

Sept. 21, 1965

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3,207,360

SHEET PACKAGING ARRANGEMENTS

Filed July 28, 1961

2 Sheets-Sheet 1

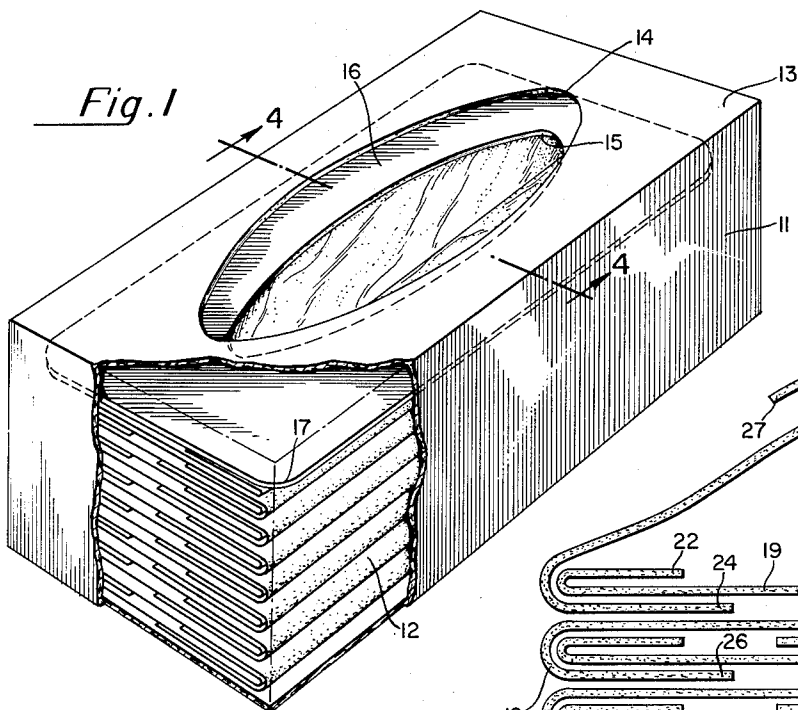


Fig. 1

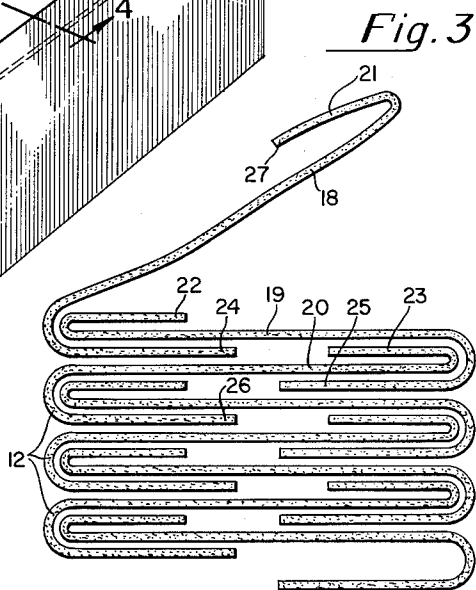


Fig. 3

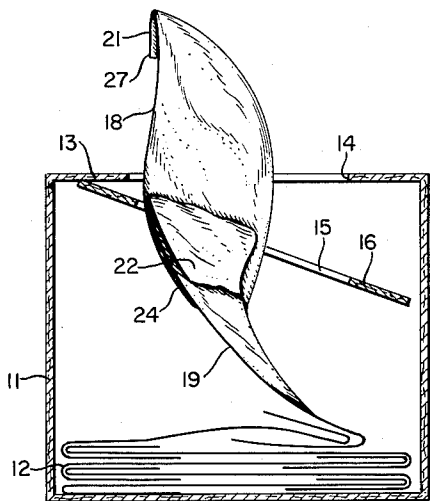


Fig. 4

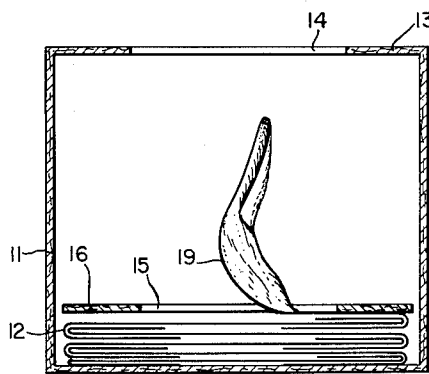


Fig. 5

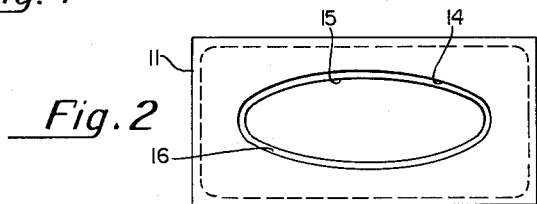


Fig. 2

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2 Sheets-Sheet 2

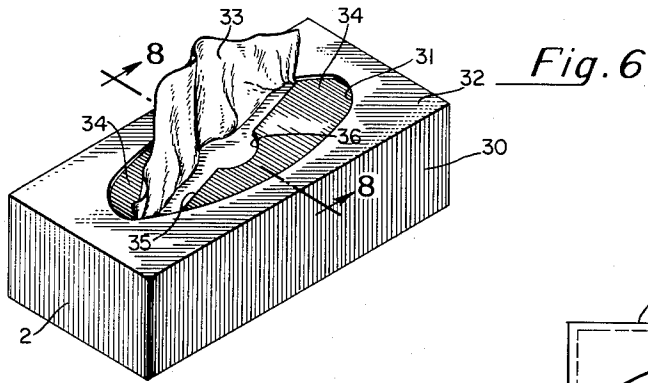


Fig. 6

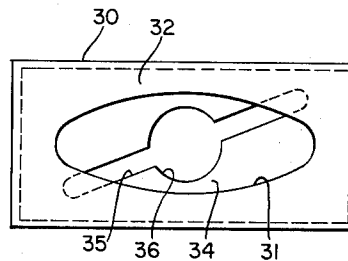


Fig. 7

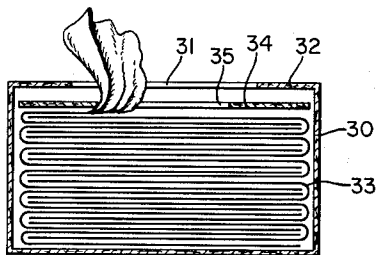


Fig. 8

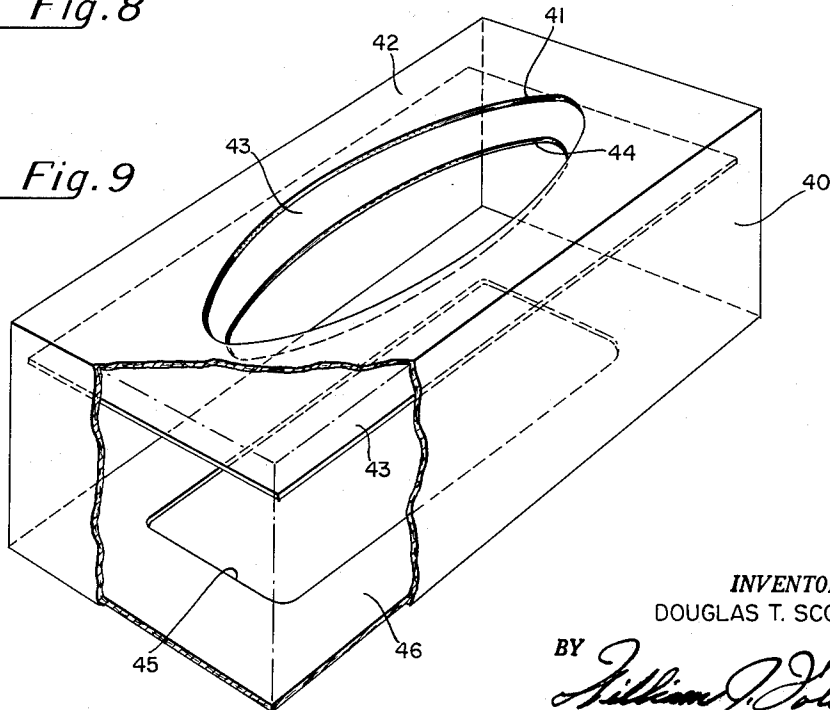


Fig. 9

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3,207,360

SHEET PACKAGING ARRANGEMENTS

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6 Claims. (Cl. 221-48)

This invention relates to improved sheet packaging arrangements, particularly to disposable receptacles, or containers, in which sheet paper products are marketed and which are particularly adapted to permit the user of the product to dispense sheets therefrom one at a time or in groups of two or more, as desired. This application is a continuation-in-part of my applications Serial No. 702,666, filed December 13, 1957, and Serial No. 820,295, filed June 15, 1959, both of which are now abandoned.

Considerable consumer acceptance has been built up in recent years for dispensing-type packages of paper products such as facial tissue and paper toweling. Certain receptacles used in prior packaging arrangements have been constructed to provide relatively large dispensing