

PATENT SPECIFICATION

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(54) PACKAGING CARTON AND CLOSURE THEREFOR

(71) We, SELANGOR PEWTER CO. SDN. BHD., a Body Corporate organized and existing under the laws of Malaysia, of 231 Jalan Tuanku Abdul Rahman, P.O. Box 15, Kuala Lumpur 01-08, Malaysia, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to packaging cartons and closures therefor, of the type to be made out of a foldable material such as cardboard, for packaging of relatively small objects.

In the packaging for shipment over long distances of precious or semi-precious articles such as jewellery, cutlery, silverware, metal art objects and the like, it is desirable to package these articles in a manner whereby they may be protected from damage during shipment, but also in an attractive, pleasing manner which is generally in character with the pleasing nature of the packaged goods. Since a single manufacturing facility may be producing a whole range of such goods for shipment, of different shapes and sizes, it is economical to have a packaging box of the same basic design and construction, which can be made in a variety of different shapes and sizes, to accommodate various articles for packaging. It is also desirable to have such a packaging box or packaging box system which can be attractively labelled according to its contents, for semi-display purposes.

According to the present invention, in one aspect, there is provided a packaging carton having a base and four upstanding side walls integral with the base, each of said side walls comprising a first, outer layer of sheet material integral with the base, and a second inner layer integral with the outer layer, and having a reinforcing sheet disposed between said inner and outer layers; the top exterior edges of said

side walls comprising folds integrally joining the inner layer and the outer layer thereof; and the cut edges of the inner layer remote from the folds being disposed inside the carton adjacent to the base thereof.

According to a second aspect of the present invention, there is provided a combination of a carton as described above with a sleeve closure therefor, said sleeve closure being of rectangular vertical cross-section and open-ended, the carton being a close, smooth sliding fit within the sleeve closure.

Preferably, both cartons and sleeves according to the present invention are made from blanks, which can be die cut in large quantities, and merely need appropriate folding in order to erect the corresponding carton or sleeve closure. No glue or the like adhesive is necessary for assembling the box. In a preferred embodiment, appropriate eyelet holes are provided into which eyelet fasteners may be secured.

The result is a packaging box and closure sleeve therefor which is of attractive appearance and design, particularly on account of the fact that the exposure of cut edges of the sheet material at the edges of the carton and closure, is avoided. All of these exposed edges, both along the top of the carton itself, and along the outer edges of the sleeve closure, are formed of folded sheet material, thereby presenting an attractive appearance to the finished carton.

According to a preferred embodiment of the carton, there is provided a base stiffening element on the upper, inner surface of the base, the base stiffening element being of sheet material and being dimensioned so as to be a snug fit within the bottom interior of the side walls of the carton. In such an arrangement, the carton has reinforcing or stiffening elements within all of its four sides and its base, so that a thin and hence decorative sheet material can be used for the inner and outer

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side walls of the carton without detracting from the rigidity or strength of the carton itself, and hence enhancing the appearance of the finished carton.

5 According to a most preferred embodiment of the invention, the carton has a base stiffening element provided with recesses cut-away on its outer side edges, and the cut edges of the inner layer of the
10 side walls have integral protruding tabs thereon in registry with and received in the recesses in the base stiffening element. The co-operation of such integral tabs and recesses enhances the stability and rigidity
15 of the finished carton.

The sleeve closure of the combination of the invention is also preferably formed of double thickness sheet material for its base and upstanding side walls, with a stiffening
20 element of sheet material disposed between the first outer layer and the second inner layer of the base and side walls of the sleeve closure. The top wall of the sleeve closure in the preferred embodiment is comprised
25 of two juxtaposed portions, the first portion being an integral continuation of a first one of the side walls but folded with respect thereto and comprising first outer layer of sheet material and a second outer layer of
30 sheet material, and the second said portion similarly being an integral continuation of the second one of said side walls but folded with respect thereto and comprising a first outer layer of sheet material and a second
35 outer layer of sheet material, the first and second portions of the top wall being connected by means of a top reinforcing panel of sheet material extending from between the first outer layer and the second
40 outer layer of the first portion to between the first outer layer and the second outer layer of the second portion.

