

"IMPROVEMENTS RELATING TO HINGED-LID PACKETS"

This invention relates to hinged-lid packets for packaging rod-like objects such, for example, as cigarettes.

Hinged-lid packets for packaging cigarettes have long been known and commonly comprise a deep, rectangular cross-section body and a lid, of width and depth dimensions corresponding to those of the body, hingedly attached to a rear wall of the body. It is usual for such packets to further comprise a neck part which projects upwardly from a front and side walls of the body such as to be received within the lid when the lid is in its closed position. Contact between the neck and the lid serves to maintain the lid in its closed position. Normally, the body and the lid are erected from a single blank. Although proposals have been made to incorporate in such single blank parts which provide a neck, it is more common for the neck to be provided by use of a separate frame member, lower portions of which frame member are disposed within the body of the packet.

In UK Patent Specification No. 588,741 there is described a hinged-lid cigarette packet the rear width dimension of which is less than the front width dimension. The interior of the body of this packet is divided into two compartments by a partition, it being intended that each compartment, when full, should contain

ten cigarettes in two rows of five cigarettes each.

The present invention provides a hinged-lid packet comprising a body and a lid hingedly attached to said body, said body having a front wall, a rear wall and
5 side walls, the included angle between one of said side walls and said rear wall being within a range of 40 to 70 degrees and the included angle between the other of said side walls and said rear wall being not greater than 90 degrees.

10 Preferably, the included angle between the rear wall and the or each side wall should be within a range of 40 to 70 degrees, preferably 55 to 65 degrees. More preferably it is substantially 60 degrees. Suitably,
the included angle between one of the side walls and
15 the rear wall is the same as the included angle between the other side wall and the rear wall.

Conveniently, the hinged-lid of the packet is shaped and dimensioned in correspondence with the shape and dimensions of the body.

20 The dimensions of the packet may with advantage be so selected that, when full, the packet contains three at least, preferably not more than four, rows of cigarettes or other rod-like articles. A full complement of such articles may fully utilise the cross-
25 section of the packet, in which case each row, in a direction from the front to the rear of the packet, contains one more rod-like article than the next

preceding row.

The interior of the body of the packet is most suitably uncompartmentalised.

The packet advantageously comprises a separate frame member providing a neck. Alternatively, a neck may be provided by portions of the blank from which the packet is erected.

The present invention further provides a blank for forming a hinged-lid packet, which blank comprises a trapeziform base panel, a body front panel and a body rear panel extending respectively from the shorter and the longer of the parallel sides of said base panel, and body side-wall panels extending from opposite sides of each of said front and rear panels, the side-wall panels extending from the front-wall panel being wider than the side-wall panels extending from the rear-wall panel and the blank nowhere exceeding in width the combined width of the front wall panel plus the side-wall panels extending therefrom. The word "trapeziform" as used herein refers to a quadrilateral of which two sides are parallel and of unequal length.

The blank may further comprise portions extending from the end of the body rear panel further from the base panel, which portions are intended to form a lid.

Advantageously, the outer side edges of the side-wall panels extending from the body front-wall panel lie on lines common with the outer side edges of the

side-wall panels extending from the body rear-wall panel. In such case the former side wall panels will be twice as wide as the latter side wall panels if in the erected packet the included angle between the body rear wall and the body side walls is to be a nominal 60 degrees.

In order that the invention may be clearly understood and readily carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings, in which:-

Figure 1 shows a front elevation of a hinged-lid cigarette packet;

Figure 2 shows a side elevation of the packet of Figure 1, looking in the direction of arrow A;

Figure 3 shows a sectional view of the packet of Figure 1, on line III-III of Figure 1;

Figure 4 shows a view similar to that of Figure 1, but with the lid of the packet being in an open position;

Figure 5 shows a blank for forming the packet of Figures 1 to 4;

Figure 6 shows a cross-sectional view of the body of a hinged-lid cigarette packet, which packet comprises a frame member of modified form;

Figure 7 shows a side elevation of upper parts of the packet of Figure 6 with the lid in an open position;

Figure 8 shows a cross-sectional view of the body of a hinged-lid cigarette packet, which packet comprises

a frame member of another modified form;

Figure 9 shows a front elevation of upper parts of a modified form of a hinged-lid cigarette packet, the packet being shown with the lid in an open position;

5 Figure 10 shows a side elevation of upper parts of the packet of Figure 9 with the lid closed; and

Figure 11 shows a cross-sectional view of the body of a hinged-lid cigarette packet of a further modified form.

10 The hinged-lid cigarette packet shown in Figures 1 to 4 comprises a deep body, generally designated by reference numeral 1, and a lid, generally designated by reference numeral 2, hingedly attached to the body 1 at a hinge line 3 at the rear of the body 1.

