



(12) UK Patent (19) GB (11) 2 212 785 (13) B

(54) Title of Invention

Cardboard boxes

(51) INT CL⁵: B65D 5/32 5/18

(21) Application No
8827208.3

(22) Date of filing
22.11.1988

(30) Priority Data

(31) **62181222**

(32) **30.11.1987**

(33) **JP**

(43) Application published
02.08.1989

(45) Patent published
02.01.1992

(72) Inventor(s)
**Kensaku Ueda
Yoshihisa Kato**

(73) Proprietor(s)
Nitto Boseki Co Ltd

(Incorporated in Japan)

**No 1 Aza Higashi
Gonome
Fukushima-shi
Fukushima
Japan**

(74) Agent and/or
Address for Service
**Marks & Clerk
Alpha Tower
Suffolk Street Queensway
Birmingham
B1 1TT
United Kingdom**

(52) Domestic classification
(Edition K)
**B8P PG1 PK2 P111
U1S S1699**

(56) Documents cited
**GB1418808 A
GB1413603 A
GB1321976 A
US4426034 A
US3744700 A
US3622063 A**

(58) Field of search

As for published application
2212785A viz:
UK CL(Edition J) B8P PB1
PB2 PB3 PB4 PG1 PK2 PK3
INT CL⁴ B65D
updated as appropriate

FIG. 1

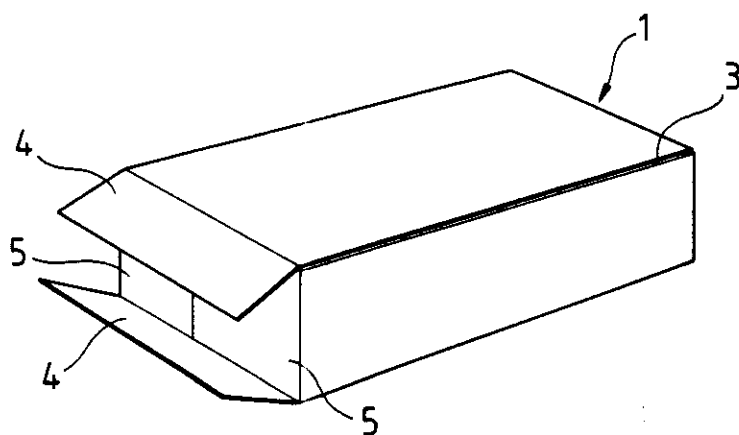


FIG. 2

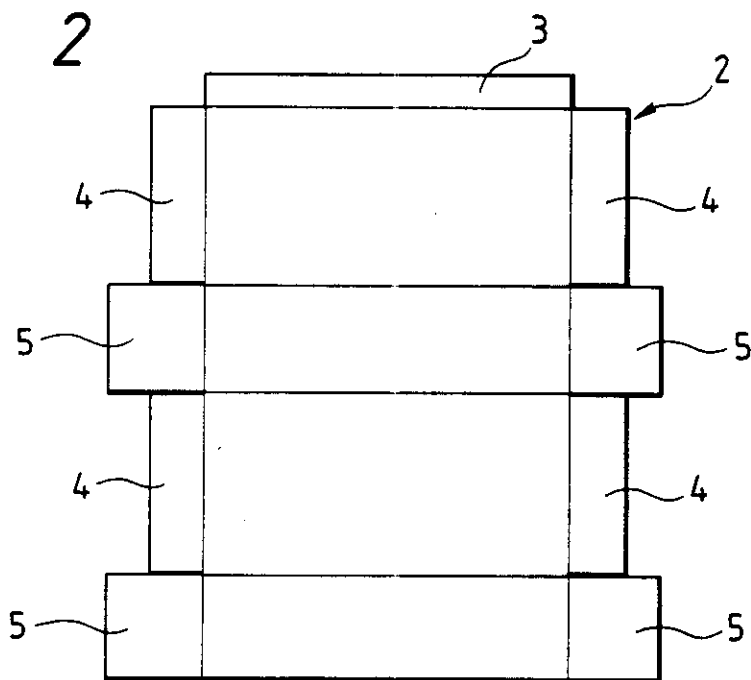
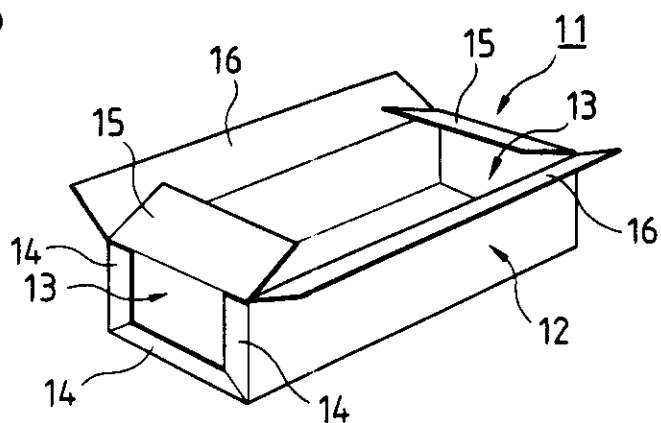