openings through which sheets can be removed singly or as a group of several sheets, as the user desires. Other receptacles have been devised which are particularly adapted to permit interrelated serial dispensing of individual sheets. A receptacle of the latter type usually contains sheets which are interfolded and interconnected, and the receptacle is provided with a restricted dispensing opening so that when one sheet is dispensed a portion of the next sheet is drawn out of the receptacle and held in a more or less upstanding manner so that this next sheet is readily accessible for future use (see U.S. Patent No. 1,935,905).

The receptacles which have been devised to permit interrelated dispensing of individual sheets have possessed certain undesirable characteristics. These latter characteristics stem directly from the restricted dispensing openings which had to be provided in the receptacles to insure reliable dispensing. For example, the slot type opening commonly used in this type of receptacle does not conveniently permit several sheets to be withdrawn simultaneously. The opening is simply too small to permit the user to reach in and grasp several sheets at one time. Another undesirable characteristic of this type of packaging arrangement, again due to the restricted dispensing opening, is the difficulty of fishing out a portion of the first sheet in the receptacle upon initial opening of the receptacle or of fishing out a lead portion of a sheet which, for one reason or another, does not follow the previous sheet through the dispensing opening.

The present invention eliminates many of the objectionable characteristics of these prior packaging arrangements and offers an arrangement having improved dispensing characteristics. It is the principal object of this invention to facilitate dispensing of sheets from a receptacle, or package, in which the sheets are stored.

In the accomplishment of this objective the invention contemplates the provision of an improved packaging arrangement, and particularly an improved receptacle, or carton, which facilitates dispensing sheets therefrom.

It is another object of this invention to facilitate interrelated serial dispensing of individual sheets from a receptacle in which they are stored. It has been recognized that failure of the next sheet to be advanced through the dispensing opening in an interrelated type dispensing receptacle is most likely to occur, and is particularly annoying, when but a few sheets remain in a large, i.e., deep, receptacle. Incorporation of this invention into such large receptacles promotes continuity of dispensing action through the entire series of sheets in the receptacle

and renders it relatively easy to withdraw even the last few sheets. Moreover, the interfolded sheets in a packaging arrangement embodying this invention need not be interconnected in order to achieve continuity of dispensing action, so it is possible to obtain certain economies of manufacture over prior packaging arrangements.

It is another objective of this invention to provide a packaging arrangement which offers the user the option of dispensing sheets from the receptacle in individual, inter-related fashion or of dispensing several sheets at one time.

