

PATENT SPECIFICATION

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(54) A BOX

(71) I, FRANCIS EDWARD TAT-TAM, of Neild House, Beaumont End, near Amersham, Buckinghamshire, England, a British subject, formerly of 28 Plantation Road, Amersham, Buckinghamshire, 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:—

Background Of The Invention:

Field Of The Invention:

The invention relates to a box for packaging goods, a blank from which the box may be made, and a security device therefore.

In many fields, for example the supply of package blanks to pharmaceutical manufacturers, it is important to be able to box up goods in a manner permitting the integrity of the contents of the box to be ascertainable without having to resort to opening of the box to inspect its contents.

Description Of The Prior Art:

As far as the applicant is aware, prior art boxes have been provided with security strips but have been either expensive or cumbersome in use or both, and in all cases had to be removed first before the integrity of the box (or its contents) could be ascertained.

For instance, in some current practice reliance has to be placed wholly on scanning finished packages for identifying markings.

In other aspect, the present invention represents a further development of the box described and claimed in my own earlier British Patent Specification No 1 437 719 = CH PS 570 307 = DT—OS 2 427 337 = US—PS 3 941 274.

Summary Of The Invention:

According to the invention a box, or case for containing rows of fold-flat package blanks or other goods comprises a plurality of interconnected or interconnectable panels one of which is a base panel, at least

one bar for placement on top of the contents of the box or case, at least one security strip extending from the base panel and adapted to run around the goods and along a respective said bar so that its ends meet or lie adjacent one another in a position visible when the assembled box or case is opened, means for connecting the or each bar to the respective security strip(s) and a fastener for fastening the ends of the or each strip.

The said means are preferably two collars slidably carried on the or each bar.

The ends of the security strip may for example be overlaid by adhesive tape which, if damaged, immediately shows that the contents of the box have been disturbed. When there is no such indication the contents can be used with confidence that they are as packed, and for example the risk of wrong packages being used for a pharmaceutical product is greatly reduced, at source.

It is a further advantage of the invention that identifying markings may readily be positioned so that a series of packages in a box provided with the security strip embodied in the invention can be seen at a glance to be correct and complete. The markings show up as continuous uninterrupted lines across the rows of packages.

Preferably, the box itself used in accordance with the invention is a fold-flat box which has to be opened out to allow the goods to be removed, so that there is very little chance of odd packages being left in a box and subsequently used in incorrect circumstances.

In a preferred embodiment, the box or case is made of a blank comprising a base panel of substantially rectangular configuration, two side panels attached to opposite sides of the base panel, two end panels, attached to two other opposite sides of the base panels and a lid panel attached to one of the side panels at its side opposite from the base panel; the base panel being of laminated construction having channel means therein to accommodate at least one of said security strips, one of said side panels being formed with at least one foldable flap

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on its side for engaging with complementary recess(es) in the other side panel by folding about an axis at right angles to the axis of folding the side panels themselves when erecting the box; flap means and recess means disposed on the lid panel and on one of the side panel for interengagement; abutment means for interengagement between the other side panel and the lid panel.

The invention is described, merely by way of example, with reference to preferred embodiments illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective view illustrating the assembly of a box provided with a security strip in accordance with the invention;

Figure 2 is a side elevation of the box shown in Figure 1 in its open condition,

Figure 3 is a plan view of the box shown in Figure 1 in its assembled condition,

Figure 4 is an elevation of a blank for a box according to a further embodiment of the invention and provided with security strips,

Figures 5 and 6 are respective fragmentary perspective views illustrating different stages of the assembly of the box shown in blank form in Figure 4, and

Figure 7 illustrated a further variant in perspective.

Referring first to Figure 1, there is provided a repeatedly erectable and dismantlable box 10 destined to hold, by way of example, packaging blanks for enclosing small bottles or squeeze tubes of cosmetic or pharmaceutical preparations. A row of such blanks 11 is shown in Figure 1 and the blanks have a marking 12 such that when a plurality of said blanks are pressed together the markings 12 form a continuous line.

In the illustrated embodiment the box 10 has laminated side and end panels 13 which are adapted to be secured together in a dovetail fashion. More particularly, of the two contiguous interengageable panels 13 shown in the drawing one has a hinged flap 14 with a raised dovetail shaped land or plate 15 thereon. The flap 14 is hinged along an edge 16 so that when it is pivoted in a direction shown by arrow 17 it fits into a correspondingly shaped recess 18 in the other panel. The other panel has a pair of projecting lugs 19 which fit into slots (not shown) in the first panel.

