Sept. 4, 1956 H. B. LEWIS ET AL 2,761,592

TABLET DISPENSER MAGAZINE

Original Filed April 25, 1949 2 Sheets-Sheet 1

Fig. 1

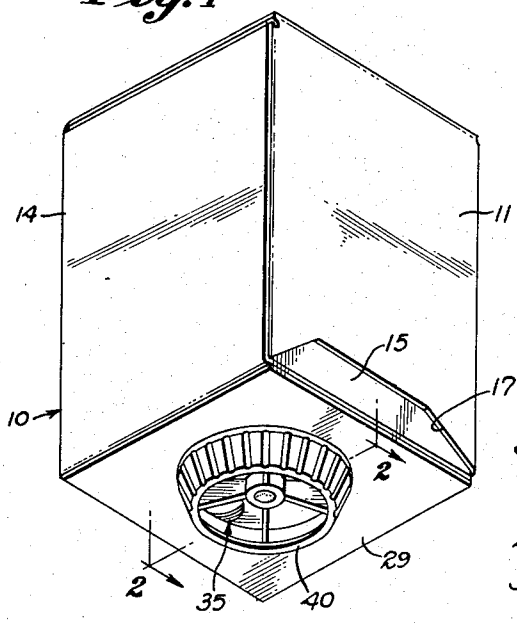


Fig. 2

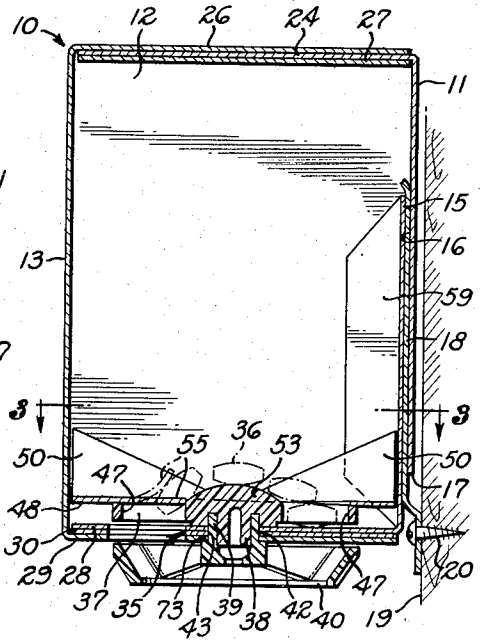


Fig. 4

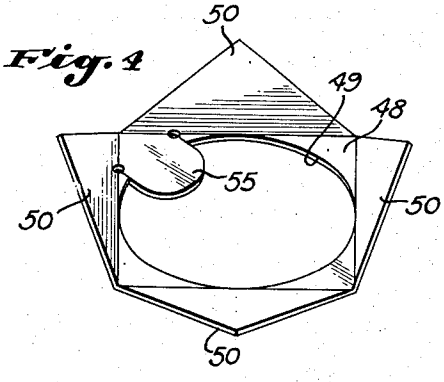
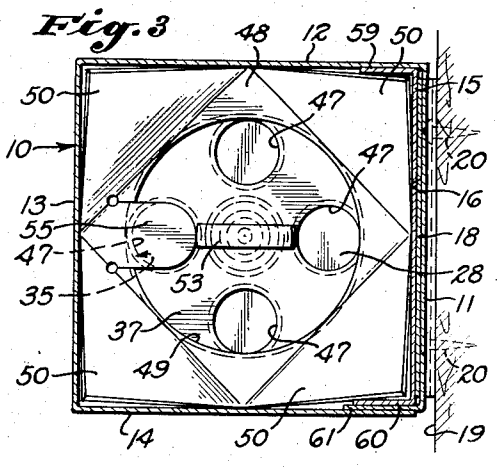


Fig. 3



INVENTORS:
HOWARD B. LEWIS
GLEN M. LARSON
HOWARD FIELD JR.
BY THEIR ATTORNEYS
HARRIS, KIECH, FOSTER & HARRIS
By Laurence F. Kiech