All of the foregoing objectives are accomplished, in accordance with this invention, by a packaging arrangement embodying novel dispensing control means which preferably takes the form of a lightweight control plate, or member, disposed between the stack, or series, of sheets and a dispensing opening in a wall of the receptacle containing the sheets. This control member has an opening therein through which sheets are dispensed. The control member promotes frictional engagement between the sheet being dispensed and the next sheet of the series for the purpose of causing a portion of the next sheet to be drawn through the opening in the control member to a position where it is readily accessible to the user through the box opening. Because the control member does not rely for its effectiveness on weighting down the sheets in the receptacle, the member can be constructed of cardboard or other low-cost material so as to not materially increase the cost of the receptacle. Consequently, the control member concept of this invention is readily applicable to the low-cost, disposable packaging arrangements popularly used for many sheet products at the present time.

Optional interrelated and multiple-sheet dispensing are achieved under the control member concept of this invention by making the control member opening of sufficient size to permit the user to reach through the opening and grasp several sheets and to permit the sheets to be withdrawn in folded condition. The additional feature of multiple sheet dispensing can be provided as a result of the discovery that the opening in the control member of this invention can be made sufficiently large to permit multiple sheet dispensing without destroying its effectiveness to control interrelated sheet dispensing. In its preferred form, the control member of the improved packaging arrangement has a generally oval opening therein which resembles an ellipse, so as to provide relatively restricted end regions and a relatively open middle region.

It is further contemplated, in accordance with this invention, that the aforementioned two types of sheet dispensing can be accomplished through two different walls of the sheet receptacle. The receptacle may be constructed to provide in one wall thereof dispensing control means admitting of interrelated serial dispensing of individual sheets and have another wall thereof constructed to provide a relatively larger opening for multiple sheet dispensing.

Other objects, advantages, and features of this invention will be apparent from the following detailed description thereof in which reference is made to the accompanying drawings wherein:

FIGURE 1 is a perspective view of a dispensing package embodying this invention and having portions thereof broken away to expose the contents;

FIGURE 2 is a top plan view, on a reduced scale, of the dispenser receptacle shown in FIGURE 1;

FIGURE 3 is a diagrammatic view illustrating the manner in which the sheets are folded in the receptacle of FIGURE 1;

FIGURE 4 is a vertical sectional view taken generally as indicated by line 4-4 in FIGURE 1, but illustrating the contents of the receptacle as they appear when a sheet is being dispensed;

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FIGURE 5 is a view similar to FIGURE 4 illustrating the contents of the receptacle as they appear between dispensing operations;

FIGURE 6 is a perspective view of a packaging arrangement embodying a modification of the invention;

FIGURE 7 is a top plan view of the receptacle shown in FIGURE 6;

FIGURE 8 is a vertical sectional view taken generally as indicated by line 8—8 in FIGURE 6; and,

FIGURE 9 is a perspective view of another packaging arrangement embodying a further modification of the invention.

Referring particularly to FIGURES 1 and 2, the preferred embodiment of this invention is there illustrated as a sheet packaging arrangement including a boxlike receptacle, or carton, 11 having a stack of folded sheets 12 stored therein. Receptacle 11 is preferably made from relatively inexpensive material, such as cardboard or paperboard, so as to be disposable when emptied of its contents. The general construction is that of the conventional cardboard boxes in which low-cost sheet materials, such as facial tissue and paper toweling, are sold.

Receptacle 11 is constructed in such a manner as to provide sheet dispensing control means in one wall thereof, preferably the top wall 13, for promoting interrelated serial dispensing of sheets 12. In accordance with this invention, this dispensing control means takes the form of an access opening 14 in receptacle wall 13 and a complementary opening 15 in a dispensing control plate, or member, 16 disposed between receptacle wall 13 and the sheets 12 in the receptacle.

