is a sectional view of a preferred
embodiment of the invention,

Figure 2 is a fragmentary perspective view
of a variant of the embodiment of Figure,

Figure 3 is a diagrammatic cross-section of
a laminated material usable with the inven-
tion, and

Figure 4 is a fragmentary section taken
along the plane A-A of Figure 3.

Figure 1 shows a laminated box 200

adapted to carry bottles 201 containing
fragile articles e.g. pharmaceutical tablets.
To keep the bottles 201 securely in place e.g.
during transportation to prevent breakage of
the bottles themselves and of their contents,
internal partitions 202 are used. These parti-
tions 202 have, of course, suitable apertures
203 to accommodate the bottles 201. To
keep the top partition 202 in place, locking
bars 204 are provided. Each bar 204 is essen-
tially arrow-shaped and is made of a suitable
resiliently deformable material. For cheap-
ness, this may be paper board but this mater-
ial can only be used a few times. If it is desired
to re-use the bars 204 repeatedly for longer
periods, the laminated structure shown in
Figures 3 and 4 and further described below
is preferred, although springy metals can also
be used. However, Figures 1 and 2 show the
locking bars 204 as being made of the lami-
nate described above in connection with Fig-
ures 3 and 4.

In Figures 1 and 2 similar recesses 205 are
formed in the panels. Each recess 205 is
arrow-shaped, having a neck portion 206 and
a head portion 107. In the embodiment of
Figure 1, each locking bar 204 is generally
V-shaped in section. The apex of the V is
slightly flattened while the free ends of the V
have flanges 208 that are turned inwardly
and downwardly converging but not touch-
ing to form a second V.

In Figure 2 the free ends of the V have
inturned flanges 209 that extend towards
each other in the same plane with a gap 210
between their adjacent ends, the gap 210 not
being drawn out in full along the whole
length of the bar.

In either case, the bar 204 can be compres-
sed for insertion into the neck portion 206 of
the relevant recess 205 until it enters the
head portion 207. On release of the compres-
sive force the flanges 208 or 209 of the
V-shaped bar to engage under the shoulder
formed between the neck portion 206 and

50

55

60

65

70

75

80

85

90

the head portion 207 of the recess 205, whereby in use a plurality of such snapped-in bars 204 will securely hold a partition plate 202 in place, even if the box were inverted, shaken, thrown about or otherwise abused.

Figures 3 and 4 show a structure 100 comprising outer skins 101 of e.g. paper or board the inner faces of which are adhesively bonded to respective layers 102 of expanded polystyrene. Centrally between the layers 102 is netting or mesh 103 made of e.g. plastics. Optionally, adhesive bonding is employed on both sides of the netting 103. When the structure is compressed, polystyrene parts 104 penetrate into the interstices of the netting 103. The result is a light-weight, flexurally yieldable, compressible laminate which can withstand enormous pressures, and which can be used for making the panels and/or partitions and/or locking bars illustrated in Figures 1 and 2.

WHAT I CLAIM IS:-

1. A box or case having a plurality of panels, at least two mutually oppositely lying panels being provided with undercut recesses, and a locking bar of resilient material shaped and dimensioned so that on compression it can be introduced into said recesses of said oppositely lying panels and on release of the compression it expands back into its original shape to engage in and be retained by the said undercut recesses.

2. A box or a case according to claim 1 wherein the locking bar is made from a structural laminated material comprising two outer sheets of skin material, a central core of a mesh or net and expanded cellular or foamed material bonded to said sheets and said mesh or net so that the expanded cellular or foamed material penetrates into the interstices of said mesh or net.

3. A box or a case according to claim 2, wherein said expanded cellular or foamed material is expanded polystyrene.

4. A box or a case according to any preceding claim, wherein the locking bar is generally V-shaped in cross-section and each recess is generally arrowhead-shaped in cross-section, the V of the bar being formed with inwardly turned flanges engageable under the shoulder formed between the head and neck portions of each arrowhead-shaped recess.

5. A box or a case according to any preceding claim wherein the interior thereof is provided with a partition plate against which the apex of the V-shaped locking bar bears.

6. A box or a case according to any preceding claim and according to claim 1 of British Patent No. 1 437 719.

7. A box or a case substantially as herein described with reference to and as shown in Figure 1 or 2 of the accompanying drawings, in combination with Figures 3 and 4 thereof.

T.Z. GOLD & COMPANY
Agents for the Applicant,
Chartered Patent Agents,
9 Staple Inn
London WC1V 7QH
-and-
2, Fawley Road,
London NW6 1SH

Printed for Her Majesty's Stationery Office,
by Croydon Printing Company Limited, Croydon, Surrey, 1980.
Published by The Patent Office, 25 Southampton Buildings,
London, WC2A 1AY, from which copies may be obtained.



the head portion 207 of the recess 205, whereby in use a plurality of such snapped-in bars 204 will securely hold a partition plate 202 in place, even if the box were inverted, shaken, thrown about or otherwise abused.

5 Figures 3 and 4 show a structure 100 comprising outer skins 101 of e.g. paper or board the inner faces of which are adhesively bonded to respective layers 102 of expanded polystyrene. Centrally between the layers 102 is netting or mesh 103 made of e.g. plastics. Optionally, adhesive bonding is employed on both sides of the netting 103. When the structure is compressed, polystyrene parts 104 penetrate into the interstices of the netting 103. The result is a light-weight, flexurally yieldable, compressible laminate which can withstand enormous pressures, and which can be used for making the panels and/or partitions and/or locking bars illustrated in Figures 1 and 2.

WHAT I CLAIM IS:-

1. A box or case having a plurality of panels, at least two mutually oppositely lying panels being provided with undercut recesses, and a locking bar of resilient material shaped and dimensioned so that on compression it can be introduced into said recesses of said oppositely lying panels and on release of the compression it expands back into its original shape to engage in and be retained by the said undercut recesses.

2. A box or a case according to claim 1 wherein the locking bar is made from a structural laminated material comprising two outer sheets of skin material, a central core of a mesh or net and expanded cellular or foamed material bonded to said sheets and said mesh or net so that the expanded cellular or foamed material penetrates into the interstices of said mesh or net.

3. A box or a case according to claim 2, wherein said expanded cellular or foamed material is expanded polystyrene.

4. A box or a case according to any preceding claim, wherein the locking bar is generally V-shaped in cross-section and each recess is generally arrowhead-shaped in cross-section, the V of the bar being formed with inwardly turned flanges engageable under the shoulder formed between the head and neck portions of each arrowhead-shaped recess.

5. A box or a case according to any preceding claim wherein the interior thereof is provided with a partition plate against which the apex of the V-shaped locking bar bears.

6. A box or a case according to any preceding claim and according to claim 1 of British Patent No. 1 437 719.

7. A box or a case substantially as herein described with reference to and as shown in Figure 1 or 2 of the accompanying drawings, in combination with Figures 3 and 4 thereof.

T.Z. GOLD & COMPANY
Agents for the Applicant,
Chartered Patent Agents,
9 Staple Inn
London WC1V 7QH
-and-
2, Fawley Road,
London NW6 1SH

65

70

Printed for Her Majesty's Stationery Office,
by Croydon Printing Company Limited, Croydon, Surrey, 1980.
Published by The Patent Office, 25 Southampton Buildings,
London, WC2A 1AY, from which copies may be obtained.