The base panel 21 of the box 10 has a false bottom 22 such that between the panel 21 and bottom 22 a channel 23 is formed.

An elongated paper or like security strip 24 is threaded through the channel 23 such that it extends along the full length of the panel 21 and bottom 22, the full height of both end panels 13 and along the full length

of the top of the blanks 11. The strips 24 are of such a length that they can overlap or the ends may abut when they encompass the desired thickness of blanks in the box in its erected condition. To secure the strips 24, thereby to hold the packaging blanks together, there is provided a bar 26 for each strip 24. Each strip 24 and its associated bar 26 are secured together by collars 27 dimensioned so that they may slide along the length of the bars and strips, the adjacent but spaced apart ends 25 of the strips 24 being fastened together by any suitable means such as a metal staple or clear adhesive tape 20.

The embodiment described so far not only provides a strong yet light box construction in which the panels may be made of paper or a laminate made of paper and expanded polystyrene but it also provides a very convenient and neat way of erecting and dismantling the box by virtue of the dovetailed interengagement of its corners and furthermore it provides an inexpensive security strip which may be made of paper or off-cuts of packaging card and which preserves the integrity of the contents of the box and prevents mistakes from being made. Furthermore, even when it is broken it can be readily replaced by passing another strip through the channels.

Referring now to Figures 4 to 6, there is shown a box blank and a box erected therefrom provided with a security strip similar to that described in the proceeding embodiment and which box is particularly advantageous in being lightweight, strong yet secure, by virtue of its construction about to be described. In these Figures, long broken lines indicate lines of fold.

The blank 30 according to Figure 4 is essentially similar in construction to the base panel 21 of Figure 1 in that it is of a double or false bottomed construction there being a second panel 31 thereon of somewhat smaller surface area. This panel 31 is secured to the base panel 30 by means of four corner pieces 32 shown in dotted lines in Figure 4. In this way a broad central channel 33 is left for the insertion of two or more security strips 24 but if it is desired, a central intermediate piece could be provided at about the middle of the channel 33 so as to divide the latter into two discrete channels.

In Figure 4 the two strips 24 are shown only schematically and for details, which are essentially similar to those already described, reference should be had to Figures 5 and 6 below.

The panels 30 and 31 are integral with two longitudinally adjacent side panels 34, 35 and two transversely adjacent end panels 36. The side panel 34 is connected on its side remote from the base panel 31 to a top panel

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37. These panels will now be described in further detail.

5 The side panel 34 is of a double thickness construction having a top plate 38 glued by an intermediate plate 39 (Figure 5) to its base 40. The intermediate plate 39 is so shaped and dimensioned that at the two side edges 41 of the base 40 two essentially T-shaped recesses 42 are formed between the base 40 and the top plate 38, which latter is slightly smaller on all four sides than the base 40 although it is thicker than the latter. Along its side adjacent to the top panel 37, the top and intermediate plates 38, 39 have an elongated rectangular slit 43. The top panel 37 is also of laminated construction having a base 44 and a top plate 45 which is smaller in area than the base 44 and is provided at the edge adjacent the side plate 20 34 with a projection 46 of a shape complementary to the slot 43.

25 The side of the top plate 38 remote from the panel 34 is provided with an extension 48 connected to the adjacent edge of the panel 34 via a pair of undercut slots 48. The extension 47 has on each side a tongue 49 and a shoulder 50; it also has a central flap 51.

30 The end panels 36 are essentially identical and therefor only one will be described. Each end panel 36 is essentially rectangular and may have a central window 52, (although this is not essential) to allow printed matter on the flaps 61 to be viewed without undoing the assembled box. The edge of the panel 36 remote from the base has a flap 53 having a rounded side edge 54 and an opposite bevelled side edge 55. Each flap 53 has a small plate 56 secured thereto which does not extend across the full width of the flap and does not overlie bevelled edge 55; neither does it quite extend to the adjacent fold line.