Cartons and sleeves therefore according to the invention are readily constructed
45 from pre-cut blanks by manual folding. Substantially no machinery except for the initial paper or board cutter is required for the manufacture and assembly of the boxes according to the present invention.

50 A specific preferred embodiment of a packaging box and closure according to the present invention will now be described, with reference to the accompanying drawings, in which:

55 Figure 1 is a perspective view of the carton blank and stiffeners therefor at a first stage of assembly;

Figure 2 is a perspective view of the carton and stiffeners therefor at a
60 subsequent stage of assembly;

Figure 3 is a perspective view of an assembled carton;

Figure 4 is a cross-sectional detail along the line 4—4 of Fig. 3;

65 Figure 5 is a detailed view of a corner of

the assembled carton, viewed generally along the line 5—5 of Fig. 3;

Figure 6 is a perspective view of the blank for making the wrap around, sliding closure for the carton, and stiffeners for the
70 closure;

Figure 7 is a perspective view of the closure and stiffeners at an intermediate stage of assembly thereof;

Figure 8 is a perspective view of the
75 finished, assembled carton and closure therefor.

In the drawings, like reference numerals indicate like parts.

With reference to Fig. 1, the carton 10 is
80 made from a single one-piece blank 12, die cut from cardboard of suitable stiffness, and provided with fold lines. The carton 10 is erected by folding so that, in the finished form, all the exposed edges thereof present
85 folds, not cut edges.

Thus the carton blank 12 has a base part 14 of generally square shape and two
90 opposed rectangular simple side flaps 16, 18 with respective fold lines 20, 22 between them and the base part 14. Near their outer (or upper) edges, the side flaps 16, 18 are provided with respective pairs of eyelet
95 holes 24, 26.

The other two opposed sides of the square base part 14 are integrally
95 connected, through fold lines 28, 30 with respective major side flaps 32, 34 which themselves have a number of integral sections. The major side flaps 32, 34 are essentially mirror images of one another. Each has a respective outer wall forming
100 section consisting of a rectangular centre part 35, 36 adjoining the base part 14 and a pair of outer cut-away parts 37, 38, and 39, 40 respectively, which in shape are basically rectangular, but triangularly cut-away at
105 their corners adjacent to the outer edges of the respective simple side flaps 16, 18.

These outer cut-away parts have respective
110 fold lines 41, 42, 43, 44 attaching them to the rectangular central parts 35, 36 but are cut free of the simple side flaps 16, 18. Each outer cut-away part 37, 38, 39, 40 is provided with a respective eyelet hole 45,
115 46, 47, 48 near its corner diagonally remote from the square base 14. The major side flaps 32, 34 also have respective inner wall forming sections which, in the flattened base blank 12, are disposed outwardly with
120 respect to square base part 14, and are each divided into three parts. Each has a respective middle part 49, 50 of substantially the same size as respective

centre parts 35, 36 and connected thereto
125 by respective broad fold lines 51, 52. The middle parts 49, 50 have pairs of outwardly extending integral broad tabs such as 53, 54 at the lower part of their inner side edges, and small cut-away parts 55, 56, 57, 58 at
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the upper parts thereof. Each inner wall forming section also has a pair of rectangular side parts 59, 60 and 61, 62 respectively. The side parts 59, 60 of the inner wall forming section of the major side flap 32 are joined to the outer edges of respective cut-away parts 37, 38 by broad fold lines 63, 64 respectively, which are effectively continuations of the broad fold line 51. The side parts 59, 60 are spaced from the sides of middle part 49 by respective cut-away spaces 65, 66, and have thin integral protrusions 65a, 66a at their upper parts, protruding into spaces 65, 66 in registry with cut-away parts 55, 56 on the middle parts. Similarly, side parts 61, 62 are joined to respective cut-away parts 39, 40 by broad fold lines 67, 68, and are similarly spaced from the middle part 50, in the blank, and provided with narrow protrusions. Each of the four side parts 59, 60, 61, 62 is provided with a respective eyelet hole 69, 70, 71, 72 in the corner nearest the eyelet hole 45, 46, 47, 48 on the adjacent cut-away part.

