United States Patent

Diring et al.

[15] **3,700,181**

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[54] **TISSUE DISPENSING MECHANISM**

[72] Inventors: **James A. Diring; John B. Engel; John E. Broeren,** all of Green Bay, Wis.

[73] Assignee: **Mosinee Paper Corporation,** Green Bay, Wis.

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[52] **U.S. Cl.** **242/55.3,** 312/38

[51] **Int. Cl.** **B65h 19/04**

[58] **Field of Search** 242/55.2, 55.53, 137; 312/38, 312/39, 40

[56] **References Cited**

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2,627,382	2/1953	Borton	242/55.3
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2,767,930	10/1956	McCants	242/55.3
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Primary Examiner—Leonard D. Christian
Attorney—Lee J. Gary et al.

[57] **ABSTRACT**

A dispenser for toilet tissue or the like includes a tamper proof enclosure that contains a roll carrying track leading downward and forward from a reserve position to a dispensing position. The track then leads rearward and downward to a storage area for depleted rolls. Automatic refill at the dispensing position is accomplished by pushing the depleted roll into the storage area, and means are provided to prevent excessive movement of the roll in dispensing position until the roll has been entirely depleted.

10 Claims, 8 Drawing Figures

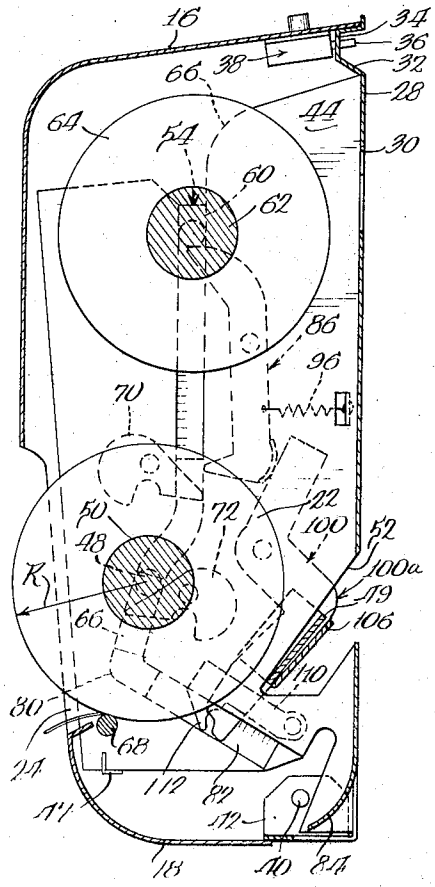

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Fig. 1.

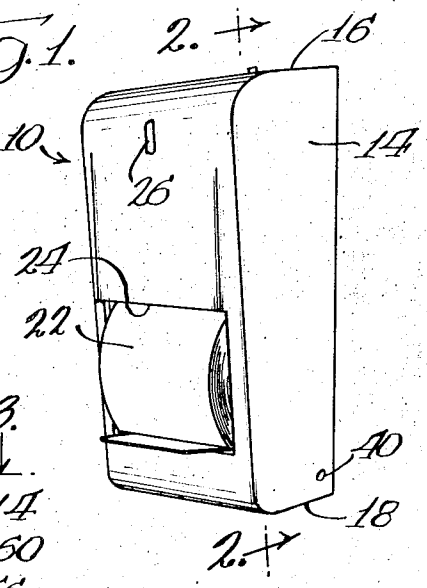


Fig. 2.