Dispensing control plate 16 is made from low-cost, disposable material, such as cardboard or paperboard, and may be made from the same material from which receptacle 11 is made. Dispensing control plate 16 is shorter than and narrower than the interior dimensions of receptacle 11 so as to be loosely received within the receptacle and capable of vertical reciprocating movement therein. In addition, corner portions 17 of control plate 16 may be rounded, or cropped, to eliminate any tendency for the control plate to become wedged in the receptacle.

Opening 15 in plate 16 is relatively restricted, i.e., at least certain dimensions thereof are less than corresponding dimensions of sheets 12 so that a sheet drawn through opening 15 during dispensing is bunched together, or distorted, between the edges of plate 16 which define the dispensing opening. As best shown in FIGURE 2, control plate opening 15 preferably possesses an oval configuration which can best be described as a longitudinally elongated ellipse. This configuration affords a relatively narrow passage in the end regions of the opening and a substantially wider passage in the middle region of the opening.

A particularly effective form of interrelated serial dispensing of individual sheets is achieved when the sheets in receptacle 11 are folded and interleaved in the manner illustrated in FIGURE 3. As there shown, the sheets 12 are serially arranged and folded alternately in S and reverse S configurations. It will be noted that with respect to the three top-most sheets shown in FIGURE 3 and identified respectively as 18, 19, and 20, the upper overlays, or folded edge portions, 21, 22, and 23 of the respective sheets are shorter than the underlying edge portions 24, 25, and 26 of the sheets. The upper overlays, 22 and 23 extend into and are interfolded with the longer edge portions 24 and 25 of the sheet immediately above in the series of sheets. Thus, as the upper-most sheet 18 is dispensed, its longer edge portion 24 lifts and draws along the overlay portion 22 of the next sheet 19 to present sheet portion 22 in a readily accessible location above the opening 15.

It will be noted that the several sheets are not actually interconnected, only interleaved. Certain prior packaging arrangements require that the sheets be connected by

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means of tearable tabs and the production of such sheets is both slow and costly. Packaging arrangements embodying this invention do not require tab-connected sheets.

It will also be noted from FIGURE 1 that with the S reverse-S type of fold-interfold configuration of the several sheets 12 there is a free edge portion 27 of the uppermost sheet 18 lying inwardly from the side of the sheet stack and readily accessible through dispensing openings 14 and 15 when the sheet package is initially opened. Consequently, it is not necessary to provide a separate pull tab, or starter strip, to lift the first sheet through dispensing opening 14.

Dispensing control plate 16 functions to increase frictional engagement between the sheet being dispensed and the sheet therebeneath to insure that the overlay portion of the next sheet is drawn upwardly and maintained in an upstanding position in which it is easily grasped by the user for a subsequent dispensing operation. Control plate 16 is particularly effective and useful when the contents of a relatively deep receptacle 11 are nearly depleted, i.e., only a few sheets remain in the receptacle and the upper-most sheet lies a substantial distance below the top wall 13 of the receptacle. The manner in which control plate 16 functions under these conditions is illustrated in FIGURES 4 and 5. As the uppermost sheet, 18, is drawn through opening 15 in control plate 16, sheet 18 is distorted longitudinally and the trailing portion 24 of sheet 18 and the leading, or overlay, portion 22 of the next sheet 19 are distorted, or compressed, longitudinally. This action increases the frictional contact between sheet 18 and sheet 19 and insures that the leading portion of the second sheet will be at least partially drawn through opening 15 in control plate 16. Most of the distortion of the two sheets, 18 and 19, takes place in the relatively restricted end regions of opening 15. Being constructed of lightweight material, control plate 16 is drawn upwardly as sheet 18 is pulled therethrough, but the upward movement of plate 16 is limited by top wall 13 of the receptacle (see FIGURE 4). Sheet 18 eventually is pulled free of control plate 16 and the plate, by virtue of its own weight, drops back onto the stack of sheets 12 in receptacle 11. The frictional gripping action between plate 16 and the leading portion of sheet 19 is such that the leading portion of sheet 19 is held, or trapped, in an upstanding manner above plate 16 (see FIGURE 5). It will be noted that the top-most sheet, in this case sheet 19, may not extend to a height sufficient to actually extend through receptacle opening 14. A portion of the sheet nevertheless is readily accessible to the user through opening 14 in the dispenser top wall 13.