Sept. 4, 1956 H. B. LEWIS ET AL 2,761,592

TABLET DISPENSER MAGAZINE

Original Filed April 25, 1949 2 Sheets-Sheet 2

Fig. 6

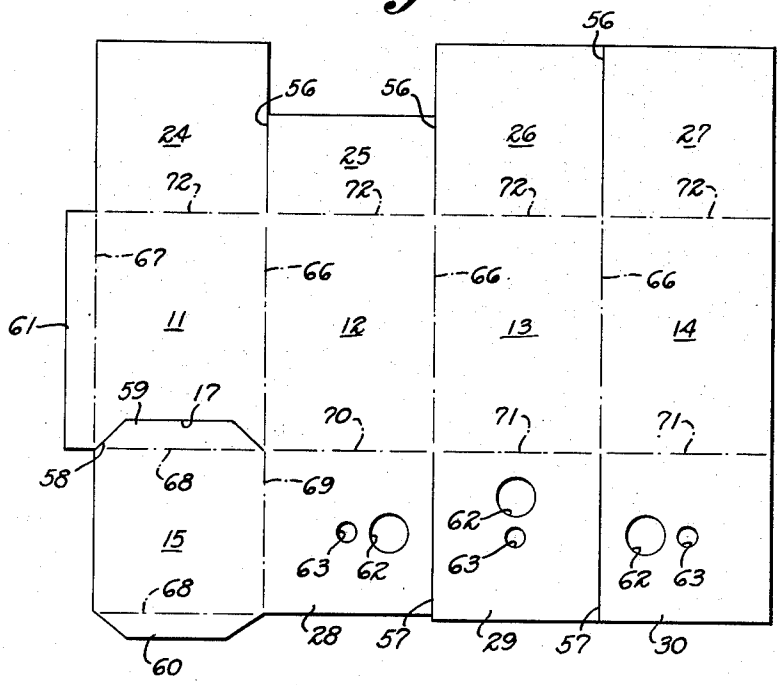
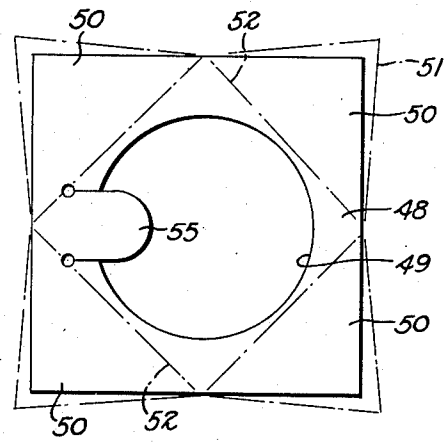


Fig. 5



INVENTORS:
HOWARD B. LEWIS
GLEN M. LARSON
HOWARD FIELD JR.
BY THEIR ATTORNEYS
HARRIS, KIECH, FOSTER & HARRIS
BY Clarence F. Kiech

United States Patent Office 2,761,592
Patented Sept. 4, 1956

2,761,592

TABLET DISPENSER MAGAZINE

Howard B. Lewis, Newport Beach, and Glen M. Larson and Howard Field, Jr., Los Angeles, Calif.

Original application April 25, 1949, Serial No. 89,434, now Patent No. 2,649,994, dated August 25, 1953. Divided and this application September 22, 1952, Serial No. 310,857

7 Claims. (Cl. 222—370)

This is a divisional application of Serial No. 89,434, filed April 25, 1949, now Patent No. 2,649,994, dated August 25, 1953.

Our invention relates in general to dispensers for tablets, or other objects of a similar nature, and, more particularly, to a device which serves both as a dispenser for the tablets and as a carton or package for the tablets during distribution and which is inexpensive so that it may be discarded after use.

In general, we contemplate a dispenser comprising a carton-like magazine of cardboard, or other suitable material, having a discharge opening therein, and comprising dispensing means for ejecting the tablets through the discharge opening one by one. The dispensing means includes a movable dispensing element, preferably a rotor, having one or more openings or stalls therein each of which is adapted to receive one tablet and is movable into registry with the discharge opening in the magazine to eject such tablet therethrough.

Another important object of the invention is to provide a one-piece magazine formed from cardboard or other suitable sheet material and comprising a plurality of integrally connected panels which are folded relative to each other to provide the desired configuration. In this connection, it is an object of the invention to employ a novel magazine or box of the "folding" type, as distinct from the so-called "set-up" type.

Another object is to provide a magazine of this nature having a lower, end wall which comprises a plurality of superimposed end wall panels having openings therethrough which register with each other to provide the discharge opening for the tablets and having additional openings therethrough which register with each other to provide an opening in which a spindle connected to the rotor is journaled, the end wall panels being integrally and foldably connected to side wall panels of the magazine.

