(12) UK Patent Application (19) GB (11) 2 206 565 (13) A

(43) Application published 11 Jan 1989

(21) Application No 8815665

(22) Date of filing 1 Jul 1988

(30) Priority data
(31) 8715656 (32) 3 Jul 1987 (33) GB

(51) INT CL[4]
B65D 5/46

(52) Domestic classification (Edition J):
B8P H2
U1S 1110 1452 B8P

(56) Documents cited
GB A 2186550 GB 0747283 US 4498619
US 3794239

(58) Field of search
B8P
Selected US specifications from IPC sub-class
B65D

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(54) Handle structure for cartons

(57) A carton of paperboard with a reinforced handle (4) has ends of the handle reinforcing material secured in a double thickness region (10*b*, 14*b*) of carton blank material. One flap 10*b* of the double thickness can be an extension of the one wall (10) of the carton that includes the reinforcing material and the other (14*b*) can be an extension of a panel (14) of blank material that underlies the said one wall (10).

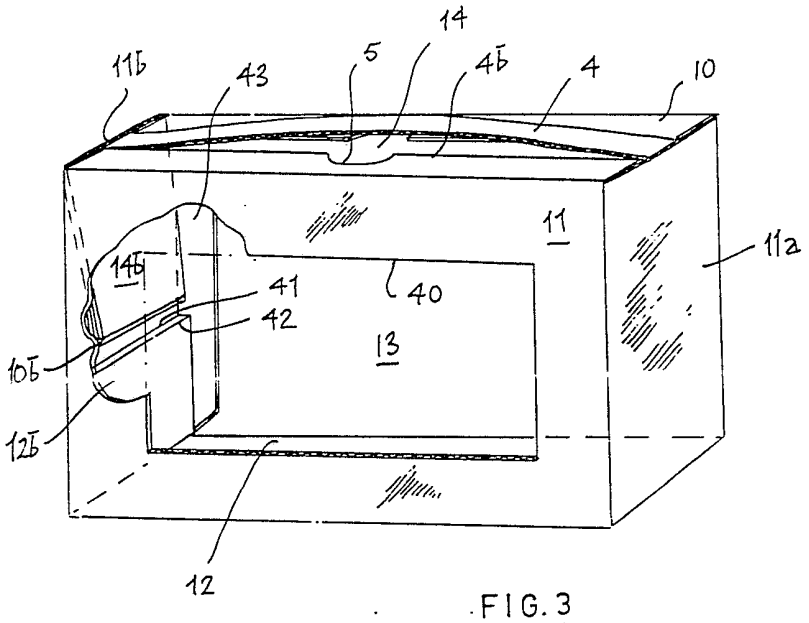

FIG. 3

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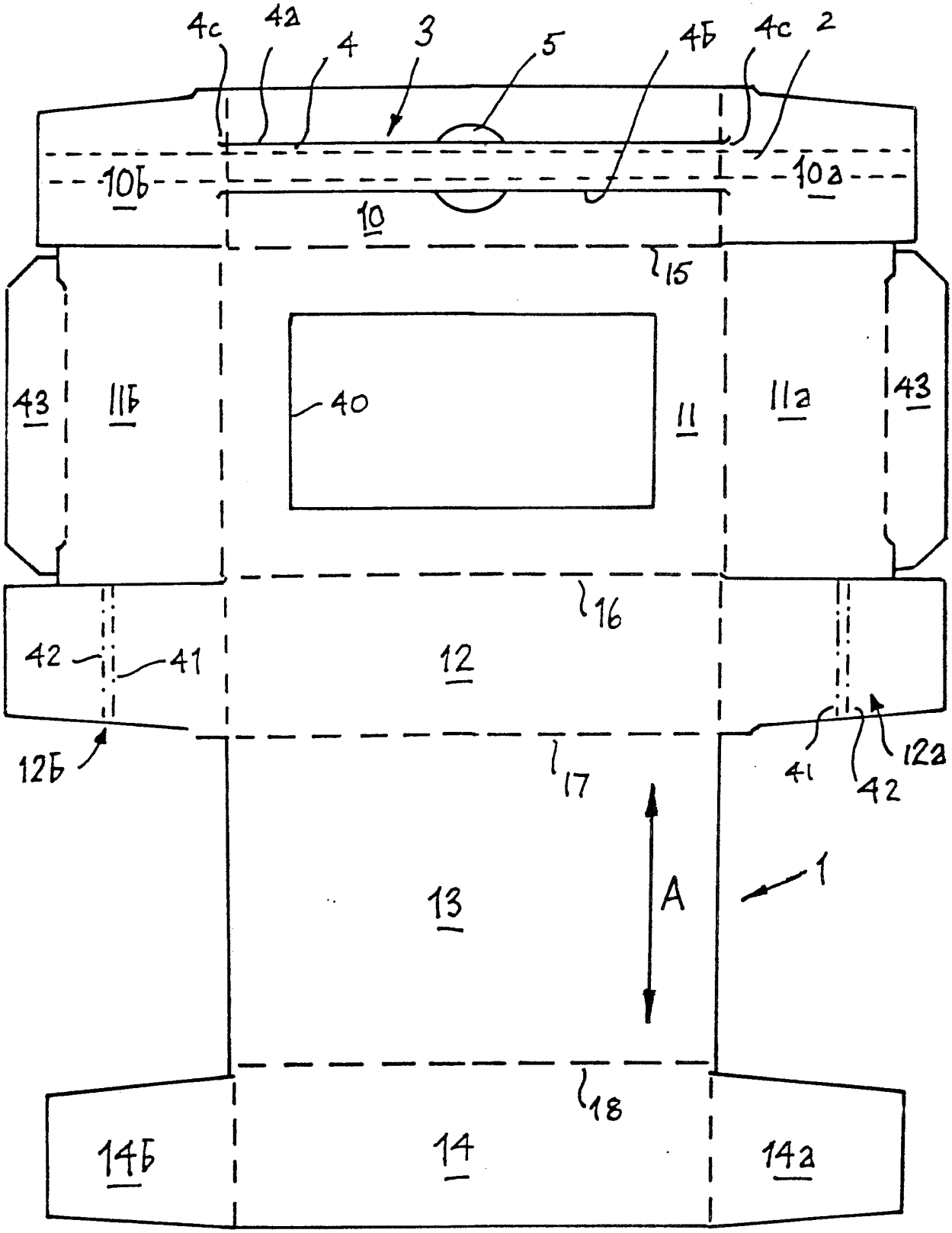
4c
42
4
3
5
4b
4c
2
10b
10a
10
15
43
11b
40
11
11a
43
16
42
41
12
12b
17
41
42
12a
A
1
13
18
14b
14
14a