15 The blank of Figure 5, from which the packet of Figures 1 to 4 is erected, is cut from cartonboard. The blank comprises a trapeziform base panel 4, a rectangular body front wall panel 5 extending from the shorter parallel side, designated 6, of the base panel 4, and a
20 rectangular body rear-wall panel 7 extending from the longer parallel side, designated 8, of the base panel 4. Extending from respective longer sides of the body front-wall panel 5 are body outer side-wall panels 9 and 10, and extending from respective longer sides of the body
25 rear-wall panel 7 are body inner side-wall panels 11 and 12.

Tabs 13 and 14 extend from the respective sloping

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-6-

sides of the base panel 4 and are separated from the side wall panels 9, 10 by lines of cut 15 and 16.

The parts of the blank provided for forming the lid of the packet comprise a rectangular rear-wall panel 17, extending from the hinge line 3 at the upper edge of the body rear panel 7, a lid top panel 18, which is the same trapeziform shape as the body base panel 4 and which extends from the edge of panel 17 further from the crease line 3, and a rectangular front-wall panel 19. To respective side edges of the front-wall panel 19 are attached outer side wall panels 20 and 21. Tabs 22 and 23 extend from the respective lower edges (as viewing Figure 5) of the panels 20, 21 and are separated from the lid top panel 18 by lines of cut 24 and 25. To respective side edges of the rear-wall panel 17 are attached inner side-wall panels 26 and 27, these being separated from the body inner side-wall panels 11, 12 by sloping lines of cut 28 and 29.

A front-wall reinforcing panel 30 extends from the edge of the panel 19 further from the panel 18.

The widths of the panels 9, 10, 20 and 21 are double the widths of the panels 11, 12, 26 and 27, this being a requisite relationship for the side walls to extend at a nominal 60 degrees to the rear wall in the erected packet.

In Figure 5, broken lines, excepting line 3, are crease lines about which the panels and tabs of the

blank are folded in the erection of the packet shown in Figures 1 to 4. In the erected packet the tabs 13, 14 extend upwardly from the base panel 4 and are disposed inwardly of, and if required adhered to, the body inner side-wall panels 11, 12. The tabs 22, 23 lie against, and are if required adhered to, the inner face of the lid top-wall panel 18. The reinforcing panel 30 is folded over to lie in face-to-face contact with the inner face of the lid front-wall panel 19 and is adhered thereto.

The hinged-lid cigarette packet of Figures 1 to 4 also comprises a neck 31 which is provided by upper portions of a separate frame member 32. As may be seen from Figure 4, the neck 31 projects upwardly from the body front and body side-walls.

It may be seen from Figure 3 that the packet may hold twenty-one cigarettes of circular cross-section, these being disposed in three rows of six, seven and eight cigarettes respectively.

In Figure 4 the lid of the packet has been opened to such extent that panel 17 extends perpendicularly to panel 18.

The amount of cartonboard or other material which it is necessary to use in providing a blank for forming the cigarette packet of the above referred to Specification No. 588,741 is governed by the maximum width of the blank. The maximum width of the blank is the width

of the body front-wall panel (which is wider than the body rear-wall panel) plus the combined widths of the body outer side-wall panels attached to the body front-wall panel. It would not be possible, in order to
5 obtain a saving in cartonboard usage, to reduce the maximum width of the blank to that of the body rear-wall panel plus the combined widths of the body inner side-wall panels attached to the body rear-wall panel, since this would entail a reduction in the width of each of
10 the body outer side-wall panels (and of the lid outer side-wall panels). This would have the result that in the erected packet the outer side-wall panels would extend for significantly less than the side walls of the packet. Such a packet would be unsightly and
15 would be commercially unacceptable.

The maximum width of the blank of Figure 5 is, in distinction from that required for the packet of Specification No. 588,741, the width of the narrower of the body front- and rear-wall panels, i.e. that
20 of the front-wall panel 5, plus the combined widths of the side-wall panels attached thereto, namely the outer side-wall panels 9 and 10. It may be noted that the outer side-wall panels are of the full width of the body side walls (see Figure 3).

25 It is estimated that the blank for the packet of Specification No. 588,741, which packet holds twenty cigarettes disposed in two rows, would have a width of

about 130 mm. The width of the Figure 5 blank described above, and providing a packet holding twenty-one cigarettes disposed in three rows, is only 92 mm. Thus by use of the Figure 5 blank according to the present invention a saving of about 29% in cartonboard usage may be realised.