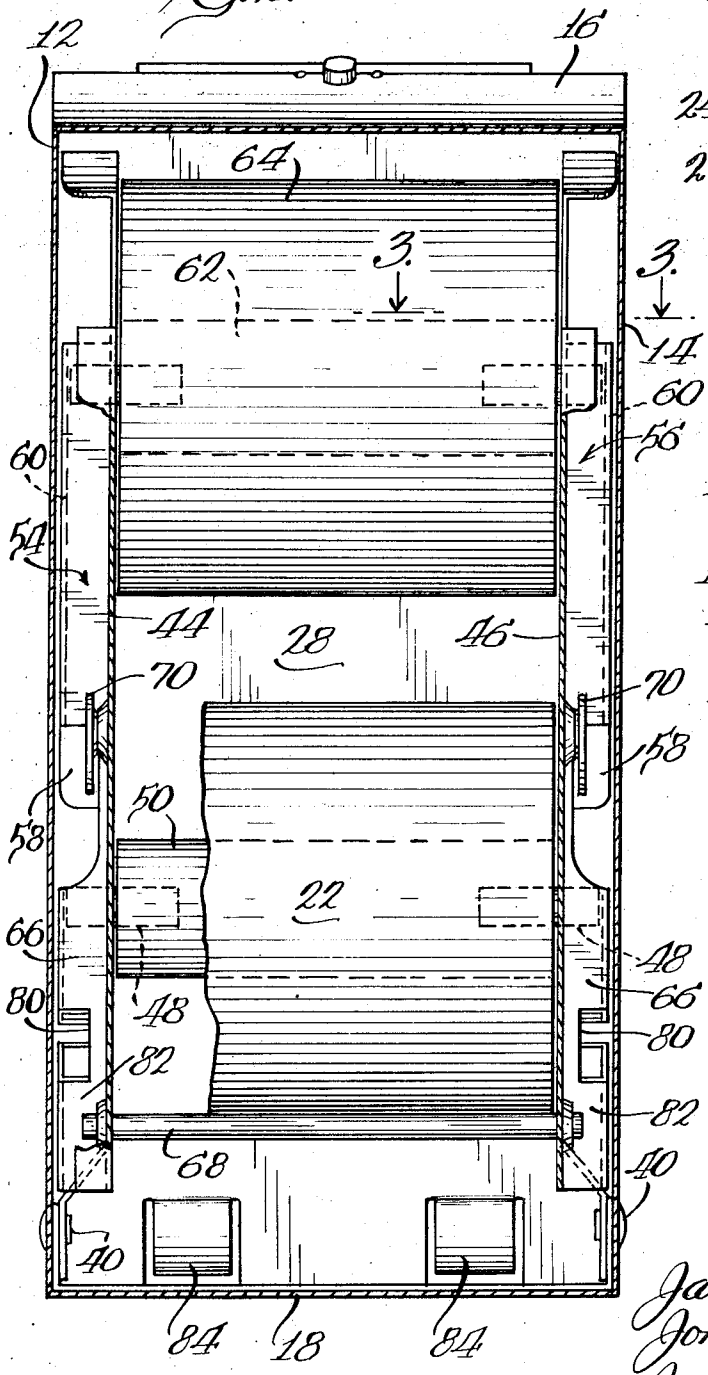
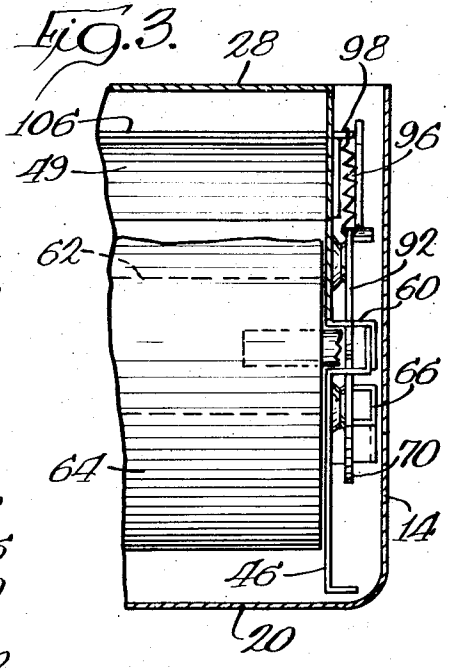


Fig. 3.



Inventors:
James A. Diring
John B. Engel
John E. Broeren

By Gary, Juettner, Pigott & Cullinan
Attys

Fig. 4.