Another object is to provide such a magazine having a pocket or space for receiving a bracket by means of which the dispenser may be mounted on a wall, or the like.

Another object is to provide a magazine having foldably and integrally connected outer side wall panels and having an inner side wall panel which is foldably and integrally connected relative to the outer side wall panels and which lies adjacent and parallel to one of the outer side wall panels to form the aforementioned bracket-receiving space. A related object is to provide a magazine wherein the inner side wall panel is integrally and foldably connected to the outer side wall panels through one of the end wall panels forming the lower end wall of the magazine, such end wall panel integrally and foldably connected to one of the outer side wall panels, and the inner side wall panel being similarly connected to such end wall panel.

Another object is to provide a magazine wherein the inner side wall panel is provided with a tab which is cut from the lower end of the outer side wall panel adjacent

which the inner side wall panel is disposed to provide a notch communicating with the bracket-receiving space.

Another object is to provide a dispenser having a magazine of the foregoing construction which is sturdy and substantial to resist damage during use of the dispenser as a shipping carton and during its use as a dispensing device for the tablets contained therein.

The foregoing objects and advantages of the present invention, together with various other objects and advantages which will become apparent in the light of the detailed disclosure which follows, may be attained through the employment of the exemplary embodiment of the invention which is illustrated in the accompanying drawings and which is described in detail hereinafter. Referring to the drawings:

Fig. 1 is an isometric view of a dispenser which embodies the invention, the dispenser being viewed from below;

Fig. 2 is a vertical sectional view of the dispenser taken along the broken line 2—2 of Fig. 1;

Fig. 3 is a horizontal sectional view of the dispenser taken along the broken line 3—3 of Fig. 2;

Fig. 4 is an isometric view of an element which serves as an integral guard and guide of the dispenser;

Fig. 5 is a plan view of the guard-guide element illustrating its method of construction; and,

Fig. 6 is a developed view of the magazine of the dispenser illustrating its method of construction.

Referring particularly to Figs. 1 to 3 of the drawings, the dispenser includes a carton-like magazine **10** which is substantially square in cross section in the particular construction illustrated, the magazine having side walls, an upper, end wall and a lower, end wall. The side walls of the magazine **10** respectively comprise outer side wall panels **11**, **12**, **13** and **14** and one of the side walls of the magazine also includes an inner side wall panel **15** which is disposed adjacent and parallel to the outer side wall panel **11** to provide therebetween a bracket-receiving pocket or space **16**. The outer side wall panel **11** is provided at its lower end with a notch **17** which communicates with the lower end of the bracket-receiving space **16** and through which a bracket **18** may be inserted into such space, the bracket **18** being attached to a wall **19**, or other suitable supporting structure, by means of a screw **20** or the like. As will be apparent from Fig. 2 of the drawings, the dispenser may be mounted on the bracket **18** by moving it downwardly relative to the bracket with the upper end of the bracket inserted into the lower end of the space **16** through the notch **17**.

The upper wall of the magazine **10** comprises a plurality of upper, end wall panels **24**, **25**, **26** and **27**, the end wall panel **25** being visible only in Fig. 6 of the drawings, and the lower wall of the magazine comprises a plurality of lower, end wall panels **28**, **29** and **30**. As will be discussed in more detail hereinafter, the side wall panels **11** to **15** and the end wall panels **24** to **30**, together with three other elements of the magazine **10** which have not yet been identified, are all integrally and foldably interconnected.

The lower wall of the magazine **10** is provided with a discharge opening **35** to which tablets **36** are conveyed one by one by a dispensing element or rotor **37**, the tablets being salt or aspirin tablets, for example, although the device may be employed for dispensing other tablets also. The rotor **37** is mounted to move just above the lower wall of the magazine **10** to sweep across the discharge opening **35** and is provided with a hollow stem **38** which extends into a sleeve **39** on an actuating knob **40**, the knob and rotor being preferably formed of molded plastic material and being joined by a suitable adhesive to move as a unit. The stem **38** and sleeve **39** form a spindle **42** for the rotor **37**, which spindle extends through

and is journalled in an opening 43 in the lower wall of the magazine, the spindle opening 43 being disposed adjacent and spaced from the discharge opening 35. As will be apparent, the rotor 37 may be rotated by rotating the knob 40, rotation of the knob being communicated to the rotor by the spindle 42.