It is significant that dispensing control plate 16 does not rely on weighting down the stack of sheets 12 in the dispensing receptacle to promote frictional engagement between the sheet being dispensed and the leading portion of the next sheet. The necessary frictional engagement between these two sheets is promoted by virtue of the relatively restricted regions of plate opening 15 and is effected even though plate 16 is of such light weight that it is lifted from the top of the stack of sheets as a sheet is dispensed. Thus, unlike prior dispensing receptacles employing weighted members resting on the top of the stack of sheets, the packaging arrangement of the present invention employs a dispensing control plate which may be made from lightweight and, consequently, low-cost sheet materials such as cardboard or paperboard. As a result of this invention, positive interrelated serial dispensing can be achieved in a low-cost, disposable packaging arrangement.

The oval configuration of opening 15 in dispensing control plate 16 affords an additional dispensing feature not available in prior dispensing cartons provided with elongated, slot-like dispensing openings. This feature is the option afforded the user to reach through the relatively unrestricted middle region of opening 15, grasp several sheets 12 and withdraw them through dispensing openings

15 and 14 in interfolded condition. Inasmuch as sheets 12 are merely interleaved and not interconnected, the stack can be separated at any desired level. Thus, while the primary function of opening 15 in control plate 16 is to facilitate interrelated serial dispensing of individual sheets, the nature of the opening therein admits of an entirely different type of dispensing, namely, multiple sheet dispensing.

Opening 14 in receptacle 11 may be of any desired configuration, but is preferably sufficiently large to readily admit some or all of the fingers of the user so that the sheets 12 are readily accessible through this opening and can readily be withdrawn therethrough. Dispensing opening 14 may, if desired, be of a size and a configuration comparable to opening 15 in discharge control plate 16.

Opening 14 in wall 13 of receptacle 11 is preferably closed when the receptacle is filled in order to protect the contents during handling of the package prior to its being placed in use. Closure of this opening can be accomplished by any of the conventional methods, such as providing a tear out portion (not shown) in wall 13, which portion when removed leaves an opening of the desired configuration. Alternatively, a wrapper, or sleeve, (also not shown) may be provided for receptacle 11 for the purpose of closing dispensing opening 14.

A further feature of this invention results from control plate 16 being constructed of lightweight material such as cardboard. Certain users of certain sheet products might not wish to employ interrelated serial dispensing of individual sheets from receptacle 11. Such users might, for example, make it a practice to always use more than one paper towel or facial tissue. Should such a user consider the discharge control plate 16 a handicap to removal of multiple sheets 12, he can simply bend the control plate 16, or otherwise distort it, and remove it through receptacle opening 14. Making control plate 16 from readily bendable material facilitates its removal when its presence is not desired by the user.

FIGURES 6 through 8 illustrate a packaging arrangement embodying a modification of this invention. In this packaging arrangement a receptacle, or carton, 30, formed in a conventional manner from cardboard or paperboard, is constructed so as to provide a relatively large access opening 31 in a wall 32 thereof. Receptacle 30 contains a stack, or series, of interfolded sheets 33, which are arranged within receptacle 30 in such a manner that one end of the series of sheets faces receptacle wall 32 and dispensing opening 31. The series of sheets 33 may be interfolded in the manner described above and illustrated in FIGURE 3 or the sheets may possess a different form of interfold, such as the V-interfold illustrated in FIGURE 8.