On their edges remote from the square base part 14, the middle parts 49, 50 of the inner wall forming sections of the major side flaps 32, 34 are provided with pairs of integral tabs 73, 74 and 75, 76. The rectangular side parts 59, 60, 61, 62 are each provided with a similar single integral tab 77, 78, 79, 80 respectively.

There is provided a base stiffening element 81 of generally square shape, of a size substantially to coincide with the square base part 14. The element 81 which is suitably of cardboard has pairs of rectangular recesses such as 82 on each of its outer edges, the length of such recesses being substantially the same as the length of the tabs 73 etc. A side stiffening element 83 is provided, of square section, having four rectangular sides of sizes corresponding substantially to those of respective side parts 35, 36 and simple side flaps 16, 18. Side stiffening element 83 also has pairs 84, 85 of eyelet holes in opposed sides thereof.

To assemble the box as shown in Fig. 1, the blank 12 is first laid flat, and base stiffening element 81 is placed on square base part 14 in registry therewith. Side stiffening element 83 is then placed upright on the base stiffening element 81 on its edges. Simple side flaps 16, 18 are folded upwardly about fold lines 20, 22, to rest against the outer surfaces of side stiffening element 83. Next, middle parts 49, 50 of the major side flaps 32, 34 are folded upwardly along fold lines 51, 52 with respect to centre parts 35, 36; cut-away parts 37, 38, 39 and 40 are folded upwardly with respect to centre parts 35, 36 along fold lines 41, 42, 43, 44; and rectangular side parts 59, 60, 61, 62 are folded inwardly relative to the raised

cut-away parts 37, 38, 39, 40, along fold lines 63, 64, 67, 68, to lie behind raised middle parts 49, 50 as generally shown at the left hand side of Fig. 1.

Next, centre parts 35, 36 are folded upwardly about fold lines 28, 30, to lie along the outer surfaces of side stiffening element 83 and to bring the middle parts 49, 50 over the top edge of the side stiffening element 83, as shown in Fig. 2. By this folding action, cut-away parts 37, 38, 39, 40 become disposed on the outside of and partially overlying simple side walls 16, 18, lining the outside of the side stiffening element 83. Also, rectangular side parts 59, 60, 61, 62 become disposed above the top edges of the side stiffening element 83.

To complete the assembly, middle parts 49, 50 are folded down inside the side stiffening element 83 and their tabs 73, 74, 75, 76 are pushed into engagement with respective ones of the recesses 82 of the base stiffening element 81. Rectangular side parts 59, 60, 61, 62 are folded down inside the side stiffening element 83 to line those inner faces thereof which extend transversely to those lined by middle parts 49, 50; and tabs 77, 78, 79, 80 are pushed into the respective recesses 82 in the base stiffening element 81. The carton has now adopted the assembled position shown in Fig. 3. It will be noted that, after assembly, eyelet holes 84 in the side stiffening element 83, eyelet holes 24 in the simple side flap 16, eyelet holes 48 and 45 in cut-away parts 40, 37 and eyelet holes 72, 69 on rectangular side parts 62, 59 come into registry to form a pair of composite, registered eyelet holes 86 into which eyelet fasteners can be inserted to hold the assembled carton together if desired. At the other side of the carton, a similar pair of composite eyelet holes 87 is formed, by registry of eyelet holes 85, 26, 71, 47, 46 and 70.

