Oct. 26, 1965 E. FILIPOWICZ 3,214,227

DISPENSER

Filed July 9, 1964 2 Sheets-Sheet 1

Fig. 1

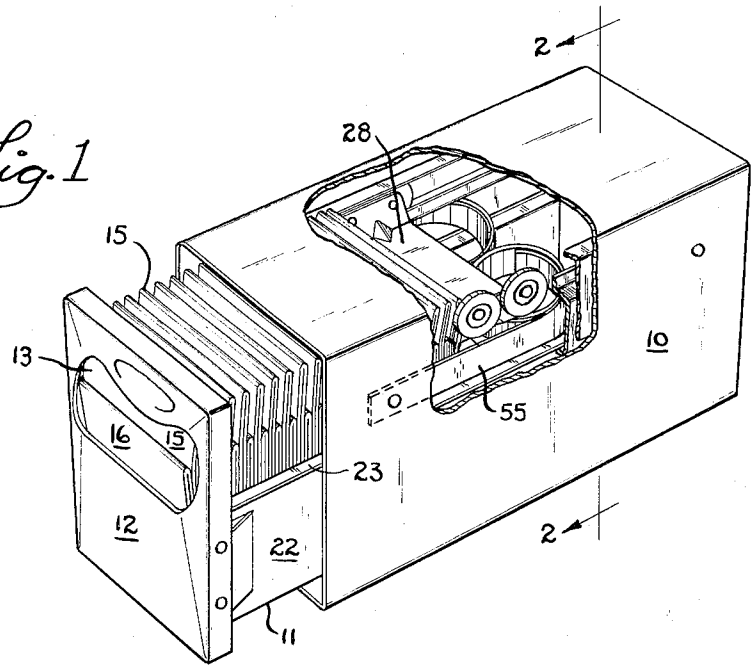


Fig. 2

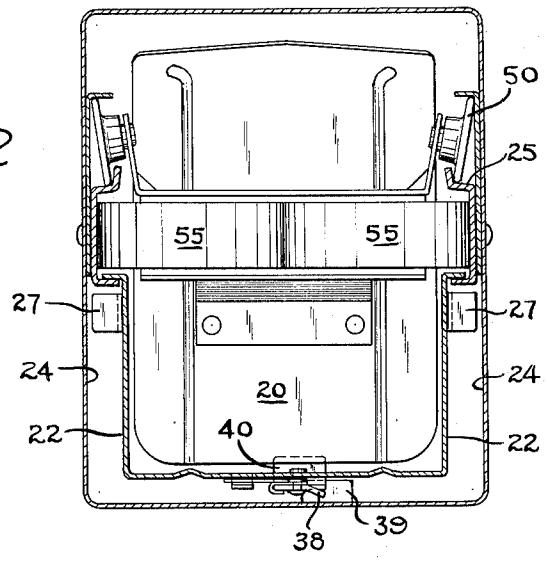
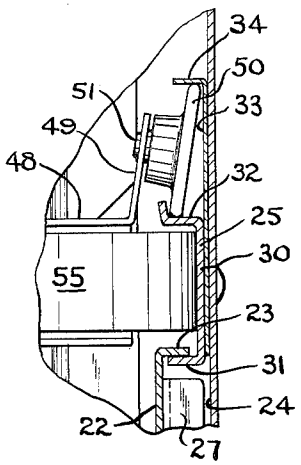


Fig. 3



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DISPENSER

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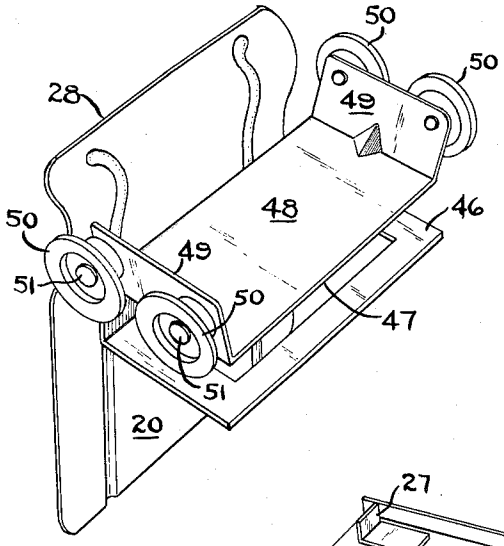