FIG. 1

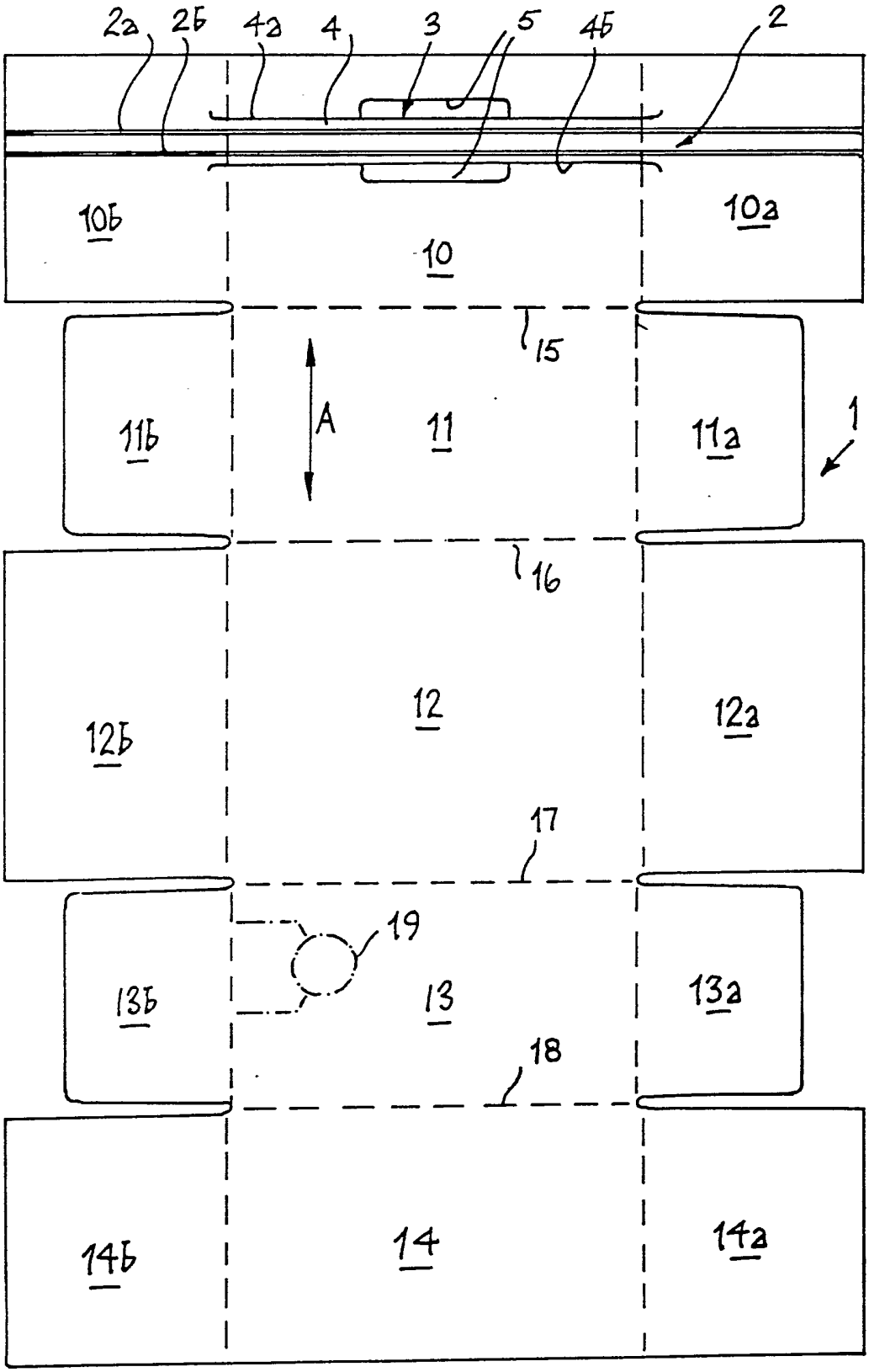
2a
2b
4a
4
3
5
4b
2
10b
10
10a
15
11b
A
11
11a
1
16
12b
12
12a
17
19
13b
13
13a
18
14b
14
14a