FIG. 3



2212785

FIG. 4

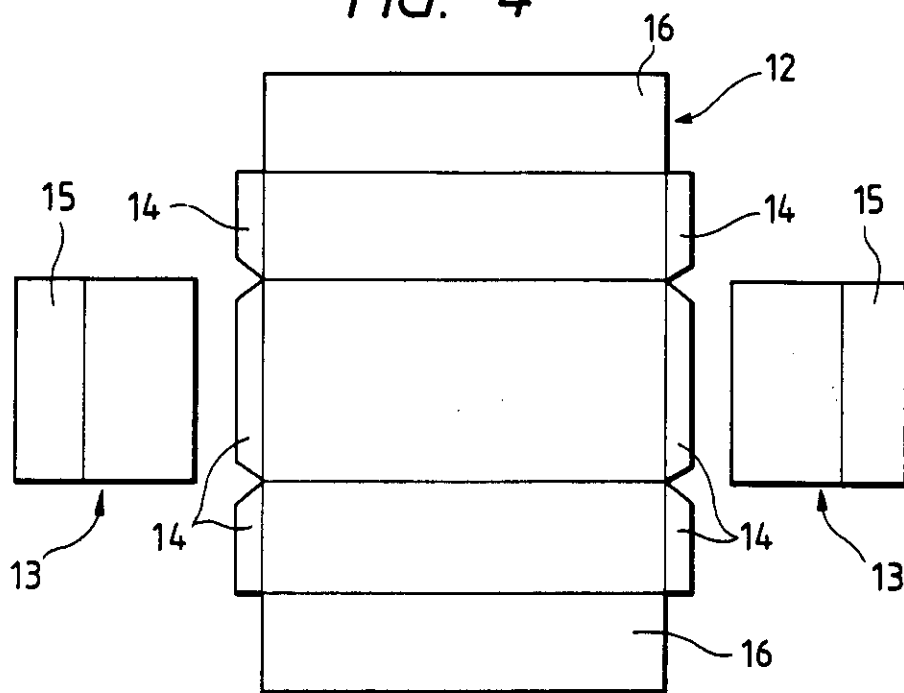


FIG. 5

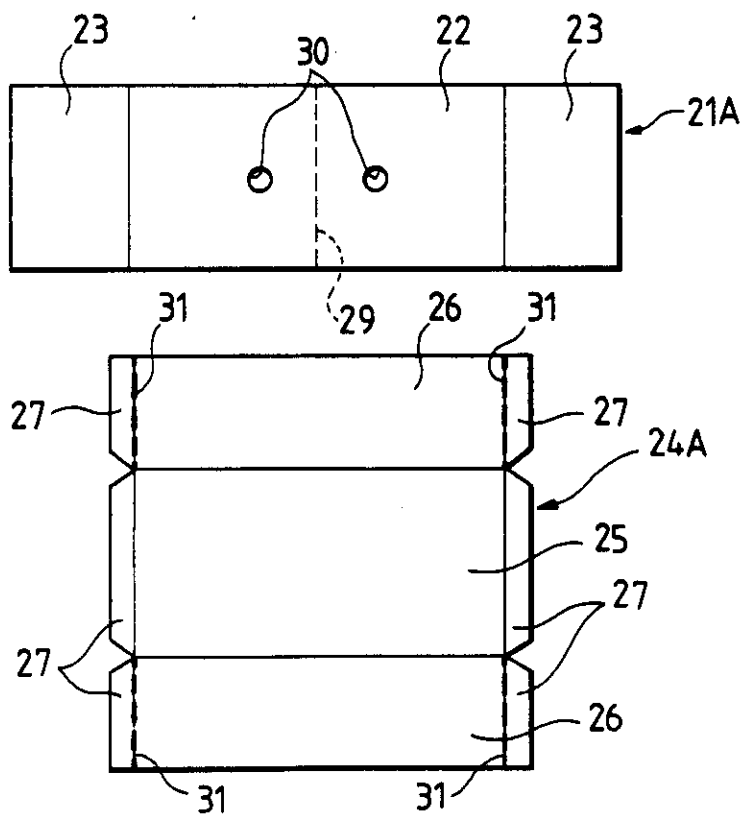