Fig. 4

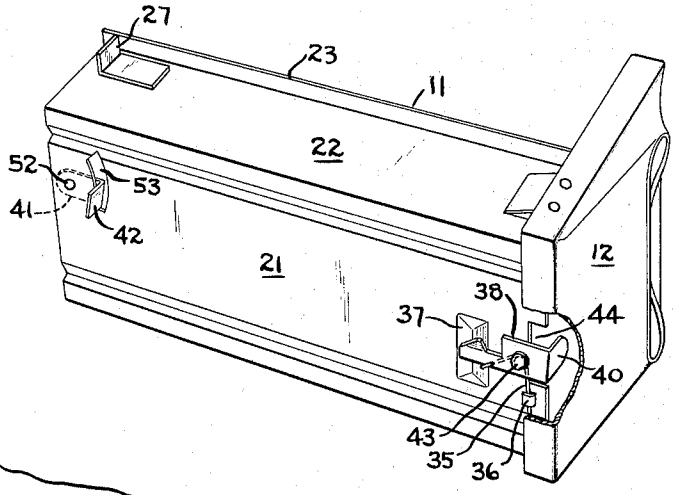


Fig. 5

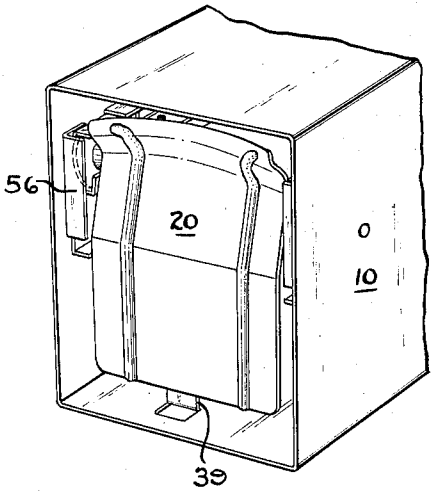


Fig. 6

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3,214,227

DISPENSER

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8 Claims. (Cl. 312—71)

This invention relates to a dispenser for folded sheet materials such as paper napkins and the like which is especially adapted for use as a napkin dispenser in lunch rooms of the self-service type where it is customary for the patron to secure the napkin for himself.

In a self-service napkin dispenser, it is desirable to provide for the ready and convenient withdrawal of a single napkin as desired by the patron and at the same time to prevent access to the entire supply of napkins to discourage pilfering. In further aspect, the dispenser should be convenient for servicing in order that the reserve supply of napkins may be readily maintained in the dispenser.

The dispenser of this invention is of the type in which a drawer-like napkin-retaining tray is slidably mounted in a box-like cabinet. The particular features and unique advantages of the dispenser of the present invention will become apparent from a consideration of the following description together with the accompanying drawings, in which:

FIGURE 1 is a perspective view of the dispenser partially cut away to show certain of the interior elements,

FIGURE 2 is a cross-sectional view of the dispenser taken along line 2—2 of FIGURE 1,

FIGURE 3 is an enlarged view of a portion of FIGURE 2,

FIGURE 4 is a perspective view of a pusher plate assembly constituting a major working component of the dispenser,

FIGURE 5 is a perspective view of the tray member of the dispenser, partially cut away, illustrating latching mechanisms on the bottom of the tray, and

FIGURE 6 is a perspective view of the front end of the dispenser cabinet with the tray removed.

