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W. A. RINGLER

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CARTON INCLUDING POURING MEANS

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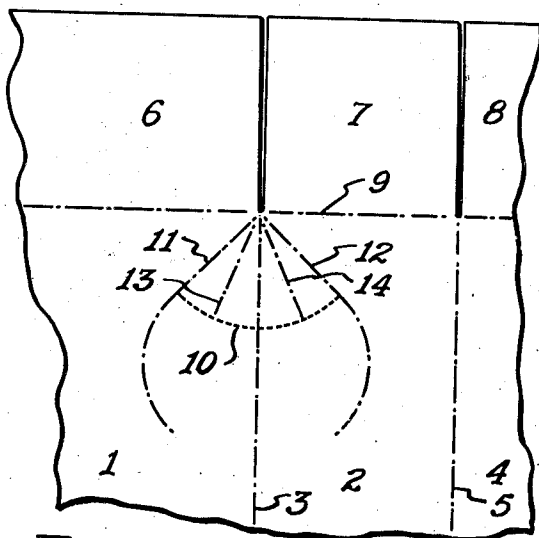


FIG. 1.

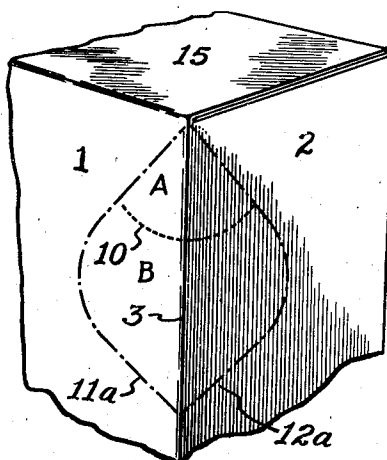


FIG. 2.

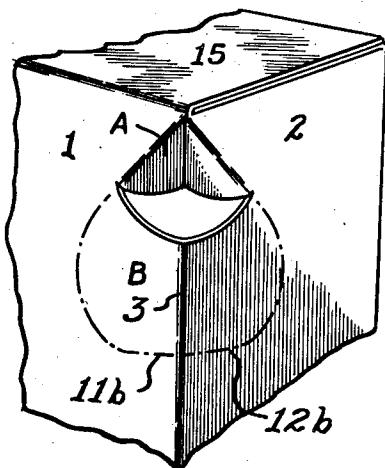


FIG. 3.

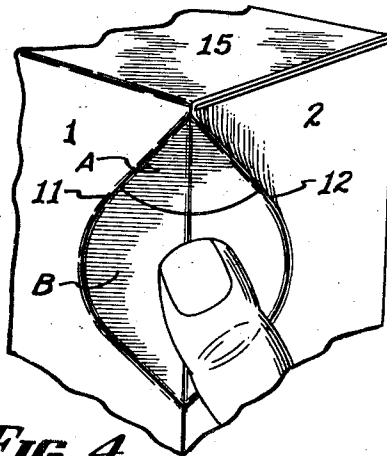


FIG. 4.

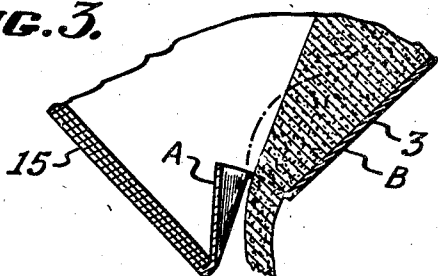


FIG. 5.

INVENTOR.
WILLIAM A. RINGLER.
BY *Allen & Allen*
ATTORNEYS.

UNITED STATES PATENT OFFICE

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CARTON, INCLUDING POURING MEANS

William A. Ringler, Wayne, Pa., assignor to The
Gardner-Richardson Company, Middletown,
Ohio, a corporation of Ohio

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11 Claims. (Cl. 229-17)

The principal object of my invention is the provision of a carton having a closable pouring means characterized by a new simplicity and utility. The need for pouring means in cartons containing powdered, granular or flaky materials has long been recognized, and a large number of pouring spout constructions have been suggested. These, however, have been of complicated construction and for the most part have involved the use of extra parts or spouts, sometimes parts are added to the wall portions normally found in cartons, and at other times complicated elements died out from certain closure flaps and insertable through registering or carefully located openings in other flaps or body portions are employed. Again, many of such structures have required an initial setting up operation on the part of the ultimate consumer of the goods contained in the cartons. Such operations are not generally desirable, and where they are of complicated character, the ultimate user will often neglect to perform them and will prefer the simple operation of opening the carton with a knife. In such an event the advantages of reclosure are lost, and where reclosure is advisable for the proper preservation of the contents of the carton, the product itself may suffer.

