

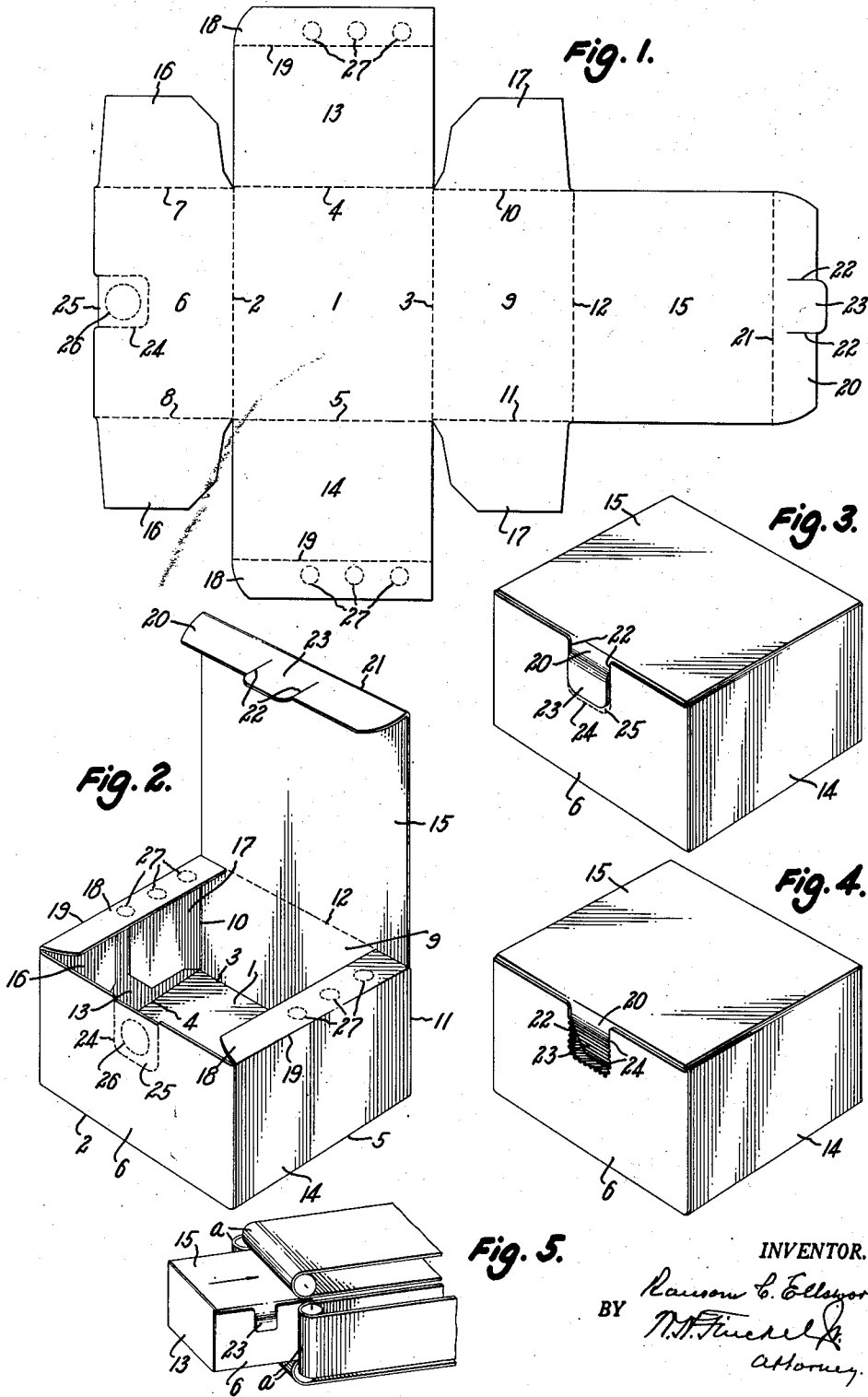
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SEALED CONTAINER

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SEALED CONTAINER

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This invention relates to paper receptacles, and it has special reference to a container made of paperboard material and which, due to its structural characteristics, may be opened for access to the contents and reclosed to protect such contents.

One object of the invention is to provide a container, especially of the type referred to, which, due to its construction, is capable of being set up for use and filled with a commodity to be packaged, and then closed and sealed by presently accepted practice and by known packaging machinery, and which has certain structural features, as will later appear, whereby the closing and sealing operations are made more positive and efficient.

Another object is to provide such a container having structural characteristics, particularly in relation to the means for sealing it in initially closed condition for sale, as will make readily evident to purchasers and others the fact that the seal has been broken, when such is the case.