FIG. 6

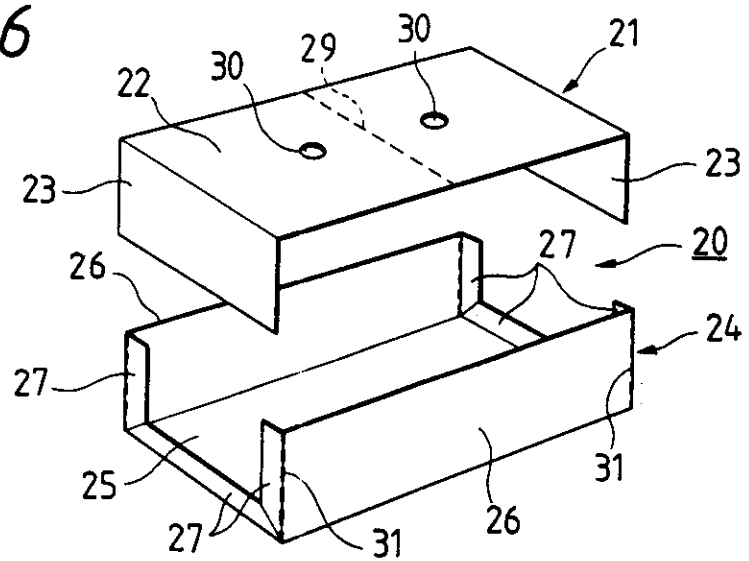


FIG. 7

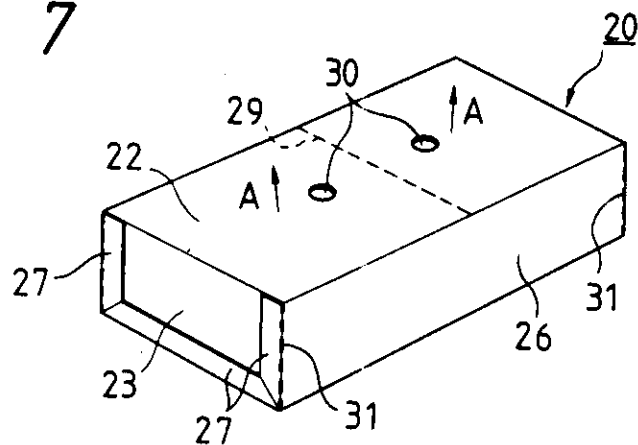


FIG. 8