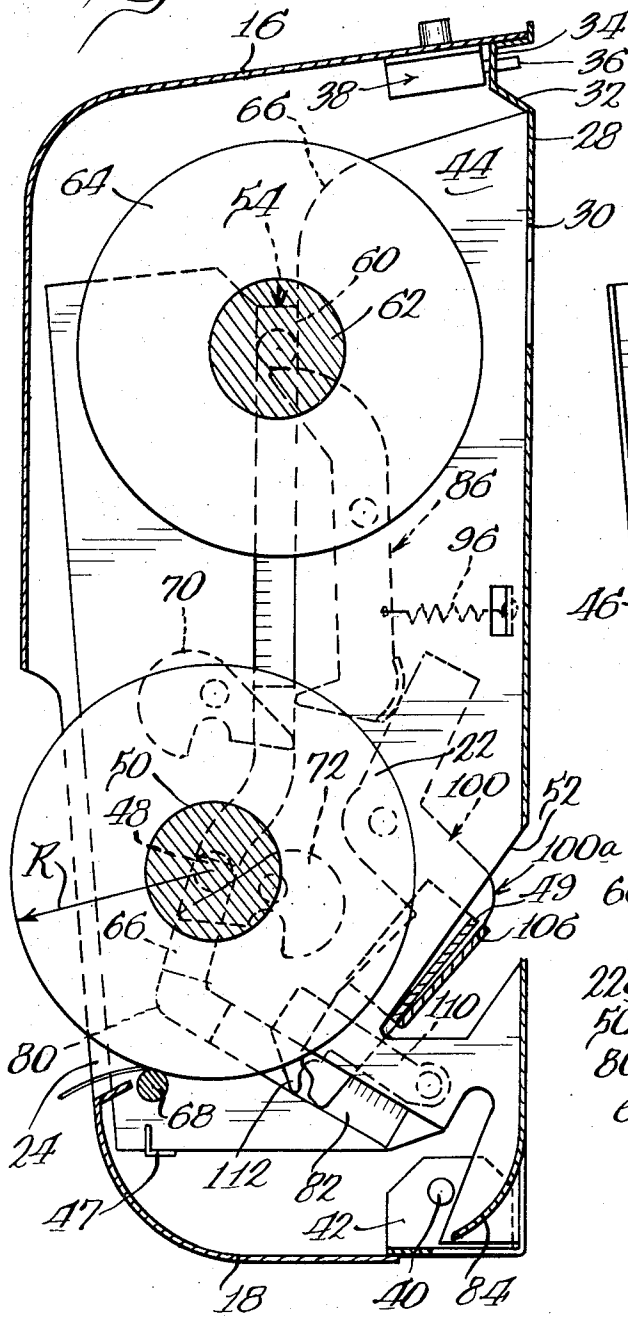
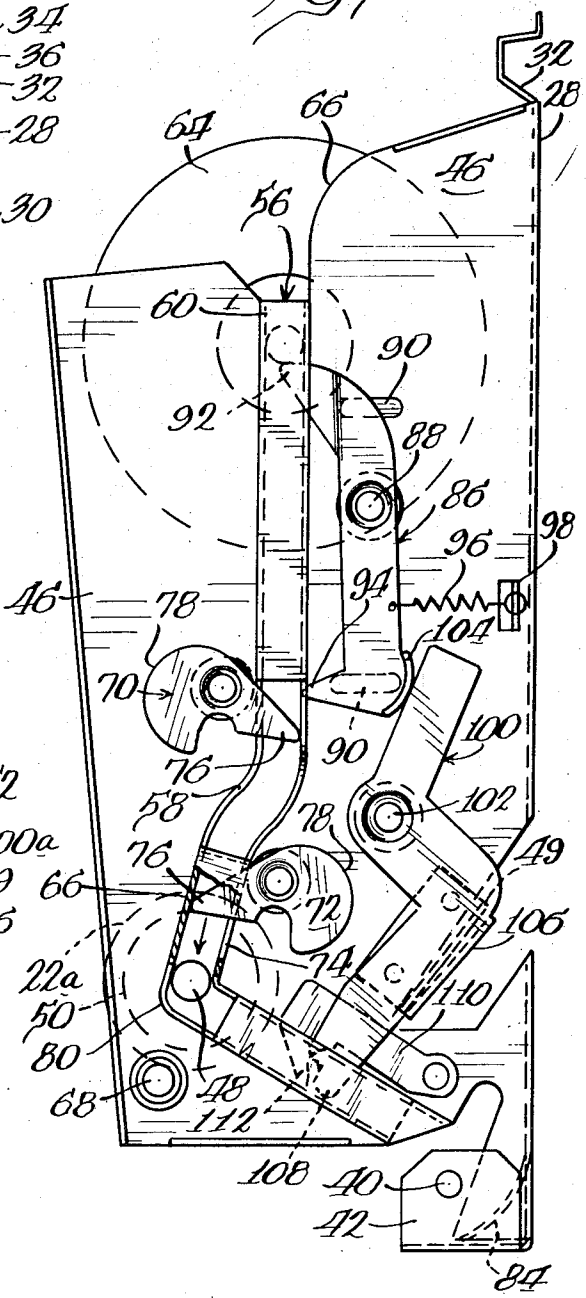