The rotor 37 is provided with a plurality of openings or stalls 47 therethrough each of which is adapted to receive one of the tablets 36, the stalls being successively movable into registry with the discharge opening 35 so that tablets therein may be ejected through the discharge opening by gravity. In the particular construction illustrated in the drawings, the rotor 37 is shown as having four stalls 47, although this number may be varied if desired.

Disposed in the magazine 10 above the rotor 37 is a generally dish-shaped guide 48 which slopes downwardly from the sides of the magazine toward the rotor and which is provided with a central discharge or feed opening 49 only slightly smaller than the rotor and through which the tablets 36 may pass into the stalls 47 in the rotor. As best shown in Fig. 4 of the drawings, the guide 48 is provided with four triangular tabs or corners 50 which slope upwardly from the central feed or discharge opening 49 and which extend into the corners of the magazine 10. As best shown in Fig. 3 of the drawings, the edges of the triangular corners 50 engage the sides of the magazine 10.

The guide 48 is preferably formed of a relatively flexible and resilient sheet material, cellulose acetate being one example of such a material. As best shown in Fig. 5 of the drawings, the guide 48 is formed flat, the guide originally having the outline indicated by the broken lines 51. The upward sloping triangular corners 50 are then formed by being bent upwardly from the flat sheet along fold lines 52 until the guide 48, when viewed in plan, has substantially the same configuration as the cross-sectional configuration of the magazine 10.

During assembly of the dispenser, the guide may be inserted into thte magazine 10 from the upper end thereof, this being accomplished readily because of the fact that the triangular corners 50 slope upwardly. However, the guide 48 cannot be dislodged from its proper position readily because of the fact that the edges of the triangular corners tend to dig into the sides of the magazine if an upward force is applied to the guide, thereby wedging the guide in the magazine against upward removal. Thus, the guide 48 tends to remain in its proper position in the magazine 10, which is an important feature.

As will be apparent, the guide 48 conveys the tablets toward the stalls 47 in the rotor 37, thereby insuring that all of the tablets in the magazine 10 will ultimately be dispensed and that none of them will lodge in the corners of the magazine, or between the rotor and the side walls of the magazine. As best shown in Fig. 3 of the drawings, the rotor 37 is provided with a diametral rib 53 which serves to agitate the tablets thereadjacent so as to displace them toward the stalls 47 in the rotor.

The dispenser includes a guard 55 which, as hereinbefore suggested, is preferably formed integrally with the guide 48, the guard 55 having the form of a tab which extends into the central discharge opening 49 of the guide. The guard 55 overlies the portion of the rotor 37 which is above the discharge opening 35 to close each of the stalls 47 as it moves into registry with the discharge opening, thereby preventing the discharge of more than one tablet at a time. In the event that a second tablet rests on a tablet in one of the stalls 47, the guard 55 will restrain such second tablet so that only the tablet within the stall may be discharged as the stall moves into registry with the discharge opening.

As previously mentioned, the guide 48 is formed of a material which is relatively flexible and resilient so that the guard 55 also has these characteristics. This permits the guard 55 to yield, as indicated in Fig. 2 of the drawings, in the event that a misaligned tablet, i. e., a tablet on edge, is in one of the stalls 47 so as to prevent shearing off a portion of such misaligned tablet or crushing the tablet, as has been common in prior devices. Thus, by yielding when a misaligned tablet is encountered, the flexible and resilient guard 55 prevents damage thereto, which is an important feature.

The foregoing completes the description of the dispensing mechanism of our dispenser and the manner in which the one-piece magazine 10 is made will now be considered with particular reference to Fig. 6 of the drawings. The magazine is of the "folding" type and is formed from sheet material, such as cardboard, for example, a sheet of such material being cut to the shape illustrated in Fig. 6 of the drawings to provide the integrally connected side wall panels 11 to 15 and end wall panels 24 to 30. The sheet is cut along full lines 56 between the upper end wall panels 24 to 27 to separate such panels from each other, and is cut along full lines 57 between the lower end wall panels 28 to 30 to separate same. The sheet is also cut along an irregular line 58 located adjacent the lower end of the outer side wall panel 11 and within the confines thereof to provide the notch 17 in the outer side wall panel 11 and to provide a tab 59 on the inner side wall panel 15. Another tab 60 similar to the tab 59 is provided on the inner side wall panel 15 opposite the tab 59, the tabs 59 and 60 being of generally trapezoidal configuration. A tab 61 is provided along one edge of the outer side wall panel 11.