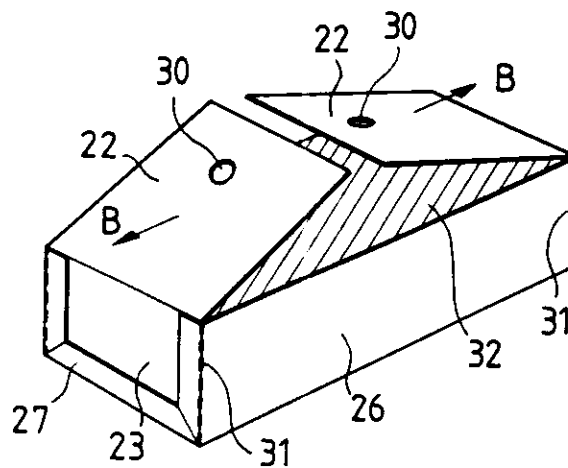


FIG. 9

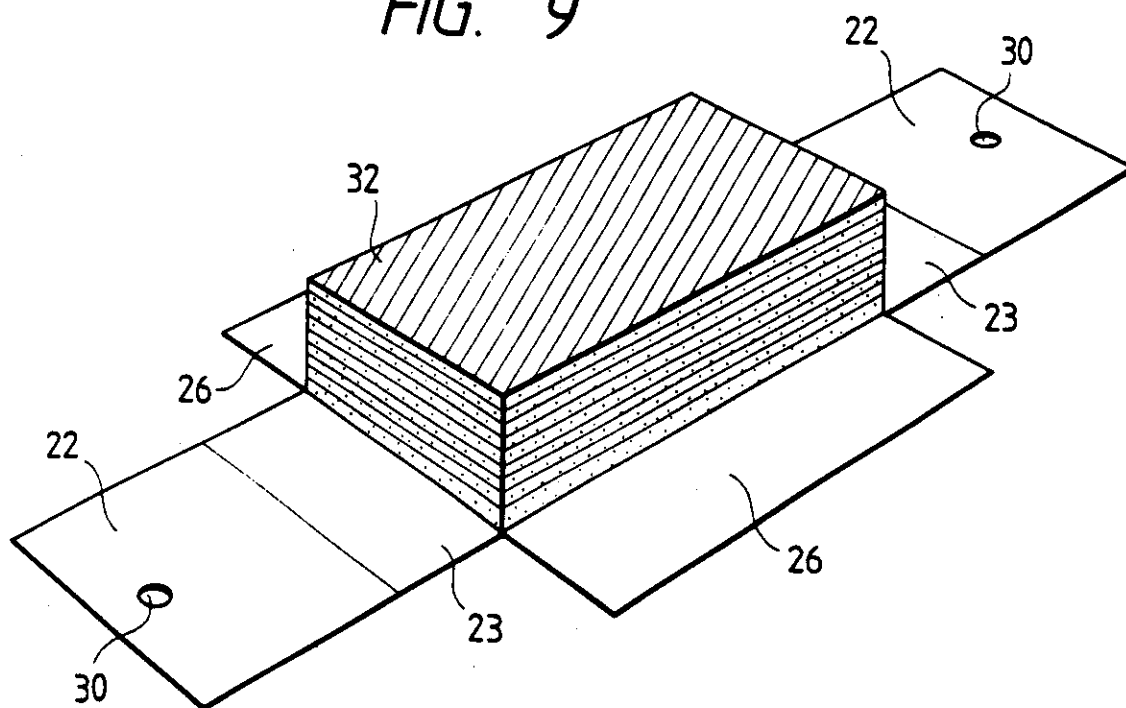
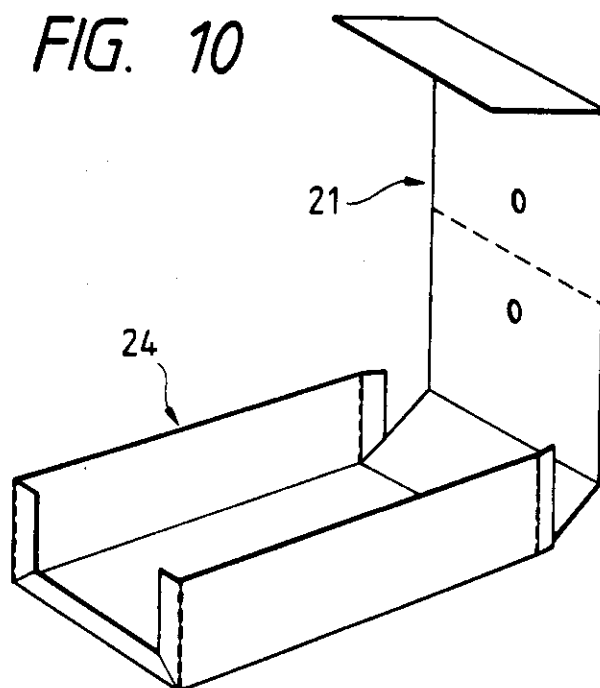