Fig. 5.



Inventors:
James A. Diring
John B. Engel
John E. Broeren

By
Gury, Juettner, Figott & Cullinan
Atty's

Fig. 6.

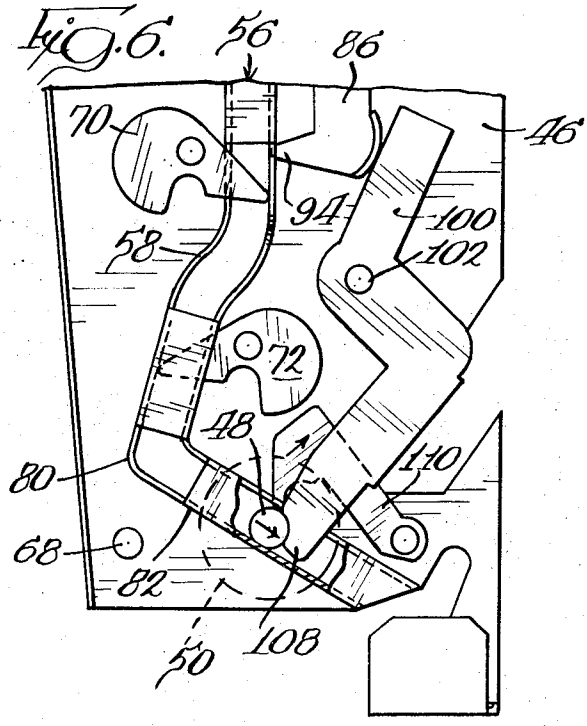


Fig. 7.