Like the packaging arrangement of FIGURE 1, the modified packaging arrangement includes a dispensing control plate 34 having an opening 35 therein. Control plate 34 differs from the control plate of the preferred embodiment of the invention in the configuration of opening 35. Opening 35 has an elongated slot-like configuration and is arranged diagonally across the face of control plate 34. Being more restricted than the opening in the control plate of the preceding embodiment, opening 35 is somewhat more effective in promoting frictional engagement between a sheet being dispensed and the following sheet. The modified control plate 34, therefore, can be expected to be somewhat more reliable in insuring interrelated serial dispensing of sheets 33. Opening 35 does not, however, afford the user the opportunity of removing several sheets at a time in folded condition from receptacle 30, nor is interrelated serial dispensing as easily re-established if discontinuities appear in the interfolded stack of sheets 33. The opening in control plate 34 may, if desired, be provided with an enlarged central portion 36 to facilitate access to the upper-most sheet of the stack of sheets for starting dispensing from a newly opened receptacle.

Other than the differences noted above, the action of dispensing control plate 34 is substantially identical to the action of control plate 16 of the preferred embodiment of the invention. Control plate 34 insures that the leading portion of the next sheet is drawn upwardly and held in an accessible position when the preceding sheet is removed. Being of light weight and being loosely received in receptacle 30, plate 34 will undergo vertical reciprocating movement during each dispensing operation and will follow the top of the stack of sheets 33 downwardly as sheets are successively removed from the receptacle. Control plate 34 continues its effective action through the entire stack of sheets 33 and insures that even the last few sheets of a relatively deep receptacle will be held in accessible upstanding position as each becomes the sheet available for use.

FIGURE 9 illustrates a receptacle which is one component of a further modified packaging arrangement embodying this invention. Like the preceding embodiments of this invention, a disposable receptacle, or carton, 40 is provided which has access opening 41 in one wall 42 thereof and a discharge control plate 43 is loosely disposed within receptacle 40 and provided with a dispensing opening 44. Receptacle 40 is adapted to contain a stack, or series, of interfolded sheets, such as that illustrated in FIGURE 3, but the stack of sheets has been omitted from FIGURE 9 to clarify the illustration. Dispensing control plate 43 functions in exactly the same manner as does control plate 16 (described above) in promoting interrelated serial dispensing of individual sheets from the stack of sheets in receptacle 40.

The additional novel feature of receptacle 40 is that the receptacle is constructed so as to provide an additional, enlarged, dispensing opening 45 in another wall 46 of the receptacle. Opening 45 is preferably located in a wall opposite the wall 42 containing dispensing opening 41 and at the opposite end of the stack of sheets from the end of the stack facing dispensing control plate 43. Opening 45 is of a convenient size to permit the user to reach through the opening and withdraw a group of interfolded sheets.

Receptacle 40 may be provided with a removable tear-out panel (not shown), the removal of which leaves opening 45. Similar or other means may be provided for closing dispensing opening 41 of an unused receptacle 40.

A packaging arrangement constructed in this manner offers the user the option of opening opening 41, if interrelated serial dispensing is desired, or of opening opening 45, if multiple sheet dispensing only is desired, or both of these openings can be opened by the user and the two different forms of dispensing practiced interchangeably.

It will be noted that the S reverse-S interfold of FIGURE 3 is particularly useful for sheets packaged in receptacle 40 because the reversely folded edge portions of the sheet provide a free edge of each of the end-most sheets behind dispensing openings 41 and 45. Thus, the end-most sheet at each end of the stack of sheets is readily accessible through its respective dispensing opening.

While the invention has been shown and described with reference to several embodiments thereof, it is to be understood that the invention is not limited solely to the various arrangements shown and described and that further modifications and variations can be made without departing from the spirit and the scope of the invention.