As illustrated in the drawings, a preferred embodiment of the dispenser of the present invention includes a drawer-like tray designed to be housed in a box-like cabinet **10** preferably of metal, which cabinet is provided with an opening in its front face to permit the disposal therein of the napkin-holding tray or drawer generally indicated by the numeral **11**. The tray **11** is provided with a face panel **12** having an opening **13** therein adapted for presenting a folded napkin **15** contained within the dispenser. The napkins are folded as shown, for example, in U.S. Patent No. 2,244,630 so as to present an edge portion or tab **16** adjacent or projecting from the dispensing opening **13** for grasping and removal of the foremost napkin by patrons in restaurants. As the foremost napkin is removed, a pusher plate **20** urges the stack of napkins forward within the dispenser so as to present the next foremost napkin in proper dispensing position with an edge portion **16** projecting from the dispensing opening **13**.

The drawer or tray **11** is provided at the upper edge of the vertical side walls **22** with outwardly extending horizontal tray flanges **23** preferably formed by bending the portions of the tray side walls immediately adjacent their upper edges outwardly from the tray to a substantially horizontal position. These tray flanges **23** serve to support the tray when it is disposed within the cabinet **10**.

Attached to each of the interior side walls **24** of cabinet **10** and extending horizontally from a point near the open front end rearwardly to a point near the back wall of the cabinet is a double-channeled track generally indicated by numeral **25**. This track **25** serves both to support the

napkin-containing tray **11** in sliding relationship within the cabinet **10** and to support the pusher plate assembly, generally designated by the numeral **28** in FIGURE 4, in such manner that it is free to move forward and backward within the cabinet on said track.

The double-channeled track **25** includes a lower vertical section **30** lying against the inner side wall **24** of the cabinet, a tray-supporting flange member **31** extending from the lower edge of the lower vertical section in a horizontal plane inwardly of the cabinet, a roller supporting flange member **32** extending from the upper edge of the lower vertical section horizontally inwardly of the cabinet and, preferably, then upwardly in a direction substantially parallel to the cabinet side wall, an upper vertical section **33** lying against the inner side wall **24** of the cabinet above the lower vertical section and an upper roller-restraining flange member **34**, extending from the top edge of the upper vertical section in a horizontal plane inwardly of the cabinet. The roller-supporting flange member **32**, the upper vertical section **33** and the roller-restraining flange member **34** thus together form a channel-like track member in which a set of rollers forming a portion of a pusher plate assembly are adapted to ride, as will be explained in detail hereinafter. In a convenient form for manufacture on a commercial scale, the double-channeled track **25** is formed of two separate metal strips, one of which includes the lower vertical section **30**, the tray-supporting flange section **31** and the roller-supporting flange member **32**, while the second strip is formed to include the upper vertical section **33** and the roller-restraining flange member **34**. It is, of course, possible to form the double-channeled track from a single piece of extruded metal or high tensile strength plastic, or it may be assembled in a number of ways from two or more strips of metal to achieve a combination including all of the elements heretofore enumerated.

In the assembly of the dispenser, the outwardly-extending tray flanges **23** formed on the upper edges of the tray portion rest on the inwardly-extending tray supporting flange sections **31** of the double-channeled track, thus providing support for the tray and permitting it to slide forward and backward in the cabinet. Lugs **27**, as shown in FIGURE 5 are attached to the tray walls **22** near the rear of the tray and extend outwardly underneath the tray-supporting flange members **31**. The lugs **27** assist in guiding the tray in its sliding relationship and in supporting the tray in its extended position by bearing on the under surface of the tray-supporting flange member **31**. Latch mechanisms are provided (1) to releasably secure the tray when it is completely within the cabinet with the face panel **12** closing the open end thereof and (2) to prevent the tray from being accidentally withdrawn completely from the confines of the cabinet while allowing for such withdrawal if purposeful. In a form preferred for its simplicity in construction as shown in FIGURES 2 and 5, a concealed latch mechanism normally maintaining the tray in its closed position comprises a spring latch lever **38** pivotally secured by a pivot rivet **43** to the outer bottom wall **21** of the tray at the front end thereof and a keeper lug **39** shown in FIGURES 2 and 6 secured to the inner surface of the bottom of the cabinet **10** or formed as an inwardly extending tab from the structural material of the cabinet bottom itself. Spring action of the latch lever is secured by a spring **35** coiled about the pivot rivet **43**, one end of the spring **35** being secured to the latch lever **38** and the other end being secured in a detent **36** formed in the tray bottom wall. For freedom of action, the latch lever bears on a bearing protrusion **37** formed on the tray bottom wall **21**. A latch release tab **40** formed on the remote end of the latch lever extends up into the tray interior through a slot **44** therein and may be