FIG.2

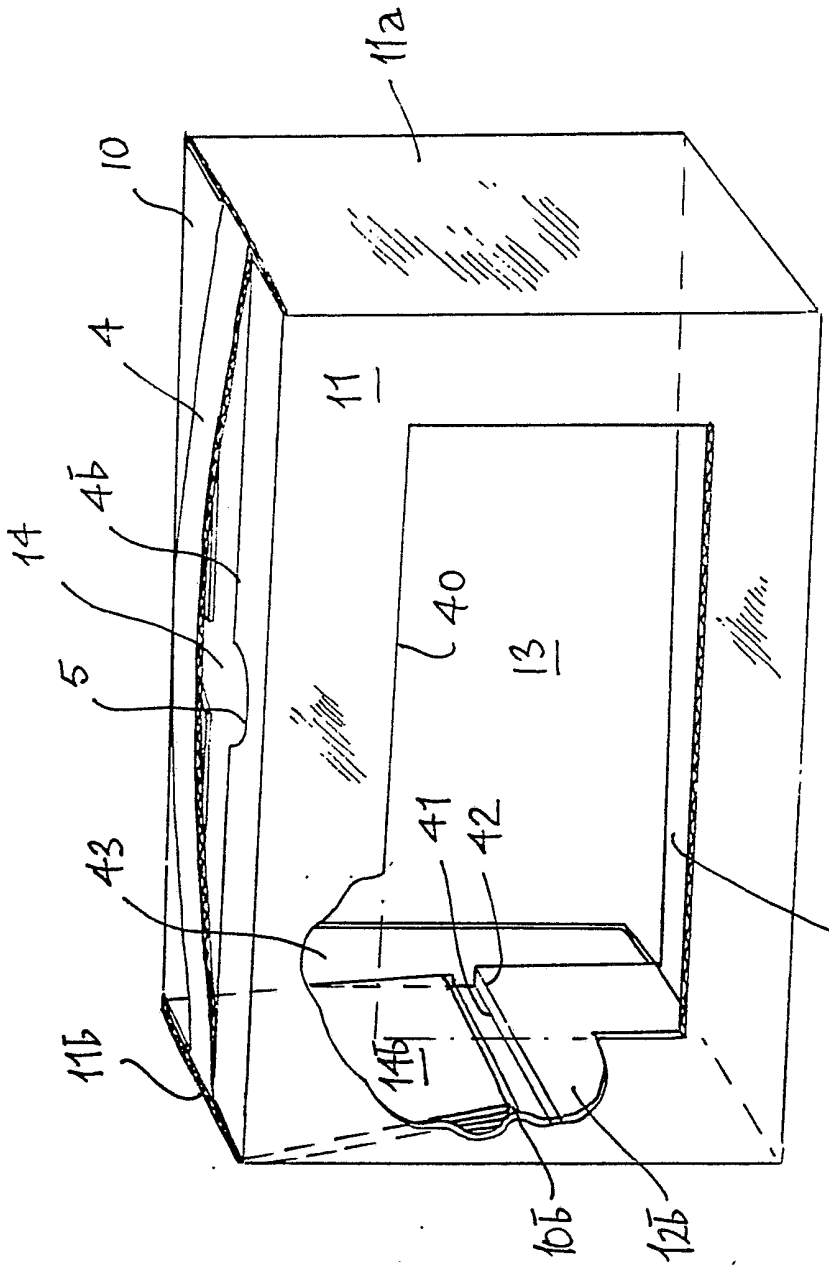

FIG.3

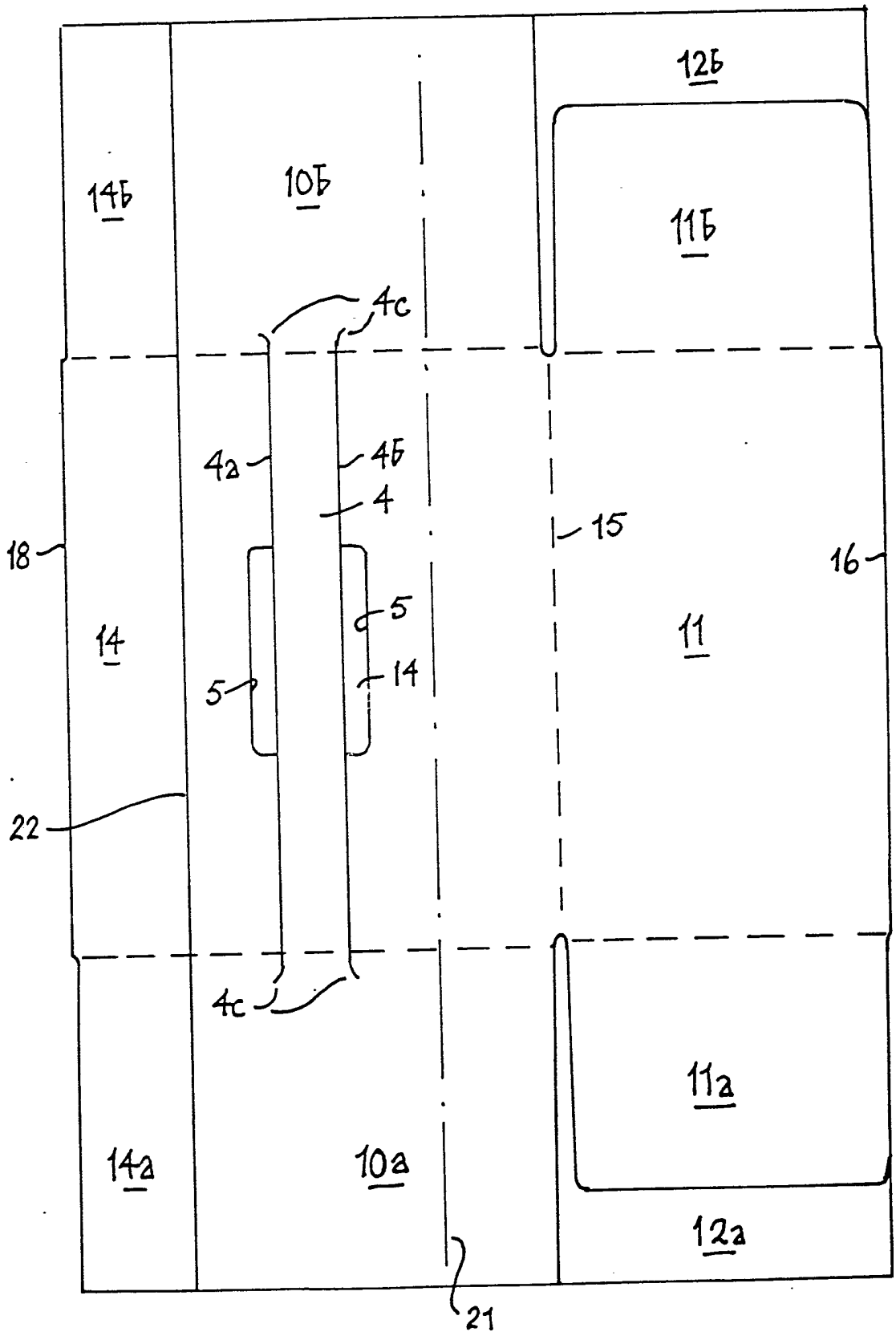
12b
14b
10b
11b
4c
4a
4b
4
15
18
16
5
14
11
5
14
22
4c
11a
14a
10a
12a
21

FIG. 4

IMPROVED CARTON AND BLANK THEREFOR

This invention relates to a carton of the kind providing an integral carrying handle which incorporates a strip of reinforcing material. The invention also relates to a blank for producing such a carton.

According to one aspect of the invention, a carton made from a folded-up blank of stiff but foldable sheet material which includes in one wall of the carton a carrying handle reinforced with a strip of reinforcing material is characterised in that regions adjacent to each end of said strip are secured in a double flap of blank material.

Conveniently one flap of each double flap is formed as an extension of the said one wall of the carton that includes the carrying handle and the other flap of each double flap is an extension of a panel of blank material that underlies the said one wall.

Suitably each double flap extends at right angles to the plane containing said one wall of the carton. Desirably the two flaps making up each double flap are glued together, at least in the vicinity of said reinforcing material.

To compensate for the intrusion into the volume of the space available within the carton caused by each double flap, a further pair of internal flaps can be provided as folded-over extensions of a further wall of the carton, conveniently a wall in a plane parallel to said one wall.