What I claim is:

1. A disposable package for dispensing interfolded tissue sheets, said package comprising a self-supporting, box-like receptacle made of disposable material and having top, bottom, end and side walls, said receptacle being of a depth sufficient to contain a substantial quantity of tissue sheets, said receptacle having an aperture in the top wall thereof, said aperture being of a size to permit comfortable entry of the fingers of a user for access to the sheets in the receptacle but occupying less than the entire area of said top wall whereby at least the major

portion of the periphery of said top wall is intact, a stack of interfolded tissue sheets in said receptacle, and a lightweight, substantially flat, discharge control plate made of disposable material and disposed in said receptacle between said stack of sheets and the top wall of the receptacle, said control plate being free of attachment to said receptacle and said sheets and the overall dimensions of the plate being slightly less than the interior dimensions of said receptacle so as to permit said control plate to be loosely disposed in said receptacle and to move up and down in the receptacle when the stack of sheets becomes partially depleted, said control plate having an opening therein which is elongated generally in the direction of the longer dimension of the folded sheets, the opening in said control plate having a length which is less than the length of said sheets and being narrow at its ends to distort a sheet pulled therethrough and increase the frictional contact between the sheet being dispensed and the next sheet in the stack, the weight of said control plate and the configuration of the opening therein being such as to permit the control plate to be lifted from the partially depleted stack of sheets in the receptacle as a sheet is dispensed from the receptacle and following complete removal of the preceding sheet to permit the control plate to descend onto said stack with the next sheet frictionally retained in the control plate opening and having a portion of the sheet projecting above the control plate, said top wall of the receptacle preventing movement of said control plate out of said receptacle during dispensing.

2. A package as set forth in claim 1 wherein the opening in said control plate is relatively wide in the middle region thereof to permit the fingers of a user to enter the receptacle beneath the control plate and grasp and remove a plurality of sheets simultaneously from the receptacle without excessive wrinkling of the sheets and without disturbing the interfolded condition of those sheets.

3. A package as set forth in claim 2 wherein the opening in said control plate has the configuration of a longitudinally elongated ellipse.

4. A package as set forth in claim 1 wherein said interfolded sheets are alternately S and reverse S folded and the edges of the sheets are disposed inwardly from the opposite side edges of the stack of sheets to lie beneath the opening in said control plate.

5. A package as set forth in claim 1 wherein the opening in said control plate is arranged diagonally across the face of the plate.

6. A disposable package for dispensing interfolded tissue sheets, said package comprising a self-supporting, box-like receptacle made of disposable material and having top, bottom, end and side walls, said receptacle being of a depth sufficient to contain a substantial quantity of tissue sheets, said receptacle having an aperture in the top wall thereof, said aperture having the configuration of a longitudinally elongated ellipse and being of a size to permit comfortable entry of the fingers of a user for access to the sheets in the receptacle but occupying less than the entire area of said top wall whereby at least the

major portion of the periphery of said top wall is intact, a stack of interfolded tissue sheets in said receptacle, and a lightweight, substantially flat discharge control plate made of disposable material and disposed in said receptacle between said stack of sheets and the top wall of the receptacle, said control plate being free of attachment to said receptacle and said sheets and the overall dimensions of said control plate being slightly less than the interior dimensions of said receptacle so as to permit said control plate to be loosely disposed in said receptacle and to move up and down in the receptacle when the stack of sheets becomes partially depleted, said control plate having an opening therein in the configuration of a longitudinally elongated ellipse having its major axis oriented generally in the direction of the longer dimension of the folded sheets, the opening in said control plate having a length which is less than the length of said sheets and being narrow at its ends to distort a sheet pulled therethrough and increase the frictional contact between the sheet being dispensed and the next sheet in the stack, the weight of said control plate and the configuration of the opening therein being such as to permit the control plate to be lifted from the partially depleted stack of sheets in the receptacle as a sheet is dispensed from the receptacle and following complete removal of the preceding sheet to permit the control plate to descend onto said stack with the next sheet frictionally retained in the control plate opening and having a portion of the sheet projecting above the control plate, but out of frictional engagement with the aperture in said top wall, said top wall of the receptacle preventing movement of said control plate out of said receptacle during dispensing.

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KENNETH N. LEIMER, *Examiner*.