The sheet from which the magazine 10 is formed is also provided with closed-periphery and preferably circular openings 62 in the three lower end wall panels 28 to 30, the openings 62 being in registry with each other when the sheet is folded to bring the lower end wall panels 28 to 30 into superimposed relation, as will be discussed in more detail hereinafter. When brought into registry, the openings 62 in the lower end wall panels form the discharge opening 35. Similarly, the three lower end wall panels 28 to 30 are provided with closed-periphery and preferably circular openings 63 which register with each other to form the spindle opening 43 when the lower end wall panels are brought into superimposed ralation.

The outer side wall panels 11 to 14 are adapted to be folded substantially at right angles to each other along dotted lines 66 into a substantially square configuration to form the sides of the magazine 10, and the tab 61 on the outer side wall panel 11 is adapted to be folded relative thereto along dotted line 67 and to be brought into engagement with the inner surface of the outer side wall panels 14, as best shown in Fig. 3 of the drawings. The tab 61 may then be cemented or otherwise secured to the outer side wall panel 14 to hold the outer side wall panels 11 to 14 in their desired relation.

Subsequently, the tabs 59 and 60 on the inner side wall panels 15 are folded substantially at right angles thereto along dotted lines 68 and the inner side wall panel 15 is folded substantially at right angles to the lower end wall panel 28 along the dotted line 69. The lower end wall panel 28 is subsequently folded upwardly substantially at right angles to the outer side wall panel 12 along dotted line 70. When this has been accomplished, the inner side wall panel 15 is disposed adjacent and parallel to the outer side wall panels 11 to provide therebetween the bracket-receiving space 16, the notch 17 formed by cutting the tab 59 from the outer side wall panel 11 communicating with the lower end of the space 16 as hereinbefore discuseed. Subsequently, the lower end wall panels 29 and 30 are bent upwardly substantially at right angles to the outer side wall panels 13 and 14 along dotted lines 71 to bring the lower end wall panels 28 to 30 into superimposed relation so as to complete the lower wall of the magazine 10. This brings the openings 62 into registry to form the discharge opening

35 and brings the openings 63 into registry to form the spindle opening 43.

After the rotor 37 and knob 40 have been assembled with the magazine 10, and after the guide 48 carrying the guard 55 has been assembled with the magazine and the magazine filled with the tablets 36, the upper end wall panels 24 to 27 are folded downwardly substantially at right angles to the outer side wall panels 11 to 14 along dotted lines 72 to form the upper end wall of the magazine.

The lower end wall panels 28 to 30 may be cemented or otherwise secured together if desired, although this is not necessary since they will be held in superimposed relationship by the rotor 37 and the knob 40. As best shown in Fig. 2 of the drawings, the central hub of the rotor bears against the lower end wall panel 28 and a shoulder 73 on the knob 40 bears against the lower end wall panel 29. Similarly, the tabs 59 and 60, which, as best shown in Fig. 3 of the drawings, engage the outer side wall panel 12 and the tab 61 on the outer side wall panel 11, may be cemented or otherwise secured in place, although this is not necessary since the tablets in the magazine will tend to hold the inner side wall panel 15 in place.

The upper end wall panels 24 to 27 may be cemented or otherwise secured together, or may be held in place by tape (not shown), or by a label (not shown), placed thereover and secured to the sides of the magazine.

It will be understood that, in actual practice, it is preferable to stamp the various elements of the magazine 10 from a sheet of cardboard or other suitable material in a single operation. Also, the sheet may be scored along the fold lines 66 to 72 to facilitate folding the various elements into assembled relation, as is well known in the art.

The foregoing construction provides a sturdy and substantial magazine 10 which may be used as a shipping carton for the tablets 36 therein and which will withstand considerable rough usage when the device is employed to dispense the tablets. The employment of a plurality of lower end wall panels 28 to 30 provides a relatively rigid mounting for the rotor 37 and knob 40 and provides adequate bearing support for the spindle 42. Also, the device may be manufactured inexpensively so that it may be discarded after use.

Although we have disclosed an exemplary embodiment of our invention herein for purposes of illustration, it will be understood that various changes, modifications and substitutions may be incorporated in the specific embodiment disclosed without necessarily departing from the spirit of the invention and we hereby reserve the right to all such changes, modifications and substitutions as properly come within the scope of the invention as set forth in the claims which follow.