45 The side panel 35 is also of laminated construction. It has a top plate 57 secured to a slightly larger bottom plate 58 by means of an intermediate piece cut away to provide a stepped recess 60 of a shape complementary to tongues 49 shoulders 50 and flap 51 of the top panel 37. From the two shorter edges of the panel 35 a pair of similar flaps 61 extends in the same direction as the end panels 36. However, the flaps 61 are longer than the end panels 36 and in fact their length corresponds to the width of the base panel 31. The flaps 61 terminate in arcuate tongues 62. The tongues 62 are adapted, on the first folding about the line at their base and a second folding about the line between the tongues 62 and the rest of the flaps 61, to fit the T-shaped recesses 42 of the side panel 34.

60 With reference to Figures 4 to 6, the assembly of the box blank 30 is as follows.

65 Assuming the blank 30 to be laid out in a horizontal plane, with the package blanks 11

safely held in position by means of the security strips 24 and bars 26 and collars 27 the two side panels 34 and 35 are folded along their fold lines so as to bring them into a vertical position. Then the flaps 61 are bent about a vertical axis to bring the tongues 62 into engagement in the T-shape recesses 42 in the side panel 34 whereby the two side panels are securely held in a vertical position. Then the end panels 36 are folded to overlie the flaps 61 and finally the top panel is folded over, causing the projection 46 to engage in and about the slot 43. The flap 47 is then folded to fit securely into the stepped recess 60.

When the flap 47 is fully engaged in the recess 60 the bevelled edges 55 of the end panels 36 will engage and locate in the cut-out slots 48 whereafter the box will be tamper-proof, i.e. will not be openable again without damaging it. If therefore it is desired to re-use the box repeatedly, as may often be the case, then the slots 48 are omitted.

Referring now to Figure 7 there is shown a box of generally conventional construction but incorporating the security strips previously described. Furthermore, the box 70 has a false bottom 71 which is raisable to allow access to the strips 24 for removal or exchange thereof. A strip-shaped part 72 of the false bottom 71 is secured e.g. by glueing to a flap 73 constituting a folded extension of the adjacent side panel 74. A fold line 75 is provided intermediate the ends of the bottom 71 and along that fold line 75 there is finger-size hole or cut-out 76. To lift the bottom 71 a finger is inserted into the hole 76 and then the bottom 71 can be lifted to hinge about the fold line 75 while remaining secured by the glued strip 72.

WHAT I CLAIM IS:—

1. A box or case for containing goods such as fold-flat package blanks, comprising a plurality of interconnected or interconnectable panels one of which is a base panel, at least one bar for placement on top of the contents of the box or case, at least one security strip extending from the base panel and adapted to run around the goods and along a respective said bar so that its ends meet or lie adjacent one another in a position visible when the assembled box or case is opened, means for connecting the or each bar to the respective security strip(s) and a fastener for fastening the ends of the or each strip.

2. A box or case according to claim 1 wherein said means for securing the bar to the respective security strip comprises two collars slidably threaded on the or each bar.

3. A box or case according to claim 1 or claim 2 wherein said fastener is an adhesive tape seal made of transparent material which if damaged immediately shows that



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37. These panels will now be described in further detail.

5 The side panel 34 is of a double thickness construction having a top plate 38 glued by an intermediate plate 39 (Figure 5) to its base 40. The intermediate plate 39 is so shaped and dimensioned that at the two side edges 41 of the base 40 two essentially T-shaped recesses 42 are formed between the base 40 and the top plate 38, which latter is slightly smaller on all four sides than the base 40 although it is thicker than the latter. Along its side adjacent to the top panel 37, the top and intermediate plates 38, 39 have an elongated rectangular slit 43. The top panel 37 is also of laminated construction having a base 44 and a top plate 45 which is smaller in area than the base 44 and is provided at the edge adjacent the side plate 34 with a projection 46 of a shape complementary to the slot 43.

20 The side of the top plate 38 remote from the panel 34 is provided with an extension 48 connected to the adjacent edge of the panel 34 via a pair of undercut slots 48. The extension 47 has on each side a tongue 49 and a shoulder 50; it also has a central flap 51.

25 The end panels 36 are essentially identical and therefore only one will be described. Each end panel 36 is essentially rectangular and may have a central window 52, (although this is not essential) to allow printed matter on the flaps 61 to be viewed without undoing the assembled box. The edge of the panel 36 remote from the base has a flap 53 having a rounded side edge 54 and an opposite bevelled side edge 55. Each flap 53 has a small plate 56 secured thereto which does not extend across the full width of the flap and does not overlie bevelled edge 55; neither does it quite extend to the adjacent fold line.