actuated by a finger inserted through the dispensing opening **13** in the face plate. The latch limiting the forward movement of the tray when it is opened to insert napkins comprises a latch arm **41** secured by rear latch pivot rivet **52** to the inner bottom of the tray at the rear end thereof and having its free end bent downward to form a latch tab **42** which passes through a slot **53** in the tray bottom to extend somewhat below the bottom of the tray. The rear latch lever is so placed on the tray bottom that the tab **42** will engage the keeper lug **39** when the tray is extended to its full length for insertion of napkins, thus preventing complete removal of the drawer from the cabinet accidentally. If desired, however, the drawer may be removed by pivoting the latch arm **41** from inside the tray. It is thus seen that a single keeper lug **39** serves as an integral part of both the latching mechanism which normally maintains the tray in closed position and the mechanism which prevents the accidental withdrawal of the tray completely from the cabinet. Although it is desirable that the front latch lever **38** be spring actuated as by spring **35** for automatic engagement with the keeper lug **39**, this feature is of lesser consequence in relation to the seldom used rear latch arm **41** and is therefore quite arbitrary in this instance.

The pusher plate assembly **28** includes a pusher plate **20**, secured by rivets or other suitable means to a pusher plate carriage **46** extending rearwardly of the pusher plate. The carriage **46** includes a U-shaped channel **47**, the arms of which extend horizontally and rearwardly with respect to the pusher plate. The upper arm **48** of the U-shaped channel is extended at both transverse edges and bent upwardly to form roller-bearing flanges **49** disposed in a nearly vertical plane, and on each such flange a pair of rollers or wheels **50** is rotatably mounted in tandem fashion on rivet-type axles **51** to rotate in a plane parallel to the flange. In the preferred embodiment, the roller-bearing flanges **49** are flared slightly so that their top edges are spaced apart by a slightly greater distance than their bottom edges. The rollers or wheels **50**, therefore, do not rotate in a precisely vertical plane, but incline from the vertical by a few degrees for a reason which will be explained in detail later herein. For smoothness of operation, it is preferred that the rollers be formed of a synthetic polyamide such as nylon, although, of course, rollers formed of metal or other structural material may also be used.

When the pusher plate assembly **28** is mounted within the cabinet **10**, the rollers **50** are retained within the upper channel of the double-channeled track **25** and the assembly moves freely forward and backward in the cabinet with the rollers resting on the roller-supporting flange members **32** and is restrained within the channel by roller-restraining flange members **34**. Due to the slight tilt of the roller **50** from the vertical, the upper edges of the rollers are in close proximity to the upper vertical section of the double-channel track which forms the outer wall of the upper channel, while the lower edges of the rollers are in close proximity to the portion of the roller-supporting frame member **32** extending upwardly parallel to the cabinet side wall. This arrangement effectively insures a straight line path of travel of the push plate assembly **28** in the track, thus avoiding the possibility of the assembly jamming or binding in the channel.