Cartons in accordance with this invention can be provided in knocked-down condition with panels providing two spaced-apart walls disposed in parallel planes normal to said one wall in the erected carton each shaped to provide a respective carton-closure flap. An opening can be

provided in at least one wall of the carton to display the carton contents.

According to a further aspect of the invention, a blank for producing a carton having in one wall an integral carrying handle which incorporates a strip of reinforcing material is characterised in that the blank comprises at least four adjacent wall panels delineated by longitudinal fold lines, the first and last each having a pair of end flaps delineated by pairs of lateral fold lines normal to said longitudinal fold lines, the first wall panel and end flaps attached thereto incorporating the reinforcing strip which is flanked by slits that define the handle and encroach on each attached end flap, each end flap of the last wall panel being adapted to be secured to the underside of a respective one of the end flaps of the first wall panel.

Five wall panels are required to form a right parallelepipedic carton and conveniently the second and/or the fourth panel is apertured to provide a window for viewing the contents to be packaged in the carton erected from the blank. Closure flaps can be provided on each end of the second or fourth panel, these closure flaps also being delineated from the panel between them by lateral fold lines. Each closure flap can be provided with a tuck-in tab at its end to facilitate closing the carton erected from the blank after the contents of the carton have been located therein.

Preferably the blank is made of double-faced corrugated material having two facing sheets sandwiching a corrugated web, the reinforcing material being a strip of tape bonded between the corrugated web and that facing sheet destined to form the underside of the first panel and its conjoined end flaps.

Some embodiments of carton blank, carton and partly-

erected carton in accordance with this invention will now be described more fully, by way of example, with reference to the accompanying drawings, in which

Figures 1 and 2 are plans of two blanks in accordance with the invention,

Figure 3 is a perspective view of a carton (partially cut-away) erected from the blank of Figure 1, and

Figure 4 is a perspective view of a partly-erected carton according to the invention produced from the blank of Figure 2.

Referring to Figures 1 and 2, each shows a blank 1 of stiff but foldable material cut and creased to permit easy erection into a carton with an integral carrying handle. Cuts are shown as continuous lines in these two Figures and creases are shown as dashed lines. Both views are from the side of the blank depicting the inside of the carton.

Each of the blanks can be produced from solid paperboard but doubly-faced corrugated paperboard is the preferred material and where such material is used the direction of the flutes in the corrugated core of the material is indicated by the double-headed arrow A in each Figure.

Each blank incorporates one or more lengths of reinforcing material 2 and a variety of different reinforcing materials can be used. In Figure 1 a length of fibrous tape is used as the reinforcing material 2 and this is adhesively secured between the plies of corrugated paperboard as the latter is formed on a conventional corrugator (it will be noted that the elongate direction of the tape is normal to the flutes). A preferred fibrous tape is that known under the trade mark "Sesame" (made by Sesame Industries Ltd. of Quebec, Canada) which incor-

porates a hot melt adhesive and is thus automatically bonded into the structure of the corrugated material during its formation on the corrugator. However, other forms of reinforcing material 2 can be used and the possibility of using other materials is indicated by the different representations of the material 2 in Figure 2. Thus wires (shown at 2a, 2b in Figure 2) or self-adhesive plastics or cloth tape can be used. Where solid paperboard is used for the blank 1, the reinforcing material 2 can be applied after manufacture of the material from which the blank 1 is formed and even after the blank 1 has been created by cutting and crease-lining the stiff but foldable material.

In each of the two embodiments of blank shown in Figures 1 and 2 the reinforcing material 2 defines a handle region 3 for the eventual carton. A carrying handle 4 is created by a pair of parallel cuts 4a, 4b which flank the reinforcing material 2 on opposite sides thereof. An opening 5 is formed on each side of the handle 4 in a central part thereof to allow finger access below the handle to permit it to be lifted from the panel 10 which defines one wall (or part of one wall in the Figure 2 embodiment) of the eventual carton. The cuts 4a, 4b extend completely across the panel 10 and terminate in outwardly flared ends 4c formed in end flap extensions 10a, 10b of the respective blank 1.