If there was to be constructed a hinged-lid cigarette packet corresponding to that of Figures 1 to 4, i.e. a packet to hold three rows of six, seven and eight cigarettes respectively, but differing in that the front wall was wider than the rear wall, as is the case with the packet of Specification No. 588,741, the maximum width of the blank would require to be about 115 mm. Thus by comparison with such a packet, the packet of Figures 1 to 4 requires about 20% less cartonboard usage.

An orthodox hinged-lid packet of rectangular cross-section and capable of holding twenty cigarettes is formed from a blank which is 99.5 mm wide. Thus by use of the packet of Figures 1 to 4 formed from the blank of Figure 5, rather than the orthodox packet, there can be obtained a cartonboard saving of 7.5%. On a cartonboard area per cigarette basis the saving is 12%.

In Figure 6 there is shown a cross-sectional view of the body of a packet similar to the packet depicted in Figures 1 to 4 but comprising a frame member of modified form. Figure 7 shows upper portions of the packet of Figure 6 with the lid thereof in an open

position. As is indicated in Figure 7, the frame member 33 projects upwardly from the body of the packet to provide a neck 34. The frame 33, or at least the parts thereof which form those portions of the neck 34 which project upwardly from the side walls of the body, extends to the rear wall of the packet and comprises portions 35 and 36 which extend inwardly parallel with the rear wall. Because the frame 34 is thus extended by the portions 35, 36 and because the side parts of the neck 34 extend to substantially the same height as cigarettes when contained in the packet, the outermost cigarettes of the rear and widest row of cigarettes are protected by the neck 34 from contact with the side walls of the lid when the latter is moved between its open and closed positions.

An alternative expedient for avoiding the just mentioned contact between the lid and the cigarettes is illustrated in Figure 8. Reference to that figure will indicate that the hinged-lid cigarette packet, of which the figure depicts a cross-section of the body, comprises a frame member 37 of another modified form. The frame member 37 consists of a front wall part 38, first side-wall parts 39 and 40 which extend from the front wall part 38 parallel with the diverging side walls of the body, and second side-wall parts 41 and 42 which extend substantially perpendicularly to the body rear wall from the first side-wall parts 39, 40 respectively. The

frame member 37 further comprises rear-wall parts 43 and 44 which extend outwardly parallel with the body rear wall from the rearward edges of the second side-wall parts 41, 42 respectively. The frame member 37 serves
5 to provide a containment for twenty cigarettes arranged in rearward and intermediate rows of seven and a forward row of six cigarettes.

A further expedient for avoiding cigarette/lid contact resides in adopting a hinged-lid packet construction similar to that of the packet of Figures 1 to 4
10 excepting that the hinge line of the lid is at, or close to, the uppermost rear edge of the packet. In other words, the lid differs from that of the packet of Figures 1 to 4 in lacking a rear wall, or comprising a rear wall
15 of only very small depth. Upper portions of a hinged-lid packet exemplifying such modified construction are shown in Figures 9 and 10, in which the hinge line of the lid is designated 45.

In the case of a hinged-lid cigarette packet
20 comprising a lid hinge line disposed a significant distance below the top of the packet, the path swept by the lid when it is moved between its closed and open positions is interrupted by upper portions of the front wall of the neck. Because of this, the neck
25 serves to provide a restraint on movement of the lid from the closed, or near closed, position. Such restraint is useful in preventing undue gaping of the lid

or unintentional opening thereof. When, however, the hinge line is at or near to the top of the packet, the path of the lid is clear of the neck. Thus if a closure-maintaining restraint is to be imposed on the lid, the

5 packet must be provided with appropriate elements on the neck or the lid which co-operate with the other of the neck and lid when the lid is at, or near to, its closed position. A suitable restraint means is incorporated in the packet of Figures 9 and 10 and comprises locking

10 elements which take the form of ears 46 and 47 projecting one to each side of front neck wall 48 at upper locations of the wall 48. The sides of the lid, which sides are designated by reference numerals 49 and 50, comprise inner and outer side-wall panels. One of

15 these outer side-wall panels, designated 51, is shown in Figure 10. The broken line in Figure 10 indicates the forward edge of the inner side-wall panel, designated 52, associated with the outer side-wall panel 51. The inner and outer side-wall panels of the side 50 are of

20 corresponding form to panels 52 and 51. As the lid is closed, the ears 46, 47 are first received against the forward portions of the outer side-wall panels which are not overlain by the respective associated inner side-wall panels, and then slide between the inner and outer side-

25 wall panels. Thus each of the ears 46, 47 is held between a forward edge of an inner side-wall panel and the inner surface of the lid front wall, which latter is designated

53.

An alternative form of lid restraint means (not shown) comprises a downwardly and outwardly projecting flap at the lowermost part of the cut-out of the neck front wall. When the lid is in its closed position, the flap interlocks with the reinforcing panel of the lid front wall.