In order to maintain the proper presentation of the napkins at the dispensing opening **13** regardless of the number of napkins remaining in the tray **11**, the pusher plate assembly **28** is urged forwardly of the cabinet by a pair of coiled steel springs **55**, one end of each spring being secured by rivet or other suitable means to the cabinet wall, preferably in the lower vertical section **30** of the double-channel track at its forward end, the other end of each spring being freely coiled so that the springs may uncoil within the respective lower channels in the direction of the rear of the cabinet. The freely coiled portions of the springs are retained within the U-shaped channel **47** of the pusher plate assembly **28** and serve to urge the assembly forward within the cabinet by exertion of an even, balanced pressure on the carriage channel **47**. By virtue of the U-shaped channel **47** in the pusher plate carriage working in conjunction with the lower channels of the track **25**, the springs are constrained to coil and uncoil smoothly while exerting even, balanced pressure as the pusher plate assembly moves, and twisting or binding of the springs is prevented, resulting in smooth, trouble-free operation of the pusher plate.

In order to limit the forward movement of the rollers and prevent them from rolling off the end of this track, stop clips **56** as shown in FIGURE 6 are provided which at least partially block the forward end of the track within which the rollers ride. As illustrated, the stop clips **56** are formed from a short length of L-shaped metal, one arm of the "L" being forced into frictional engagement between the cabinet side wall **24** and the forward end portion of the double channeled track **25**, the other arm of the "L" thereby extending transversely across the front end of the track to serve as a stop for the rollers **50**. The stop clips **56** are thus held sufficiently tightly in place within the slight gap between the cabinet wall and the track assembly to maintain their position against all normal pressure exerted by the pusher plate rollers, but are readily removable by simple leverage applied with a small coin, knife blade or similar tool if removal of the pusher plate assembly from the cabinet is desired.

In filling the dispenser with napkins or similar folded sheet materials preparatory to its use in a restaurant or the like, the spring latch release tab **40** is tripped by a finger inserted through the dispensing opening of the tray face panel, thus allowing the tray to be slid forward until most of the tray area is exposed. In the empty dispenser, the pusher plate assembly **28** is forced forward in the cabinet by the springs **55**, its forward motion being limited by the stop clips **56** at the front end of the track. With most of the tray exposed as mentioned above, a stack of folded sheet material such as napkins may be inserted in the tray, the edge portion or tab **16** of the foremost napkin in the stack being positioned to protrude slightly through the opening **13** for easy grasping. The tray may then be pushed back into the cabinet until the spring latch **38** catches on the keeper lug **39** and the tray is thereby secured within the cabinet. As the tray is slid back into its locked position, the pusher plate is engaged by the stack of napkins which force the pusher plate carriage to move rearwardly of the cabinet along the track against resisting pressure of the coiled springs **55**. Stated conversely, the stack of napkins is urged forwardly by the pusher plate under the influence of the coiled springs.

As napkins are individually removed through the dispensing opening **13** in the tray face panel **12**, the pressure exerted on the stack of napkins by the pusher plate causes the next following napkin in the stack to be forced forward into dispensing position with its edge portion **16** protruding through the dispensing opening **13**. This sequence is repeated until the pusher plate has urged the last napkin into dispensing position. The tray may be refilled at any stage of this sequence by the same procedure as outlined above.

The dispenser structure herein described results in the dispensing of individual napkins in a fool-proof manner at a single motion of the customer, the napkins are dispensed smoothly without tearing or snagging and the dispenser is easy to refill and service. The unique pusher plate assembly insures against jamming of the pusher plate by virtue of the even balanced pressure afforded by the twin springs together with the tilted tandem nylon rollers operating in the restrictive confines of the upper track. The pusher plate assembly is independent of both the tray and the cabinet and may be removed from the cabinet if desired by simply disengaging the stop clips **56** at the front end of the track.

