

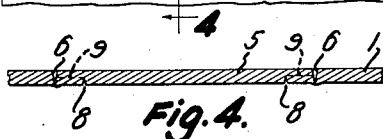
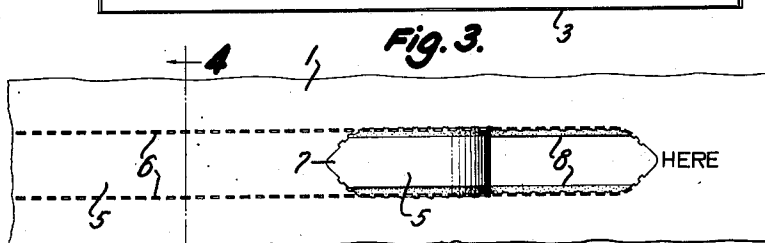
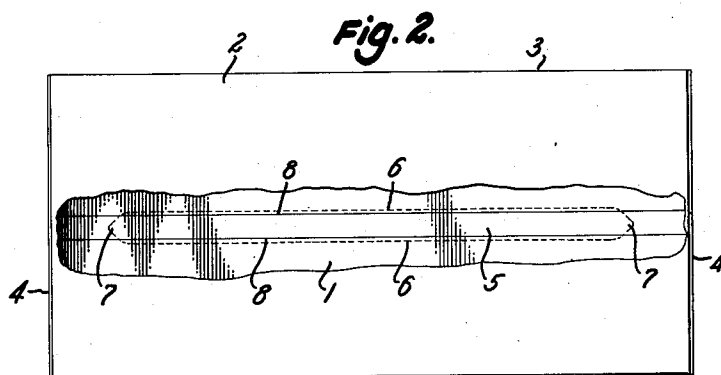
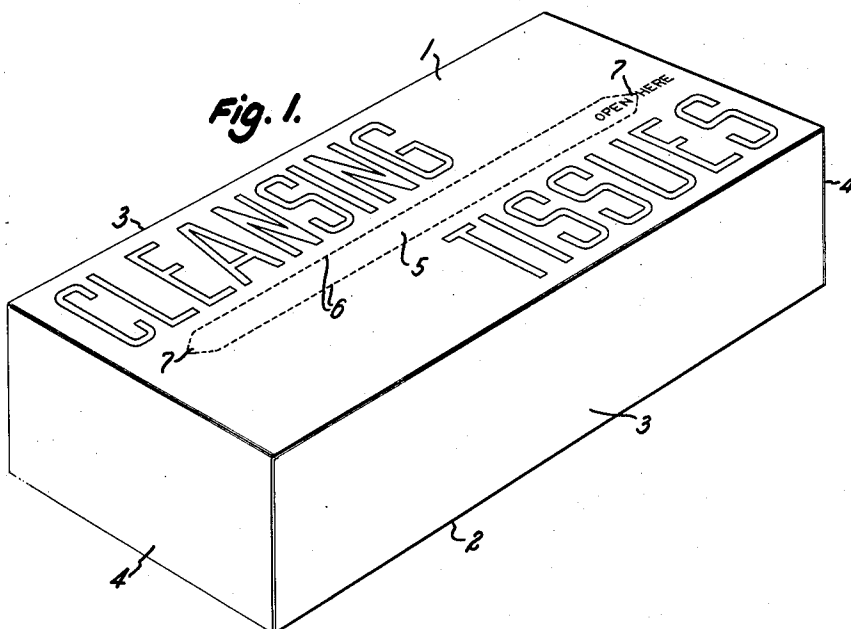
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FRANGIBLE MEANS FOR DISPENSING CARTONS

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FRANGIBLE MEANS FOR DISPENSING
CARTONS

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1 Claim. (Cl. 229—51)

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This invention relates to means for properly determining and defining a tear path in paperboard material, and it has special reference to the provision of frangible dispensing opening forming means for paperboard merchandise packaging cartons or containers.

Tear paths for such cartons as now customarily formed are defined by rows of appropriately spaced perforations in the paperboard material which, due to the mode of their formation, may generally be considered as substantially sealed at their extremities inwardly of the carton to effectively prevent entrance through them of foreign matter to the interior of the carton and contamination of the contents, whereas their extremities outwardly of the carton present a well defined series of cuts which will make possible the ripping, tearing or the like separation from the carton wall of a portion or strip thereof to provide the desired dispensing opening through which access may be had to the carton contents.