30 The side panel 35 is also of laminated construction. It has a top plate 57 secured to a slightly larger bottom plate 58 by means of an intermediate piece cut away to provide a stepped recess 60 of a shape complementary to tongues 49 shoulders 50 and flap 51 of the top panel 37. From the two shorter edges of the panel 35 a pair of similar flaps 61 extends in the same direction as the end panels 36. However, the flaps 61 are longer than the end panels 36 and in fact their length corresponds to the width of the base panel 31. The flaps 61 terminate in arcuate tongues 62. The tongues 62 are adapted, on the first folding about the line at their base and a second folding about the line between the tongues 62 and the rest of the flaps 61, to fit the T-shaped recesses 42 of the side panel 34.

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When the flap 47 is fully engaged in the recess 60 the bevelled edges 55 of the end panels 36 will engage and locate in the cut-out slots 48 whereafter the box will be tamper-proof, i.e. will not be openable again without damaging it. If therefore it is desired to re-use the box repeatedly, as may often be the case, then the slots 48 are omitted.

Referring now to Figure 7 there is shown a box of generally conventional construction but incorporating the security strips previously described. Furthermore, the box 70 has a false bottom 71 which is raisable to allow access to the strips 24 for removal or exchange thereof. A strip-shaped part 72 of the false bottom 71 is secured e.g. by glueing to a flap 73 constituting a folded extension of the adjacent side panel 74. A fold line 75 is provided intermediate the ends of the bottom 71 and along that fold line 75 there is finger-size hole or cut-out 76. To lift the bottom 71 a finger is inserted into the hole 76 and then the bottom 71 can be lifted to hinge about the fold line 75 while remaining secured by the glued strip 72.

WHAT I CLAIM IS:—

1. A box or case for containing goods such as fold-flat package blanks, comprising a plurality of interconnected or interconnectable panels one of which is a base panel, at least one bar for placement on top of the contents of the box or case, at least one security strip extending from the base panel and adapted to run around the goods and along a respective said bar so that its ends meet or lie adjacent one another in a position visible when the assembled box or case is opened, means for connecting the or each bar to the respective security strip(s) and a fastener for fastening the ends of the or each strip.

2. A box or case according to claim 1 wherein said means for securing the bar to the respective security strip comprises two collars slidably threaded on the or each bar.

3. A box or case according to claim 1 or claim 2 wherein said fastener is an adhesive tape seal made of transparent material which if damaged immediately shows that

the contents of the box or case have been disturbed.

4. A box or case according to any preceding claim wherein the box or case is a fold flat member which has to be opened out to allow the goods to be removed.

5. A box or case according to any preceding claim wherein the box is made of a blank comprising a base panel of substantially rectangular configuration, two side panels attached to opposite sides of the base panel, two end panels attached to two other opposite sides of the base panel and a lid panel attached to one of the side panels at its side opposite from the base panel; the base panel being of laminated construction having channel means therein to accommodate at least one of said security strips, one of said side panels being formed with at least one foldable flap on its side for engaging with complementary recess(es) in the other side panel by folding about an axis at right angles to the axis of folding the side panels themselves when erecting the box; flap means and recess means disposed on the lid panel and on one of the side panels for interengagement; and abutment means for interengagement between the other side panel and the lid panel.

6. A box or case according to claim 5 wherein there are flaps on the end panels lockingly to engage in recesses formed in the flap on the lid panel such that on

engagement of the flap of the lid panel in the complementary recess of the cooperating side panel, the box becomes locked and tamper-proof.

7. A box or case according to claim 6 wherein the flaps on the end panels are each provided with one rounded marginal side edge and one bevelled side edge, the latter engaging in a said recess in the form of an under-cut portion of the flap of the lid panel.

8. A box or case according to any or claims 1 to 4 wherein the base panel has a false bottom hingedly secured at one end thereof to the base panel, the other end being free, and intermediate its ends the false bottom is provided with finger-engageable means for lifting it and pivoting it about a fold line passing through the finger-engageable means.

9. A box or case substantially as herein described with reference to and as shown in Figures 1 to 3 or Figures 4 to 6 or Figure 7 of the accompanying drawings.

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