I claim:

1. A dispenser for folded sheets comprising:

(a) an open front cabinet having bottom, top, rear and a pair of spaced opposed side walls,

(b) a drawer-like tray adapted to retain a stack of folded sheets received within said cabinet, said tray having a bottom wall and side walls connected therewith and a front face panel connected to the front of said tray, said face panel being provided with a dispensing opening for removing therethrough individual folded sheets contained in said tray, said tray side walls having outwardly extending flanges at the upper edges thereof,

(c) a pusher plate assembly adapted to urge said stack of folded sheets forwardly within said tray, said assembly including a carriage and a pusher plate attached thereto, said carriage being provided with rollers and with a channel member extending rearwardly of said pusher plate,

(d) a pair of double-channel track assemblies each attached to an interior face of one of the side walls of said cabinet and extending lengthwise of said side walls, each track assembly including (1) a tray-supporting flange extending inwardly of said cabinet, (2) a roller-supporting flange positioned in spaced parallel relationship above said tray-supporting flange and extending inwardly of said cabinet and (3) a roller-restraining flange positioned in spaced, parallel relationship above said roller-supporting flange and extending inwardly of said cabinet,

(e) a pair of spaced separately coiled springs, one end of each of said springs being attached to one of the side walls of said cabinet adjacent the open end of same between said tray-supporting flange and said roller-supporting flange, the other end of each spring being freely coiled and received within the channel extending rearwardly of said pusher plate, the tray being slidably retained within the cabinet with said tray flanges resting on and supported by said tray-support flanges, said pusher plate assembly being movably supported by said rollers riding on the roller-supporting flanges and said pusher plate being urged forwardly toward the face plate by balanced pressure exerted on said carriage channel member by the freely coiled end portions of the springs at all positions of said pusher plate within the tray.

2. A dispenser according to claim 1 wherein said tray-supporting flange and said roller-supporting flange are both formed from a single piece of metal and wherein said roller-restraining flange is formed from a separate piece of metal.

3. A dispenser for folded sheets comprising a cabinet and a slidable drawer-like tray received therein, said tray being adapted to retain a stack of folded sheets to be individually dispensed therefrom, said cabinet having a bottom, top, spaced side walls, a rear wall and an open front for inserting said drawer-like tray and a pair of opposed tray supporting flanges connected to the interior face of the side walls of said cabinet and extending inwardly of said cabinet and lengthwise of said side walls,

said tray having a bottom wall and side walls connected therewith and a front face panel connected to the front end of said tray, said face panel being provided with a dispensing opening for removing therethrough individual folded sheets contained in the dispenser, the upper portions of the side walls of said tray being shaped to provide outwardly extending tray flange portions, said tray flange portions being adapted to be slidably supported on said tray supporting flanges, a pair of track members connected to the inner face of the side walls of said cabinet positioned above said tray supporting flanges, a pusher plate adapted to exert pressure on the rear of a stack of folded sheets retained in said tray, said pusher plate being secured to a pusher plate carriage extending rearwardly of the pusher plate, said carriage being provided with rollers adapted to ride in said track members, a channel member formed in said carriage and adapted to receive and support edgewise thereon a pair of spaced separately coiled springs, one end of each of said springs being connected to the side wall of said cabinet adjacent the open end of same and the other end of each spring being freely coiled, the freely coiled end portions of said springs being adapted to exert balanced pressure against the pusher plate carriage within the channel portion thereof and thence against the pusher plate to urge the pusher plate forwardly toward the face plate of said tray at all positions of said pusher plate within the tray.

4. A dispenser according to claim 3 in which said carriage includes a pair of oppositely disposed roller-bearing flanges each bearing a pair of rollers rotatably mounted in tandem.

5. A dispenser according to claim 4 in which said roller bearing flanges are outwardly inclined at a small angle from the vertical.

6. A dispenser according to claim 5 in which said rollers are formed of a synthetic polyamide.

7. A dispenser according to claim 3 in which said tray includes a latch mechanism mounted near the front end of the tray whereby said tray may be releasably secured within said cabinet and a latch mechanism mounted near the rear of said tray whereby the forward motion of the tray in the cabinet may be limited and accidental removal of the tray from the cabinet prevented.

8. A dispenser according to claim 3 wherein removable stop means are provided at the forward end of the upper channel of said double-channel track, whereby the forward movement of said pusher plate assembly is limited and accidental removal of the pusher plate assembly from the cabinet is prevented.

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