FIG. 10



CARDBOARD BOXES

It is known to provide cardboard boxes which are shaped as rectangular parallelepipeds. When such boxes are used to carry relatively fragile planiform articles such as polystyrene ceiling tiles, the box is required to be a relatively close fit around the tiles, to prevent damage thereto in transit. It is difficult to remove such articles from known cardboard boxes without damage to the articles. Additionally, it is difficult to dismantle known boxes so that they lie flat for disposal. The present invention provides a cardboard box which can readily be opened for easy removal of close-fitting contents and which may thereafter be folded flat without further dismantling.

According to the invention a cardboard box has joined upper and lower portions, said upper portion comprising a top and two opposed end walls, said lower portion comprising a bottom, a pair of opposed side walls, and couplers at each end of both side walls. said couplers being secured to respective edges of said end walls to render said box a rectangular parallelepiped, said box having lines of weakness extending along the edges where said end and side walls meet.

In a preferred embodiment said top has a line of weakness extending thereacross substantially parallel to the planes of said end walls.

Details of the prior art and of embodiments of the invention will now be described with reference to the accompanying drawings in which:-

Figure 1 is pictorial view of a known form of box;

Figure 2 shows a cardboard blank for the box of Figure 1;

Figure 3 is a pictorial view of an alternative type of known cardboard box;

Figure 4 shows a blank for the box of Figure 3;

Figure 5 shows blanks for a box according to the invention;

Figure 6 is a pictorial view of the blanks of Figure 5 folded in preparation for assembly;

Figure 7 shows an assembled box according to the invention;

Figure 8 shows the box of Figure 7 partly open;

Figure 9 shows the box of Figure 7 fully open, and

Figure 10 shows an alternative form of box.

As shown in Figures 1 and 2 a known cardboard box 1 of the so-called wrap-round type is made from a single blank 2 which includes a coupler 3 for engaging a side of the box to form the latter into a rectangular parallelepiped. The ends of the box 1 are closed by lids 4, 5. The known box 11 shown in Figures 3 and 4 is of the so-called "Bris" type and comprises a body part 12 and two end parts 13. The body part 12 has couplers 14 for securing to the end parts 13. The end parts 13 and body part 12 are provided with lids 15, 16 respectively for closing the top of the box.

The boxes 1 or 11 above may be used to contain a stack of plate-like articles which fit closely within the box. In neither case is it easy to remove such articles from the box without risk of damage, unless the couplers 3 or 14 are disconnected from the parts to which they are attached. Such disconnection is time-consuming and may require force which will result in damage to the contents of the box. Moreover, even

if the contents can, with difficulty, be removed from the boxes 1 or 11 without disconnection of their couplers 3 or 4 respectively, these boxes will remain as three dimensional structures which will require dismantling for disposal.

As shown in Figures 5 to 10 a box 20 according to the invention is formed from two blanks 21A, 24A which respectively provide upper and lower portions 21, 24 of the box. The upper portion 21 includes a top 22 and a pair of end walls 23 which, as shown in Figure 6, are folded to face each other. The lower portion 24 includes a bottom 25 and two side walls 26 which are also folded to face each other. Couplers 27 on the bottom 24 and side walls 26 are secured to the end walls 23. The articles to be transported or stored, for example a stack of planiform parts 32 (Figures 8 and 9) such as polystyrene tiles are positioned in the lower portion 24 before the upper portion 21 is secured thereto by means of the couplers 27. The couplers 27 are preferably adhesively joined to the outside of the edges of the end walls 23. The top 22 of the upper portion 21 is provided with a line of weakness 29, for example a perforation or semi-perforation, extending across the top 22 mid way between the ends 23 and parallel to their planes. Finger holes 30 are provided in the top 22 on each side of the line 29. Similar lines of weakness 31 are provided in the lower portion 24 along the boundaries between the side walls 26 and the couplers 27 so that, when assembled as shown in Figure 7, the lines of weakness 31 lie at the four edges of the box where the end walls 23 and side walls 26 meet.