As shown in Fig. 3 and Fig. 4, in the assembled carton, the side stiffening element 83 is totally enclosed within the folded walls of the carton, and fold lines such as 51 are made wide enough to accommodate the thickness of the element 83. All of the exposed top edges of the assembled carton thus present pleasing folds rather than cut edges. The various tabs such as 77 are snugly received in corresponding recesses 82 in the base stiffening element 81, so as to hold the side walls against accidental dismantling. As shown in Fig. 5, in the assembled carton, the tabs such as 53 on the middle part 50 are folded at right angles to the middle part 50, and are disposed between the inner side of side stiffening element 83 and side part 62. Protrusion 65a etc. on side parts 62 are similarly folded at right angles to side part

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62 and fit between side stiffening element 83 and middle part 50. These arrangements of folded protrusions similarly enhance the stability of the assembled box.

5 With reference to Fig. 6, the blank 100 for forming the wrap around sliding closure for the carton is a one-piece item of thin board, of generally rectangular shape having cut-away corners. It is divided
10 longitudinally into a first edge part 102, and centre part 104 and second edge part 106, by means of thick, longitudinally extending fold lines 108, 110. The edge parts 102 and 106 have substantially equal widths, and the
15 centre part 104 has a width approximately twice that of each edge part. The blank 100 is also divided transversely into a series of zones, namely a central, bottom forming zone 112, two similar side forming zones
20 114, 116 one on each side of the central zone 112, and two similar top forming end zones 118, 120. Each transverse division is formed by a narrow fold line 122 extending transversely across edge part 106, an
25 elongated narrow aperture 124 extending transversely across centre part 104 as a straight line continuation of fold line 122, and a narrow fold line 126 extending transversely across edge part 102 as a
30 straight line continuation of aperture 124. Thus the blank 100 is divided into 15 areas, integral with one another, 11 of them being rectangular, and the other 4, namely those occupying the corners of the overall
35 rectangular shape of the blank 100, being cut-away triangularly at their outer corners.

There is also provided a rectangular closure stiffening insert 128, of width slightly less than that of centre part 104 of the blank. The insert 128 is provided with
40 two transversely extending fold lines 130, 132, dividing the insert 128 into three portions, corresponding substantially in length of the respective lengths of the two side forming zones 114, 116 and the central
45 zone 112 of the blank 100. Pairs of eyelet holes 134, 136, 138, 140 are provided in the blank 100, at opposed transverse edges thereof, one member of each pair being
50 disposed on each side of the longitudinal fold lines 108 and 110.

In order to assemble the closure, the stiffening insert 128 is placed in the centre of the blank 100 between the fold lines 108,
55 110, to cover sections 114, 112 and 116 of the blank. Next, both edge parts 102 and 106 are folded inwardly along fold lines 108, 110 respectively, to enfold insert 128 therein. Then the blank 100 containing the
60 insert 128 is folded along the various fold lines 122, 124, 126 as shown in Fig. 7 to form a rectangular sectioned sleeve, the free edges of the folded edge parts 102 and 106 being disposed around the centre of the
65 outer surface of the sleeve.

The top forming end zones 118, 120 are now placed adjacent to one another as a result of this folding, with open "mouths" 142, 144 or free edges presented towards one another. A top reinforcing panel 146
70 with opposed pairs of eyelet holes such as 148, and an uppermost display panel 150 with similar pairs of eyelet holes 152, 154 are provided, and are inserted into mouths 142, 144 of the end zones 118, 120 to
75 complete the sleeve. The folding and assembly as described has brought eyelet holes 138, 140 into registry with eyelet holes 148 on reinforcing panel 146 and 152 on the display panel 150, and the assembly may be
80 secured by insertion of eyelet fasteners therein. Similarly, eyelet holes 134, 136 are in registry with eyelet holes 154.

The assembled closure 156 and carton 10 are shown in Fig. 8. The parts are dimensioned so that the carton 10 is a close smooth sliding fit within the closure 156. It will be appreciated that, by the design of parts and assembly as previously described, the erected carton 10 has smooth side and
85 bottom walls, having no seams therein. Similarly, the erected closure sleeve 156 has smooth inner walls without seams or edges, for co-operation with the smooth side walls of the carton 10. The end zones 118, 120, with their triangularly cut-away corners, define an attractive, diamond shaped
90 aperture through which the display panel 150 is visible. The display panel can thus be provided with an attractive design, trade mark material or descriptive literature concerning the contents. Different display
95 panels containing different display material can be used, depending on the intended contents, whilst a standardized form of box, varying only in size and shape can be used for a range of different goods to be packaged.