The invention comprises, broadly, a container made of paperboard material cut, scored and folded to produce a bottom, side and end wall members upstanding from the bottom, and a cover member hingedly connected to the upper edge of one of said side wall members and carrying a tuck-in flap at its free edge opposite the hinge connection, this tuck-in flap being adapted for cooperation with the other side wall member to hold the cover member in closed condition, the said tuck-in flap and the side wall member with which it cooperates being provided with coating means for sealing the flap, and hence the cover member, in closed condition and furnishing a medium whereby the sealing operation may be facilitated and the seal readily broken and the cover thereafter opened and later re-closed, unsealed but in apparently relatively undamaged condition, 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, Fig. 1 is a plan view of the exterior surface of a blank suitable for production of the container of the invention; Fig. 2 is a perspective view of the container in assembled, set-up condition before it is sealed by closing the cover over the contents; Fig. 3 is a perspective view of the container in closed and sealed condition; Fig. 4 is a view similar to Fig. 3 but illustrating the manner in which the seal may be broken, and Fig. 5 is a schematic view

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illustrating the operation upon the container of the invention of one form of conventional compression conveyor employed for holding the adhesively secured cover and tuck-in flap in closed and sealed condition during the setting period required for the adhesive.

The container blank, Fig. 1, comprises an integral sheet of paperboard material cut and scored to provide a bottom 1 defined by folding scores 2, 3, 4 and 5, a front side wall member 6 defined by folding scores 2, 7 and 8, a back side wall member 9 defined by folding scores 3, 10, 11 and 12, similar end wall members 13 and 14 foldable from the bottom on the scores 4 and 5, respectively, and a cover member 15 hinged to the back wall member 9 upon the score 12. The side wall members 6 and 9 are provided with pairs of glue laps 16 and 17 foldable upon scores 7, 8 and 10, 11, respectively, and the free or upper edges of the end wall members 13 and 14 carry glue laps 18 foldable upon appropriate scores 19 so as to offstand inwardly of the container.

The cover member 15 is provided at its free edge opposite the hinge score 12 with a tuck-in flap 20 foldable relatively to the cover member upon a score 21, and having cuts 22 extending inwardly from the free edge of the flap and terminating short of the folding score 21 to form a tongue member 23. The front wall member 6 is formed with a series of relatively spaced cuts or perforations 24, but preferably of cuts which extend only part way through the paperboard material, to provide a frangible portion 25 substantially conforming in outline and area with the tongue portion 23 of the tuck-in flap 20, and these cuts or perforations merge into the free, or top, edge of the said front wall member in slits of substantially the same length as the spaces between the termini of the cuts 22 of the flap 20 and its folding score 21, all as shown in Fig. 1.

In assembling the container from this flat blank, so that it is in set-up condition for use, the front and back side wall members 6 and 9, and end wall members 13 and 14 are bent upon their respective folding scores 2, 3 and 4, 5 into position substantially at right angles to the bottom, and the glue laps 16 and 17 of the side wall members are bent inwardly upon their scores 7, 8 and 9, 10 and adhesively secured to the adjacent inner surfaces of the end wall members 13 and 14, as partially shown in Fig. 2. All of these operations may be performed by known automatic machinery. Thus the container is

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in condition to be filled with the commodity to be packaged.

After the container is filled, the laps 18 on the upper edges of the end wall members 13 and 14 are folded inwardly upon their respective scores 19, the cover member 15 is folded downwardly upon its hinge score 12 and the tuck-in flap is engaged with the front wall member 6 in such a manner that its tongue portion 23 overlies the frangible portion 25 of the said front wall member 6 and its parts which flank the tongue portion are inserted inwardly of and in face to face contact with such wall member, and the cover member is sealed in this closed condition as will now be explained. It will be noted, moreover, that when the cover flap is thus positioned, Fig. 3, the portion of the flap above the termini of the cuts 22 will slide into the slits into which the cuts or perforations 24 of the front wall merge, thus providing for frictional engagement of the flap and front wall and affording a relatively rigid assembly of these parts.

When the exterior of the container blank is printed, especially when it is color-printed all over, a glue or adhesive repellent ink or color medium may be employed, in which case "spot-gluing" of the tongue portion 23 of the tuck-in flap 20 and of the laps 18 at the upper edges of the end wall members 13 and 14 may be provided for by leaving areas unprinted, as indicated by the broken-line outlines 26 and 27, respectively. This treatment of the parts enables the use of "strip-gluing" rather than "spot-gluing" machinery in application of the adhesive and is the most economical procedure. However, when the type of printing or coloring referred to is not employed and the major portions of the container parts are receptive to adhesive, spots of glue may be applied in the areas indicated by the broken-line outlines 26 and 27.