When the box 20 is to be opened to remove the articles 32, the top 22 is pulled up by means of the finger holes 30 as indicated by arrows A in Figure 7 on each side of the line of weakness 29, thereby tearing the

top 22 along the line 29. The torn top 22 is then pulled in the directions of the arrows B in Figure 8, tearing the lines of weakness 31, fully exposing the stack of articles 32 and leaving the box material in a single plane, as shown in Figure 9. After removal of the articles 32 the box 20 may conveniently be folded for disposal, along any of its previous folds.

A modified form of box may have its upper and lower portions formed from a single blank, as shown in Figure 10, which indicates the form of the blank before initial closure.

The term cardboard as used in this specification is to be understood as including corrugated board, board having a corrugated inner layer, compressed paper board, and other forms of fibre-based board used for packaging.

CLAIMS.

1. A cardboard box having joined upper and lower portions, said upper portion comprising a top and two opposed end walls, said lower portion comprising a bottom, a pair of opposed side walls, and couplers at each end of both side walls, said couplers being secured to respective edges of said end walls to render said box a rectangular parallelepiped, said box having lines of weakness extending along the edges where said end and side walls meet.
 2. A box as claimed in claim 1 in which said top has a line of weakness extending thereacross substantially parallel to the planes of said end walls.
 3. A box as claimed in claim 2 which includes finger holes in said top on either side of the line of weakness thereon.
 4. A box as claimed in any preceding claim which includes finger holes adjacent the lines of weakness which extend along said edges.
 5. A cardboard box substantially as hereinbefore described with reference to Figure 5 or Figure 10 of the accompanying drawings.
-

REGISTER ENTRY FOR GB2212785 ✓

Form 1 Application No GB8827208.3 filing date 22.11.1988 ✓

Priority claimed:
30.11.1987 in Japan - doc: 62181222

Title CARDBOARD BOXES

Applicant/Proprietor ✓
NITTO BOSEKI CO LTD, Incorporated in Japan, No 1 Aza Higashi, Gonome,
Fukushima-shi, Fukushima, Japan [ADP No. 00633222001]

Inventors
KENSAKU UEDA, No 2-11-10-301 Todaijima, Urayasu-shi, Chiba, Japan
[ADP No. 04170122001]

YOSHIHISA KATO, No 4-17-14 Imagawa, Suginami-ku, Tokyo, Japan
[ADP No. 04170130001]

Classified to
B8P U1S
B65D

Address for Service
MARKS & CLERK, Alpha Tower, Suffolk Street Queensway, BIRMINGHAM, B1 1TT,
United Kingdom [ADP No. 00000018002]

Publication No GB2212785 dated 02.08.1989

Examination requested 26.09.1989

Patent Granted with effect from 02.01.1992 (Section 25(1)) with title
CARDBOARD BOXES ✓

**** END OF REGISTER ENTRY ****

OA80-01
FG

OPTICS - PATENTS

18/06/92 08:52:06
PAGE: 1

RENEWAL DETAILS

PUBLICATION NUMBER

GB2212785 ✓

PROPRIETOR(S)

Nitto Boseki Co Ltd, Incorporated in Japan, No 1 Aza Higashi,
Gonome, Fukushima-shi, Fukushima, Japan

DATE FILED

22.11.1988 ✓

DATE GRANTED

02.01.1992 ✓

DATE NEXT RENEWAL DUE

22.11.1992

DATE NOT IN FORCE

DATE OF LAST RENEWAL

YEAR OF LAST RENEWAL

00

STATUS

PATENT IN FORCE ✓