WHAT WE CLAIM IS:—

1. A packaging carton having a base and four upstanding side walls integral with the base;

each of said side walls comprising a first, outer layer of sheet material integral with the base, and a second inner layer of sheet material integral with the outer layer; and having a reinforcing sheet disposed between the said inner and outer layers;

The top exterior edges of said side walls comprising folds integrally joining the inner layer and the outer layer thereof;

the cut edges of the inner layer remote from the folds being disposed inside the carton adjacent to the base thereof.

2. A carton according to claim 1 wherein the base carries on its upper, inner surface a base stiffening element of sheet material, the base stiffening element being dimensioned so as to be a snug fit against

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62 and fit between side stiffening element 83 and middle part 50. These arrangements of folded protrusions similarly enhance the stability of the assembled box.

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10 longitudinally into a first edge part 102, and centre part 104 and second edge part 106, by means of thick, longitudinally extending fold lines 108, 110. The edge parts 102 and 106 have substantially equal widths, and the
15 centre part 104 has a width approximately twice that of each edge part. The blank 100 is also divided transversely into a series of zones, namely a central, bottom forming zone 112, two similar side forming zones
20 114, 116 one on each side of the central zone 112, and two similar top forming end zones 118, 120. Each transverse division is formed by a narrow fold line 122 extending transversely across edge part 106, an
25 elongated narrow aperture 124 extending transversely across centre part 104 as a straight line continuation of fold line 122, and a narrow fold line 126 extending transversely across edge part 102 as a
30 straight line continuation of aperture 124. Thus the blank 100 is divided into 15 areas; integral with one another, 11 of them being rectangular, and the other 4, namely those occupying the corners of the overall
35 rectangular shape of the blank 100, being cut-away triangularly at their outer corners.

There is also provided a rectangular closure stiffening insert 128, of width slightly less than that of centre part 104 of the blank. The insert 128 is provided with two transversely extending fold lines 130, 132, dividing the insert 128 into three portions corresponding substantially in
40 length of the respective lengths of the two side forming zones 114, 116 and the central zone 112 of the blank 100. Pairs of eyelet holes 134, 136, 138, 140 are provided in the blank 100, at opposed transverse edges thereof, one member of each pair being
50 disposed on each side of the longitudinal fold lines 108 and 110.

In order to assemble the closure, the stiffening insert 128 is placed in the centre of the blank 100 between the fold lines 108, 110, to cover sections 114, 112 and 116 of the blank. Next, both edge parts 102 and 106 are folded inwardly along fold lines 108, 110 respectively, to enfold insert 128 therein. Then the blank 100 containing the
60 insert 128 is folded along the various fold lines 122, 124, 126 as shown in Fig. 7 to form a rectangular sectioned sleeve, the free edges of the folded edge parts 102 and 106 being disposed around the centre of the
65 outer surface of the sleeve.

The top forming end zones 118, 120 are now placed adjacent to one another as a result of this folding, with open "mouths" 142, 144 or free edges presented towards one another. A top reinforcing panel 146
70 with opposed pairs of eyelet holes such as 148, and an uppermost display panel 150 with similar pairs of eyelet holes 152, 154 are provided, and are inserted into mouths 142, 144 of the end zones 118, 120 to
75 complete the sleeve. The folding and assembly as described has brought eyelet holes 138, 140 into registry with eyelet holes 148 on reinforcing panel 146 and 152 on the display panel 150, and the assembly may be
80 secured by insertion of eyelet fasteners therein. Similarly, eyelet holes 134, 136 are in registry with eyelet holes 154.