In either case, it will be noted that although the glue or adhesive is applied in a manner adequate to seal the cover member in closed condition, its predetermined location with respect to the parts, as shown (26, 27) Fig. 2, is such as to make breaking of the seal and opening of the cover member, and its re-closing, possible as intended.

Having reference to Figs. 2, 3 and 4, it will be seen that, when the cover member is closed and sealed, the sealing will be effected by a spot of adhesive 26 located between the frangible portion 25 of the front wall member 6 and the tongue portion 23 of the tuck-in flap 20, and also preferably, although not necessarily, by the spots of adhesive 27 between the end laps 18 and the cover member. It will be noted, moreover, that the spots of adhesive 27 on the end laps are so located as to be somewhat remote from the tuck-in flap.

Hence, assuming that spots of adhesive are employed upon the end laps 18 as well as upon the frangible portion 25 of the front wall member 6, it will be understood that when the tongue portion 23 of the tuck-in flap 20 which overlies the frangible portion 25 of the front wall member is distorted by pressure applied inwardly (Fig. 4), the seal afforded by the adhesive between this tongue portion of the tuck-in flap and the frangible portion of the front wall member will cause the frangible portion to be broken away and the flap bent inwardly, and the cover may be raised sufficiently to furnish a good purchase for

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breaking the seal afforded by the spot-gluing of the end laps 18 with the cover member.

This unsealing and opening of the container may, moreover, be accomplished without appreciable damage to any of its parts, inasmuch as a clean breaking away of the adhesively attached parts will result. However, once the sealing of the parts has been broken, this fact will be apparent by inspection of the parts, and hence the container is of a pilfer-proof nature.

After the container has been opened it may be desirable to close it again, say in case the contents have been only partially used, and this may be done by closing the cover and restoring the tuck-in flap to its original position, as shown in Fig. 3, but in unsealed condition. Here the frictional engagement afforded by the wall edges constituting portions of the aforesaid slits and the portion of the tuck-in flap 20 between the cuts 22 and the folding score 21 thereof will aid in holding the cover re-closed (see Fig. 4).

Referring to Fig. 5, it will be noted that the interengaged relationship of the tuck-in flap 20, the tongue portion 23 and the portions of the front wall member 6 flanking the frangible portion 25, is of material advantage in the operation of sealing the container. Obviously, where, in conventionally formed containers, the entire tuck-in flap is inserted behind the side wall member, pressure applied to the four surfaces of the container, and particularly to its vertical surfaces, in the sense illustrated, by the closely engaged walls of the restricting tunnel formed by the synchronously travelling belts *a*, this pressure would have a tendency to force the tuck-in flap inwardly away from the inner face of the side wall member and thus break the adhesive bond between these parts. However, with the parts interengaged, as shown in Fig. 3, and particularly with the cooperation of the uncut portion of the tuck-in flap engaging the slits at the termini of the cuts or perforations 24, and with the tongue portion 23 overlying the frangible portion 25 of the front wall member 6, and to which it is adhesively secured, the tendency for separation of the parts under the applied confining pressure is overcome and sufficient stiffness is imparted to the interengaged elements to withstand undue distortion and thus insure proper attachment of the parts during the setting period of the adhesive.

It will be understood that the pressure applying device of belt form, as shown, is merely illustrative of the general concept of devices of this character, and that the feature of resistance to pressure as embodied in the carton or container construction of the invention will function regardless of the type of pressure applying apparatus employed.

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

What is claimed is:

In a paperboard container, a bottom, a front wall member, a back wall member, and similar end wall members, all upstanding from said bottom, and a cover hinged to said back wall member and carrying at its edge opposite said hinge a tuck-in flap defined from the cover by a folding score, said flap having laterally spaced cuts extending inwardly from its free edge and terminating short of said folding score, said cuts providing a tongue portion between them, the front wall member having adjacent to its upper edge means defining a frangible portion of substan-

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tially the same area as said tongue portion, said defining means including slits of a length inwardly from said upper edge substantially equal to the distance from the termini of the cuts in said flap to said folding score, said cover when in closed condition having the portions of its tuck-in flap flanking its tongue portion inserted inwardly of and in face to face contact with said front wall member, its tongue portion arranged outwardly of and overlying and secured to the frangible portion of said front wall member, and the portion of said flap lying between the termini of said cuts and said folding score in engagement with said slits, the secured arrangement of said tongue portion and frangible portion thus providing a means whereby by the exertion of inwardly directed pressure upon the tongue portion the said frangible portion may be separated

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from said front wall member and the cover opened.

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