It is an object of my invention to provide a pouring means which involves no extra parts of any kind but which is formed solely from necessary wall portions of the carton. It is an object of my invention to provide a pouring means which does not add to the cost of the carton. It is an object of my invention to provide a pouring means which requires no initial setting up operation and which is so simple to use at the outset that the ultimate consumer of the goods will find it easier to use the pouring means than to open the carton by means of a knife or by tearing. It is an object of my invention to provide a pouring means which requires no appreciable change in the outward appearance of the carton. It is an object of my invention to provide a pouring means which is positive in its action, both in opening and in closing. It is an object of my invention to provide a pouring means in which the operations both of opening and of closing are simple pressure operations.

These and other objects of my invention which will be set forth hereinafter or will be apparent to one skilled in the art upon reading these specifications, I accomplish by that certain construction and arrangement of parts of which I shall now describe an exemplary embodiment.

Reference is made to the drawing, wherein:

Figure 1 is a partial plan view of a carton blank prepared to embody my invention.

Figure 2 is a partial perspective view of a filled and closed carton which embodies my invention.

Figure 3 is a similar view of the same carton showing the pouring means open.

Figure 4 is a similar view of the same carton showing an operation incident to the closing of the pouring opening.

Fig. 5 is a partial sectional view taken diagonally through a carton and showing the operation of pouring when the opening has been effected.

My invention is applicable to any carton with a pair of walls meeting at a substantial angle. I shall describe it in connection with a carton of the usual rectangular, knocked-down variety, it being understood that this is not a limitation upon my invention.

Briefly, in the practice of my invention, I do not employ an added or movable spout member to direct the flow of contents from the carton, but rather employ the angular meeting relationship of a pair of walls to direct the flow, providing a closable opening in connection therewith so that the contents may escape. I have found that by scoring the meeting walls in certain ways and providing a limited line of weakening, I can arrive at a structure in which the aforesaid opening may be effected by a simple inward pressure on an edge of the carton. The pouring means is preferably located adjacent a corner of the carton. When the opening is effected, the contents of the carton may be poured out in a readily directed stream. I have further found that I may so configure the score lines that a simple inward pressure on the wall portions adjacent the opening will cause the previously inwardly depressed carton portion to spring outwardly, thus effecting reclosure, all as will be more fully explained hereinafter.

In Fig. 1, I have shown a portion of a carton blank of ordinary construction. Here, a side wall of the carton 1 is separated from an end wall 2 by a score line 3. Another side wall 4 is shown separated from the end wall 2 by a score line 5. The side and end walls have been shown provided with end closure flaps 6, 7 and 8 separated from each other and articulated to the respective carton walls by a common score line 9. Such a carton will be formed into tubular knocked-down condition as is usual in the art and shipped to the manufacturer of the goods which the carton is to contain. The manufacturer of the goods will fill and close the carton on the usual machinery for that purpose; and it is an advan-

tage of my invention that the cartons embodying it may be handled, filled and closed in the usual ways and without any change or modification of the usual machinery.

Indeed, the only change or addition to the common carton blank which my invention contemplates, is the provision of a line of weakening and certain score lines. One form of these is illustrated in Fig. 1, where 10 is a line of weakening of limited extent formed in two adjacent carton walls (the walls 1 and 2 as illustrated), at a position somewhat interspaced from a corner of the carton. The line of weakening 10 may be formed by perforating the blank body or by slitting it with minute interspaced slits or otherwise as may be desired. This line cuts across the score line 3. From a point more nearly adjacent the corner of the carton, a pair of score lines 11 and 12 start at the same or nearly the same point and diverge outwardly in the respective carton walls to meet the ends of the line of weakening 10. The score lines 11 and 12 extend beyond the ends of the line of weakening 10 so as to define a portion of the carton walls which is to be depressed for effecting reclosure in a way hereafter explained. The shape of the score lines 11 and 12, beyond the ends of the line of weakening 10, may be considerably varied; but I have found it preferable to carry them outwardly further away from the score line 3 before they begin to converge. It is not necessary that they meet again at the score line 3. They may be stopped substantially as shown in Fig. 1 or they may converge until they meet the score line 3 at an acute angle as shown at 11a and 12a in Fig. 2. Again, if desired, they may be caused to approach the score line 3 at more nearly a right angle or even at greater than a right angle as shown at 11b and 12b in Fig. 3. Also I may, if desired, place a pair of score lines 13 and 14 respectively intermediate the score lines 11 and 12 and angularly related thereto as shown in Fig. 1.