Figure 11 shows a cross-sectional view of the body of a hinged-lid cigarette packet of which the side walls are formed with first portions 54 and 55 which diverge outwardly from the front wall, designated 56, and second portions 57 and 58 which extend perpendicularly to the rear wall, designated 59. The packet of Figure 11 is designed to hold twenty-one cigarettes arranged, as per the packet of Figures 1 to 4, in three rows of six, seven and eight cigarettes, but the cartonboard usage is even less than that required for the latter packet.

If the second side-wall portions 57, 58 were of sufficiently increased width, there could be provided a cross-section corresponding to that bounded by the frame member 37 of Figure 8, which would then contain twenty cigarettes in 6, 7, 7 formation.

Although most of the above described hinged-lid cigarette packets are designed to contain twenty-one cigarettes, other packets may be provided in accordance with the invention which are suitable for containing other complements of cigarettes arranged in three, four

or even more rows. Thus, for example, a packet may contain rows of seven, eight and nine cigarettes, that is twenty-four cigarettes in total. The cartonboard usage for such twenty-four cigarettes packet is about the same as that required for an orthodox twenty cigarettes packet. Other examples of cigarette complements are:-

$$\begin{array}{rcl} & 4 - 3 - 2 - 1 & = 10 \\ & 5 - 6 - 7 & = 18 \\ 10 & 3 - 4 - 5 - 6 & = 18 \\ & 9 - 10 - 11 & = 30 \end{array}$$

One or two cigarettes may be omitted from such formations so long as this does not effect a change in the relative dispositions of the remaining cigarettes. Such omission could, for example, result in packets of 29, 28, 23, 22 or 19 cigarettes. If two cigarettes are omitted from a packet having a lid hinge line below the top of the packet, they are suitably the outermost cigarettes of the rear and widest row, as this will facilitate the free opening and closing of the lid.

Other rod-like articles, cigars for example, could be packaged in packets formed in accordance with the present invention. Furthermore, such packets can be used for the packaging of cigarettes, cigars or other rod-like articles of other than circular cross-section. Thus, for example, rod-like articles of lenticular, elliptical or triangular cross-section may be so packaged.



C L A I M S

1. A hinged-lid packet comprising a body and a lid hingedly attached to said body, said body having a front wall, a rear wall and side walls, the included angle between one of said side walls and said rear wall
5 being within a range of 40 to 70 degrees and the included angle between the other of said side walls and said rear wall being not greater than 90 degrees.
2. A packet as claimed in Claim 1, in which the included angle between said other of said side walls
10 and said rear wall is within a range of 40 to 70 degrees.
3. A packet as claimed in Claim 2, in which the included angle between said one of said side walls and said rear wall is the same as the included angle between said other of said side walls and said rear wall.
- 15 4. A packet as claimed in Claim 3, in which the included angle between each of said side walls and said rear wall is substantially 60 degrees.
5. A packet as claimed in any one of the preceding claims, in which each of said side walls extends to said
20 rear wall.
6. A packet as claimed in any one of the preceding claims, in which said lid is attached to said body at a hinge line disposed at the upper end of the packet.
7. A packet as claimed in any one of the preceding
25 claims, and further comprising neck means projecting



-16-

upwardly from said front wall and said side walls.

8. A blank for forming a hinged-lid packet, the blank comprising a trapeziform base panel, a body front panel and a body rear panel extending respectively from the shorter and the longer of the parallel sides of said base panel, and body side-wall panels extending from opposite sides of each of said front and rear panels, the side-wall panels extending from the front-wall panel being wider than the side-wall panels extending from the rear-wall panel and the blank nowhere exceeding in width the combined width of the front wall panel plus the side-wall panels extending therefrom, and portions extending from the end of said body rear panel further from said base panel, which portions are for forming a lid.

9. A blank as claimed in Claim 8, in which the outer side edges of said side-wall panels extending from said body front-wall panel lie on lines common with the outer side edges of said side-wall panels extending from said body rear-wall panel.

10. A hinged-lid packet substantially as hereinbefore described with reference to Figures 1 to 5; Figures 6 and 7; Figure 8; Figures 9 and 10; or Figure 11 of the drawings hereof.

11. A blank for forming a hinged-lid packet substantially as hereinbefore described with reference to Figure 5 of

(2)



-17-

the drawings hereof.

12. A hinged-lid packet as claimed in any one of Claims 1 to 7 or Claim 10 and containing a plurality of rows of rod-like objects, each of said rows, from the front to the rear of said packet comprising one more of said objects than the next preceding row.

13. A packet as claimed in Claim 12, in which the number of said rows is three.