The assembled closure 156 and carton 10 are shown in Fig. 8. The parts are dimensioned so that the carton 10 is a close smooth sliding fit within the closure 156. It will be appreciated that, by the design of parts and assembly as previously described, the erected carton 10 has smooth side and
90 bottom walls, having no seams therein. Similarly, the erected closure sleeve 156 has smooth inner walls without seams or edges, for co-operation with the smooth side walls of the carton 10. The end zones 118, 120, with their triangularly cut-away corners, define an attractive, diamond shaped aperture through which the display panel 150 is visible. The display panel can thus be
100 provided with an attractive design, trade mark material or descriptive literature concerning the contents. Different display panels containing different display material can be used, depending on the intended contents, whilst a standardized
105 form of box, varying only in size and shape can be used for a range of different goods to be packaged.

WHAT WE CLAIM IS:—

1. A packaging carton having a base and four upstanding side walls integral with the base;

each of said side walls comprising a first, outer layer of sheet material integral with the base, and a second inner layer of sheet material integral with the outer layer; and having a reinforcing sheet disposed between the said inner and outer layers;

The top exterior edges of said side walls comprising folds integrally joining the inner layer and the outer layer thereof;

the cut edges of the inner layer remote from the folds being disposed inside the carton adjacent to the base thereof.

2. A carton according to claim 1 wherein the base carries on its upper, inner surface a base stiffening element of sheet material, the base stiffening element being dimensioned so as to be a snug fit against

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the bottom interior of the side walls of the carton.

5 3. A carton according to claim 2 wherein the base stiffening element has recesses cut-away on its side edges, and the cut edges of the inner layer of the side walls have integral protruding tabs thereon in registry with and received in the recesses in the base stiffening element.

10 4. A carton according to any of the preceding claims wherein a pair of opposed side walls thereof and provided with eyelet holes passing therethrough near the centre of the top edge, and the reinforcing sheet disposed between the inner and outer layers of said side walls is provided with eyelet holes registering with the eyelet holes in said side walls.

15 5. A carton according to any of the preceding claims wherein one opposed pair of side walls thereof is comprised of two outer layers of sheet material integral with the base, the first said outer layer being a simple side flap folded upwardly from the base about a fold line located substantially parallel to the top edge of the side wall, and the second outer layer being formed of two side by side sheet elements integral with respective sheet portions forming the first outer layers of respective ones of the other pair of opposed side walls, and folded with respect thereto about a line substantially perpendicular to the fold line between the first said outer layer and the base.

20 6. In combination with a carton according to any of the preceding claims, a sleeve closure therefor, said sleeve closure being of rectangular vertical cross-section and open ended, the carton being a close, smooth, sliding fit within the sleeve closure.

25 7. The combination of claim 6 wherein the sleeve closure has a base, two upstanding side walls integral with the base, and a top wall, the base and side walls each having a first, outer layer of sheet material and a second, inner layer of sheet material integrally connected together by folds in the sheet material at the outer edges of the sleeve closure, so that both outer edges of the sleeve closure are comprised of folded

edges for substantially their entire periphery.

8. The combination of claim 7 wherein the sleeve closure includes a stiffening element of sheet material, disposed between the first outer layer and the second inner layer of the base and the side walls of the sleeve closure.

9. The combination of claim 7 or claim 8 wherein the top wall of the sleeve closure is comprised of two juxtaposed portions, the first said portion being an integral continuation of a first one of said side walls but folded with respect thereto and comprising a first outer layer of sheet material and a second outer layer of sheet material, and the second said portion similarly being an integral continuation of the second one of said side walls but folded with respect thereto and comprising a first outer layer of sheet material and a second outer layer of sheet material, the first and second portions of said top wall being connected by means of a top reinforcing panel of sheet material extending from between the first outer layer and the second outer layer of the first portion to between the first outer layer and the second outer layer of the second portion.

10. The combination of claim 9, wherein the adjacent edges of the first outer layers of sheet material of the respective first and second portions are cut away to form a display aperture on the top wall of the sleeve closure.

11. A packaging carton according to claim 1, substantially as described herein with reference to the accompanying drawings.

12. A combination packaging carton and sleeve closure therefor according to claim 6, substantially as described herein with reference to the accompanying drawings.

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