The arrangement of score lines and the line of weakening 10 which I have just described divides a portion of two meeting walls of the carton into areas which I have broadly designated as A and B in the various figures. These areas lie partly in wall 1 and partly in wall 2 as shown. The top of the carton, as formed by the folding over and sealing of the closure flaps, is indicated in Figs. 2 to 5 at 15. The carton, as has been indicated, is erected, closed on one end, filled, and closed on the other in the usual way. For opening the carton, the area A may be merely pressed inwardly by the thumb of the user. The line of weakening 10 is usually of such character that such inward pressure especially if exerted near the line of weakening, will cause the board to sever along that line. In depressing the area A, the walls 1 and 2 of the carton are flexed slightly outwardly; and as the portion A is further depressed it passes beyond dead center and the resiliency of the walls retains the portion A in depressed position as shown in Fig. 3. Now the contents of the carton may be readily removed by pouring to whatever extent desired as illustrated in Fig. 5. Moreover, if the walls 1 and 2 can be flexed outwardly again to relieve the dead center effect which keeps the portion A flexed inwardly, the natural resiliency of the board will cause the portion A to spring outward again and resume its initial position which is shown in Fig. 2. This outward flexing of the walls 1 and 2 of the carton may be accomplished by simple inward pressure of the thumb on the portion B of the

carton. But it is essential that the portion B when so depressed should not pass beyond dead center. If it did so, and remained extending inwardly of the carton, it is obvious that the carton would not be reclosed. I have found that if the score lines 11 and 12 after they pass the ends of the line of weakening 10 diverge further from the score line 3 before recurving to approach it, the dead center effect so far as the portion B is concerned is destroyed. I believe this to be due to the fact that in flexing the portion B upon the prolongation of the score lines 11 and 12, the configuration of these score lines causes the portion B to be flexed slightly arcuately. The portion B cannot pass dead center because it is limited by the upward curve where the perforated line 10 meets the score lines 11, 12. Only if the line 10 tears past the score lines 11, 12, can the portion B pass dead center. Thus, in the structures shown in my drawing, the portion B may be depressed so as to cause the portion A to spring outwardly; but the portion B will not remain in depressed position, and the carton returns to that original relationship of parts illustrated in Fig. 2.

The score lines 11 and 12, after diverging from the score line 3 should, I have found, recurve inwardly. If this is not done, the act of depressing the portion B of the carton may cause the board to bend on uneven lines, or lines extending generally in the direction of the score line 3. Such bending not only impairs the operation of the pouring means as I have described it, but also tends to impair the squareness of the carton. While, as I have explained, the lines 11 and 12 do not need to be prolonged until they meet the score line 3, a somewhat more positive action may be produced by so prolonging them. In any event, they should approach the score line 3 closely enough so that when the portion B is depressed it will bend inwardly along lines which do converge upon the score line 3 at not too great a distance from the line of weakening 10. This gives a sort of fulcrum upon which the portion B may be bent inwardly and enforces the spreading of the walls 1 and 2 to the extent of permitting the portion A to spring outwardly again when the dead center effect is overcome.

The score lines 13 and 14 are score lines which may be provided in the portion A for the purpose of making it somewhat easier to depress inwardly. They are of value primarily in the heavy boards, although they may be provided in cartons made of any weight of board if so desired, since I have found that the resilience of the board in normal use is always such as to cause the portion A to spring outwardly when the dead center pressure is relieved. They also may be omitted where desired.