We claim as our invention:

1. A one-piece magazine adapted to contain a supply of objects to be dispensed, said magazine having side walls and having a lower end wall which includes superimposed end wall panels respectively formed integrally with and foldably connected to certain of said side walls, said end wall panels respectively being provided with registering closed-periphery openings therethrough which cooperate to provide a discharge opening through said lower end wall, said end wall panels respectively being provided with additional registering openings therethrough which register when said end wall panels are folded in superimposed relation to provide a spindle opening through said lower end wall.

2. A one-piece dispenser magazine adapted to be mounted on a bracket, said magazine having integrally and foldably connected outer side wall panels which form the sides thereof, and having an inner side wall panel which is integrally and foldably connected to one of said outer side wall panels and which is disposed within said magazine adjacent and parallel to one of said outer side wall panels, said inner side wall panel and the outer side wall panel last mentioned providing therebetween a bracket-receiving space having an open lower end through which the bracket may be inserted into said space, said magazine having a lower end wall which includes superimposed end wall panels respectively formed integrally with and foldably connected to certain of said side walls, said end wall panels respectively being provided with registering closed-periphery openings therethrough which cooperate to provide a discharge opening through said lower end wall, said end wall panels respectively being provided with additional registering openings therethrough which register when said end wall panels are folded in superimposed relation to provide a spindle opening through said lower end wall.

3. A one-piece dispenser magazine adapted to be mounted on a bracket, said magazine having integrally and foldably connected outer side wall panels which form the sides thereof, and having an inner side wall panel which is integrally and foldably connected to one of said outer side wall panels and which is disposed within said magazine adjacent and parallel to another of said outer side wall panels, said inner side wall panel and said other outer side wall panel providing therebetween a bracket-receiving space having an open lower end through which the bracket may be inserted into said space, said magazine having a lower end wall which includes superimposed end wall panels respectively formed integrally with and foldably connected to certain of said side walls, said end wall panels respectively being provided with registering closed-periphery openings therethrough which cooperate to provide a discharge opening through said lower end wall, said end wall panels respectively being provided with additional registering openings therethrough which register when said end wall panels are folded in superimposed relation to provide a spindle opening through said lower end wall.

4. A one-piece dispenser magazine adapted to be mounted on a bracket, said magazine having integrally and foldably connected outer side wall panels, having an end wall panel integrally and foldably connected to one of said outer side wall panels, and having an inner side wall panel integrally and foldably connected to said end wall panel only, said inner side wall panel having integrally and foldably connected thereto a tab cut from one end of another of said outer side wall panels to provide a notch in said other outer side wall panel, said other outer side wall panel being adjacent said one outer side wall panel, said inner side wall panel being disposed in said magazine adjacent and parallel to said other outer side wall panel and cooperating therewith to provide a bracket-receiving space which communicates with said notch, said end wall panel extending transversely of said side wall panels and being provided with a discharge opening therethrough, and said tab being disposed in said magazine parallel to and in contact with said one outer side wall panel.

5. A dispenser magazine as set forth in claim 4 wherein said inner side wall panel is provided with another tab integrally and foldably connected thereto, said other tab being disposed in said magazine adjacent and parallel to still another of said outer side wall panels.

6. A one-piece dispenser magazine adapted to be mounted on a bracket, said magazine having integrally and foldably connected outer side wall panels which form the sides thereof, and having an inner side wall panel which is integrally and foldably connected to one of said outer side wall panels and which is disposed within said magazine adjacent and parallel to another of said outer side wall panels, said inner side wall panel and said other outer side wall panel providing therebetween a bracket-receiving space having an open lower end through which the bracket may be inserted into said space, said magazine having a lower wall provided with a discharge opening and including an end wall panel, said inner side wall

panel being integrally and foldably connected to said end wall panel and said end wall panel being integrally and foldably connected to said one outer side wall panel so that said inner side wall panel is integrally and foldably connected to said one outer side wall panel through said end wall panel.

7. A dispenser magazine as set forth in claim 6 wherein said one outer side wall panel is adjacent said other outer side wall panel.

References Cited in the file of this patent

UNITED STATES PATENTS

940,634	Davis	Nov. 16, 1909
1,007,390	Robinson	Oct. 31, 1911
1,803,612	Guyer	May 5, 1931
2,390,448	Moeller	Dec. 4, 1945