It has been found in practice that tear paths thus formed do not always function to permit removal or separation of the opening forming portion or strip from the carton wall with the facility which is desired, or with such clean and even separation as is intended. At times the tear will depart from the path and extend into the adjacent portions of the carton wall, and sometimes into the portion or strip to be separated or removed therefrom. In either case the formation of the dispensing opening is unsatisfactory, and at times unsightly bordering portions are produced, or the portion or strip being separated or removed is torn apart or so fractured as to make impossible its removal or separation from the carton wall in a single tearing operation.

Such unsatisfactory functioning may be attributed to various causes, including the direction of extent or lay of the grain of the paperboard material, the nature of its composition, particularly as to type and length of fibres, its thickness, and the like, and various expedients have heretofore been proposed for solving the problem thus presented, but without success.

The object of the present invention is to provide means for so defining and forming a tear path in paperboard material that the unsatisfactory results and failures in operation hereinbefore referred to will be obviated.

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To this end the invention, broadly considered, comprises the formation in the paperboard material, adjacent to and bordering and substantially coextensive with a path-defining series or row of perforations, of a cut-score preferably impressed or cut only partially through the thickness of the paperboard material from the under surface thereof, that is to say the surface concealed within a carton formed from the paperboard material, this cut-score providing a means whereby, when the material is torn or ripped upon and following the tear path it will be caused to separate intermediate its thickness, and the portions intermediate the perforations will be materially weakened and thus more easily fractured, resulting in a clean efficient and satisfactory removal or separation of the dispensing opening forming strip or portion, all as will be explained hereinafter more fully and finally claimed.

In the accompanying drawing illustrating the invention, in the several figures of which like parts are similarly designated.

Figure 1 is a perspective view of a well-known type of paperboard carton having means in its top wall for providing a tear path to form a dispensing opening in accordance with the invention.

Fig. 2 is a bottom plan view of a carton as shown in Fig. 1, with a portion of the bottom wall broken away to show the under or inner surface of the top wall of the carton with the said tear path.

Fig. 3 is an enlarged fragmentary plan view of the outer surface of the top wall of the carton, illustrating in greater detail the means for forming the tear path and showing one end of the dispensing opening forming strip ripped or torn upwardly from the wall, and

Fig. 4 is a further enlarged view taken upon the line 4—4 of Fig. 3 and showing a section of the paperboard material with the tear path forming perforations and cutscores therein.

Although, obviously, the tear path forming means of the invention may be adapted to uses other than that of providing dispensing opening forming means in paperboard cartons, its description is facilitated by reference to such an adaptation, as illustrated in the drawing, wherein the carton is made from a conventional flat blank of paperboard material cut and scored to be formed into a tubular body having a top wall 1, a bottom wall 2, side walls 3 and end walls 4,

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the latter comprising glue tabs and flaps appropriately folded upon each other and secured by suitable adhesive.

As indicated in Fig. 1, this type of carton has become familiar as a merchandizing and dispensing container for cleansing tissues, and its construction is such that it is effectively sealed against entrance of extraneous matter which might contaminate the contents.

The tear path for providing a removable strip 5 to form a dispensing opening in the top wall 1 of the carton is formed, in accordance with the invention, by two rows or series of perforations 6 converging terminally in tabs 7 under either one of which, though only one is indicated by the legend "Open Here," the user may insert a finger nail, or thin implement, to raise the tab for grasping and lifting upward to tear or rip the strip 5 from the carton wall, and by cut-scores 8 impressed or cut only partially, preferably less than half-way, through the thickness of the paperboard material from the under or inner face of the wall, bordering the rows of perforations 6 and spaced slightly therefrom (Figs. 2-4).

Although, as shown in the drawing, the tear path forming means are so disposed in the carton wall as to form the borders of a removable portion of straight strip form, it will be understood that these means may be otherwise disposed and that the removable portion may be variously shaped in accordance with the desires of the manufacturer or to accommodate the nature of the article to be dispensed. Hence, when reference is made to a series or row of perforations and a complemental or bordering cut score, the same are not necessarily to be understood as of straight line form.

The nature of the perforations which, though fully piercing the wall, have their inner extremities somewhat converging and burred forms an effective seal against entrance into the carton of matter injurious to its contents, and the cut-scores 8, though intentionally weakening the tear path, still leave contiguous portions of the wall intact.