Thus, it will be seen that I have provided a pouring means which does not change in any appreciable degree the outward appearance of the carton. It does not change any of the normal functionings of the carton. It has been found not to weaken the carton for stacking purposes and the like. It is not likely to be opened accidentally. It does not add to the cost of the carton in any significant degree since it involves only the addition of certain scoring and weakening means to the die used in forming the carton blank. It involves no structural elements which must be added to the carton blank itself. It is extremely simple and easy to operate, requiring no setting up, and actually rendering more simple rather than more complicated the initial opening

of the carton. Needless to say, the carton itself may bear such instructions as may be necessary to apprise the user of the manner of use of my pouring means.

Modifications may be made in my invention without departing from the spirit of it. Having thus described my invention what I claim as new and desire to secure by Letters of Patent is:

1. A carton having a pair of angularly related outer walls articulated together along a line, a line for severance common to the two walls and extending across said line of articulation, there being in each wall a score line at the end of said line for severance and at an angle thereto, said score line on each side of the line for severance approaching said line of articulation, and defining two portions each of which is common to the two walls, one of said portions being depressible inwardly of the carton to a position at which its inward extension is maintained by a dead center effect, so as to produce an opening in the carton, and the other of said portions being depressible inwardly to the extent of relieving said dead center effect to permit the first mentioned portion to return to carton closing position.

2. The structure claimed in claim 1 wherein said line for severance is a line of weakening in the carton walls.

3. The structure claimed in claim 1 including means to prevent the occurrence of a dead center effect respecting the second mentioned portion when it is depressed.

4. The structure claimed in claim 1 including means to prevent the occurrence of a dead center effect respecting the second mentioned portion when it is depressed, said means comprising a configuration of the said score lines such as to produce a transverse flexing of the board in the second mentioned portion.

5. The structure claimed in claim 1 including means to prevent the occurrence of a dead center effect respecting the second mentioned portion when it is depressed, said means comprising a configuration of the said score lines such that a transverse flexing of the board in the second mentioned portion prevents the occurrence of a dead center effect, and in which said first and second mentioned portions are initially demarked from each other by a line of weakening in the carton walls.

6. In a carton, a pair of adjacent walls articulated together by a score line, a line of weakening crossing said score line and common to the two walls, separate score lines in said two walls beginning substantially at said first mentioned score line at a point interspaced from said line of weakening and diverging to meet the ends of said line of weakening, extending therebeyond, thereafter and recurving to approach said first

mentioned score line on the opposite side of said line of weakening.

7. The structure claimed in claim 6 wherein said second mentioned score lines after meeting the ends of said line of weakening diverge further from said first mentioned score line before recurving to approach it.

8. The structure claimed in claim 6 wherein said second mentioned score lines after meeting the ends of said line of weakening diverge further from said first mentioned score line before recurving to approach it, and in which said last mentioned score lines approach said first mentioned score line to an extent to meet it at a point interspaced from said line of weakening and on the opposite side thereof from said first mentioned point.

9. The structure claimed in claim 6 wherein said second mentioned score lines after meeting the ends of said line of weakening diverge further from said first mentioned score line before recurving to approach it, and in which said last mentioned score lines approach said first mentioned score line to an extent to meet it at a point interspaced from said line of weakening and on the opposite side thereof from said first mentioned point, and in which said last mentioned score lines meet said first mentioned score line at an angle not substantially less than an angle of 45° at said second mentioned point.

10. The structure claimed in claim 6 wherein said second mentioned score lines after meeting the ends of said line of weakening diverge further from said first mentioned score line before recurving to approach it, in which said last mentioned score lines approach said first mentioned score line to an extent to meet it at a point interspaced from said line of weakening and on the opposite side thereof from said first mentioned point, in which said last mentioned score lines meet said first mentioned score line at an angle not substantially less than an angle of 45° at said second mentioned point, and in which a pair of angularly related score lines extend from said first mentioned point to said line of weakening and lie between said second mentioned score lines and said first mentioned score line respectively.

11. In a structure of the character described, a pair of walls articulated to each other by a line of score, said walls having a common line for severance, a pair of score lines starting at a point on said first mentioned score line interspaced from said line for severance and diverging to meet the ends of said line for severance in the respective walls, and score lines extending from the ends of said line for severance and approaching said first mentioned score line on the opposite side of said line for severance.

WILLIAM A. RINGLER.