Each of the blanks 1 of Figures 1 and 2 comprises five side-by-side panels 10 to 14 delimited by spaced-apart parallel crease or fold lines 15 to 18. In both Figures 1 and 2 each of the panels 10, 11, 12 and 14 has end flap extensions 10a, 10b: 11a, 11b: 12a, 12b and 14a, 14b and in the blank of Figure 2, the panel 13 also has end flaps extensions designated 13a and 13b. Where provided, the end flap extensions are foldably connected to the adjacent panel by crease lines (unnumbered) which extend at right angles to the lines 15 to 18.

By folding the blank 1 of Figure 1 about the crease lines 15 to 18 and securing the panel 14 below the panel 10 (e.g. by means of an adhesive) a tubular member is formed which can be erected into the right parallelepipedic carton shown in Figure 3.

The carton shown in Figure 3 is specifically designed for wall or floor tiles and is provided with a window 40 in the panel 11 through which the decorative face of the front tile packed in the carton can be viewed by a potential purchaser.

The flap 14a is secured to the underside of the flap 10a and the flap 14b is secured to the underside of the flap 10b so that the reinforcing tape 2 is sandwiched between the plies of paper making up the two flaps 10a, 14a and 10b, 14b. In the erected carton (see Figure 3) these flaps are bent together at right angles to the conjoined panels 10 and 14 and this locks the ends of the reinforcing tape 2 into the side walls of the carton making it virtually impossible to pull the tape out of the flaps 10a, 14a: 10b, 14b and giving the handle 4 a strength comparable with the breaking strain of the tape 2.

To compensate for the double thickness flaps 10a, 14a and 10b, 14b which occupy space in the interior of the erected carton, the flaps 12a, 12b are each doubly creased at 41, 42 so that they can easily be folded in half as the carton is erected to provide a double thickness flap adjacent to the base panel 12 of the carton.

The blank shown in Figure 1 has tuck-in tabs 43 which self-lock into place against flaps 10a, 12a and 10b, 12b as the carton is erected but it will be appreciated that it is possible to develop a style of blank that has other arrangements for closing the ends thereof (e.g. in the case of a machine-erected blank).

The blank of Figure 2 is designed for machine erection and can be pre-formed into the "knocked-down" carton precursor shown in Figure 4.

Because the panel 14 underlies the panel 10 it closes off the openings 5 and the further opening formed by the cut lines 4a, 4b from the interior of the carton thus making it possible to package a loose flowable material (e.g. a granular or powder material such as soap) in the carton made from the blank of Figure 2 without a need for any interior lining or containing bag. However, this design of blank is particularly useful for containing a valved bag of liquid (e.g. wine).

To gain access to the contents of the carton formed from the blank of Figure 2 a line of weakness 19 is formed in the panel 13. When the blank material is torn along the line of weakness 19 an opening is formed through which a valve on the contained bag can be grasped and pulled outside the carton to permit the contents of the carton to be dispensed.

Figure 4 shows a partly-erected carton formed from the blank of Figure 2. The panel 14 in Figure 2 has been adhesively secured below the panel 10, but only extends as far as the chain line 21.

However this is far enough to close off the openings 5 and the opening formed by the cuts 4a, 4b defining the handle 4 and to provide double thickness flaps 10a, 14a and 10b, 14b to increase the security of fixing of the wires 2a, 2b in the carton walls.

Figure 4 shows the blank 1 in folded-over condition so that two thicknesses of blank material lie to the right of the chain line 21 and to the left of the line 22, but three thicknesses of blank material lie between the lines 21 and 22 (apart, of course, below the openings 5). In the fully

collapsed condition shown in Figure 4 the partly-erected carton occupies a volume no greater than that of the pre-folded blank and can conveniently be supplied to an end-user in this condition. Erection into the completed carton is a simple matter of opening up the tubular form shown in Figure 6, folding in the composite end flaps 10a/14a and 10b/14b and the remaining six end flaps 11a, 12a, 13a (not shown), 11b, 12b and 13b (also not shown) and securing these end flaps together in any convenient manner.