Various expedients may be resorted to for providing the cut-scores 8, but it has been found that they may be produced expeditiously and satisfactorily while the carton blanks are being fed, in inverted condition, through the gluing machine which assembles their parts to tube form, thus obviating any separate handling for the cut-scoring operation. Moreover, the cut-scoring operation may be performed with great accuracy and facility by the tool disclosed in applicant's copending application for patent for Scoring Tool Means, filed May 20, 1949, Serial No. 94,416 now abandoned.

When, as hereinbefore explained, the removable strip 5 is pulled upward by grasping the end tab 7 it may be ripped from the wall 1 within the longitudinal zones, and along the path defined by the two pairs of rows of perforations 6 with their adjacent bordering cut-scores 8, as shown in Fig. 3. The rupture of the wall portions intermediate the individual perforations is greatly facilitated by the weakening of such wall portions afforded by the cut-scores 8 which cause the paperboard material to part in parallel rupturable paths between the respective pairs of perforations and cut-scores and intermediate its thickness (Fig. 3) in planes indicated approximately by the broken lines 9 in Fig. 4. Thus, breaking of the strip 5 intermediate its length

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during removal, and/or fracture of wall portions contiguous to the tear path, both of which faults have been present in constructions heretofore employed, are avoided.

As previously mentioned, various means have been suggested for producing tear paths and knock-out, or lift-flap, dispensing openings in cartons and container closures. Among these means are applied rip strips or cords, non-mating but adjacent cut scores impressed or cut from opposite faces of the wall forming material, conventional rows of perforations and slits, and combinations of these means. But in none of the means now known is the full equivalent of the present invention, with its attendant advantages, exemplified. In other words, no disclosure is known of a tear path formed in a single thickness or layer of paperboard material by the cooperative combination of a row or series of perforations which, of their nature extend entirely through the material, and a cut-score extending only partially therethrough.

From the standpoint of the manufacturer, the present invention has practical advantages over anything of a similar nature now known, in that perforations are much easier to produce with standard cutting equipment than are cut-scores. As perforations, produced with standard equipment, extend through the material, they do not have to be held to such close tolerances.

Where cooperating cut-scores are provided at opposite faces of the material, facility in production and appropriate strength in finished product can be obtained only by using relatively thick paperboard stock or stock of a quality superior to that ordinarily employed for carton manufacture. In the practice of the present invention ordinary carton stock of light caliper can be effectively used.

Furthermore, due to the portions of the carton wall between perforations being left intact despite the presence of the cooperating cut-scoring, in accordance with the invention, the container wall is maintained in a much stronger condition, and is much better able to withstand the handling to which the carton may be subjected, than is the case where complemental cut-scores are provided at opposite faces of the material. This is due in large measure to the fact that paperboard material will tear much more readily intermediate its thickness than through its full thickness.

It will be noted, moreover, that where complemental cut-scores are provided from opposite faces of the material, efficient functioning of the tear-out or knock-out portion can probably be attained only if each of said cut-scores extends at least half-way through the thickness of the material. Under such conditions proper manufacture requires that very close tolerances be adhered to. This is not necessary in the practice of the present invention.

Various changes and modifications are considered to be within the principle of the invention and the scope of the following claim.

What I claim is:

Frangible means for providing a dispensing opening in the wall of a paperboard carton, comprising two spaced apart parallel rows of spaced perforations extending through the said wall and defining between them a tear path, and a pair of cut-scores lying within said tear path and extending only partially through the thickness of said wall, the two cut-scores of said pair respectively longitudinally paralleling said two rows of

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perforations and laterally spaced therefrom, the portions of the carton wall initially intact between the spaced perforations of the individual rows thereof providing connections easily rupturable intermediate the wall thickness, and the relative spacing of each of said rows of perforations and its adjacent cut-score serving to confine between them in the carton wall similar longitudinal zones rupturable intermediate the thickness of said wall as determined by the depth of said cut-scores, whereby the portion of the carton wall confined within said tear path may be separated and removed from said wall by separation intermediate its thickness in said longitudinal zones.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,773,553	Taylor -----	Aug. 19, 1930
1,779,350	Wright -----	Oct. 21, 1930
1,935,905	Gresenz -----	Nov. 21, 1933
2,155,791	Holmes -----	Apr. 25, 1939
2,401,417	Engle -----	June 4, 1946