It will be appreciated that when the handle 4 is used to carry a filled carton, it will be bowed away from the panel 10 from which it was formed (see Figure 3). The securing of the two end flaps 10a/14a and 10b/14b together assists in preventing the handle 4 intruding into the interior space of the carton under the tension of carrying a filled carton.

By sizing the length of the closure flap 14 to closely correspond to the length of the panel 10, the extent to which the end regions of the handle 4 (the regions between the flared ends 4c of the cuts 4a, 4b) can move towards one another will be restricted and this can be a further useful advantage provided by the closure flap 14.

CLAIMS

1. A carton made from a folded-up blank of stiff but foldable sheet material which includes in one wall of the carton a carrying handle reinforced with a strip of reinforcing material, characterised in that regions adjacent to each end of said strip are secured in a double flap of blank material.

2. A carton as claimed in claim 1, in which one flap of each double flap is formed as an extension of the said one wall of the carton that includes the carrying handle and the other flap of each double flap is an extension of a panel of blank material that underlies the said one wall.

3. A carton as claimed in claim 1 or claim 2, in which each double flap extends at right angles to the plane containing saic one wall of the carton.

4. A carton as claimed in any preceding claim, in which the two flaps making up each double flap are glued together, at least in the vicinity of said reinforcing material.

5. A carton as claimed in any preceding claim, in which to compensate for the intrusion into the volume of the space available within the carton caused by each double flap, a further pair of internal flaps is provided as folded-over extensions of a further wall of the carton.

6. A carton as claimed in claim 5, in which said further wall is a wall lying in a plane parallel to said one wall.

7. A carton as claimed in any preceding claim, in which an opening is provided in at least one wall of the carton to display the carton contents.

8. A carton as claimed in any preceding claim, provided in knocked-down condition with panels providing two spaced-apart walls disposed in parallel planes normal to said one wall in the erected carton each shaped to provide a respective carton-closure flap.

9. A carton substantially as hereinbefore described with reference to, and as illustrated in Figure 3 of the accompanying drawings.

10. A carton in knocked-down condition substantially as hereinbefore described with reference to and as illustrated in Figure 4 of the accompanying drawings.

11. A blank for producing a carton having in one wall an integral carrying handle which incorporates a strip of reinforcing material, characterised in that the blank comprises at least four adjacent wall panels delineated by longitudinal fold lines, the first and last each having a pair of end flaps delineated by pairs of lateral fold lines normal to said longitudinal fold lines, the first wall panel and end flaps attached thereto incorporating the reinforcing strip which is flanked by slits that define the handle and encroach on each attached end flap, each end flap of the last wall panel being adapted to be secured to the underside of a respective one of the end flaps of the first wall panel.

12. A blank as claimed in claim 11, in which there are five wall panels to form a right parallelepipedic carton, the second and/or the fourth panel being apertured to provide a window for viewing the contents to be packaged in the carton erected from the blank.

13. A blank as claimed in claim 12, in which closure flaps are provided on each end of the second or fourth panel, these closure flaps also being delineated from the

panel between them by lateral fold lines, each closure flap being provided with a tuck-in tab at its end to facilitate closing the carton erected from the blank after the contents of the carton have been located therein.

14. A blank as claimed in any one of claims 11 to 13, in which the blank is made of double-faced corrugated material having two facing sheets sandwiching a corrugated web, the reinforcing material being a strip of tape bonded between the corrugated web and that facing sheet destined to form the underside of the first panel and its conjoined end flaps.

15. A carton blank substantially as hereinbefore described with reference to and as illustrated in Figures 1 and 2 of the accompanying drawings.

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