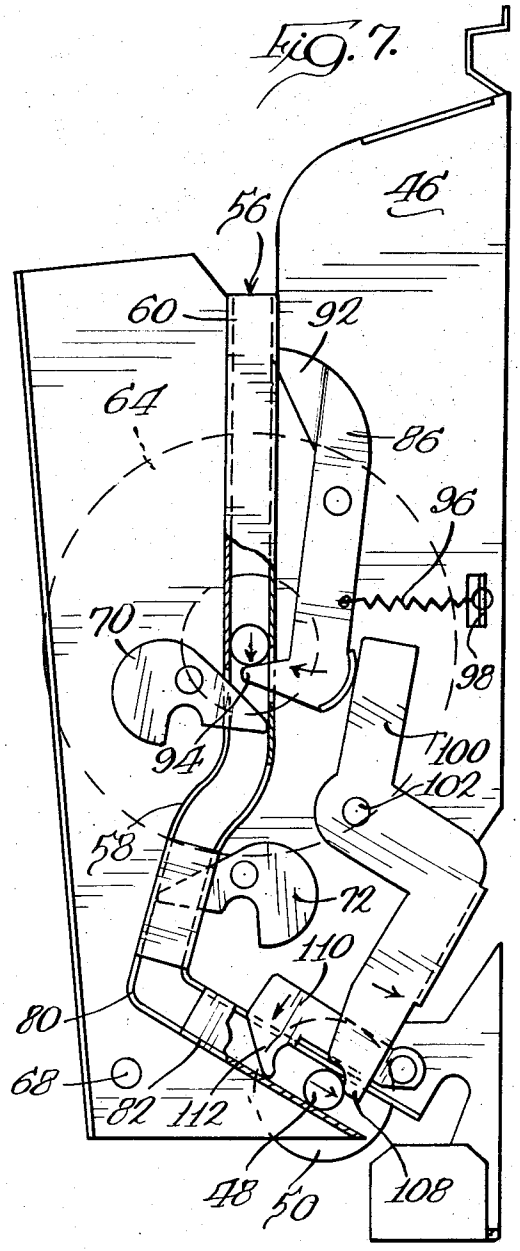
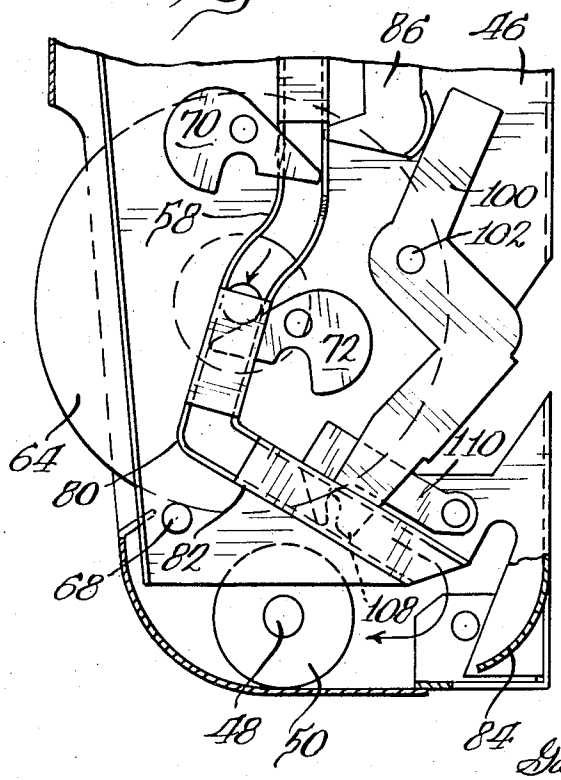


Fig. 8.



Inventors:
James A. Diring
John B. Engel
John E. Broeren
By
Gary, Juettner, Pigott & Cullinan,
Attys

TISSUE DISPENSING MECHANISM

BACKGROUND OF THE INVENTION

This invention relates to dispensing mechanisms and more particularly to machines for dispensing toilet tissue or other webs from rolls.

More specifically, the present invention represents improvements in the types of roll dispensing devices that are commonly used in public washrooms. Conventionally, such devices include two or more rolls in an enclosure, one of which is in dispensing position. Various mechanisms or arrangements are usually employed to limit dispensing to one roll at a time, whereby excessive maintenance and replacement of rolls is avoided and paper is available at all times.

It is commonplace that dispensers of the foregoing type are plagued by the idle and the curious, many of whom often prove ingenious in the manipulation of the dispensing apparatus toward destructive and wasteful ends. For reasons not understood, many users, for example, would prefer to remove paper from a full roll rather than one which has been partially depleted, regardless of instructions to the contrary on the dispenser. The end result is that rolls of tissue, even though only partially used, must be replaced. It is therefore desirable to provide safeguards in the dispensing mechanism that will absolutely prevent use of a reserve full roll until the roll in service is depleted.

Examples of attempts to thwart unauthorized misuse and waste may be found in the Woskin U.S. Pat. No. 3,382,021 and the Mott et al. U.S. Pat. No. 3,058,682. Both of these patents described mechanisms having enclosures with roll dispensing windows, wherein one or more reserve rolls are provided within the enclosure. After depletion of the roll in service, a reserve roll is brought into dispensing position by manual manipulation of an exposed or external button or handle. Even though premature manipulation of the button or handle may not be fruitful, such parts, by their very nature, invite useless manipulation, which may result in the jamming or bending of the associated internal mechanism.

Still another type of mechanism shown in the Mc Cants U.S. Pat. No. 2,758,800 provides a dispenser from which the depleted roll is removed from the front by the user, whereupon the reserve roll drops into dispensing position. The disadvantages of such devices are twofold, namely, the depleted roll must be skillfully maneuvered in first an upward and then outward direction; also, the spindle which carries the roll is removed from the enclosure by the user and may be lost or stolen.

Accordingly, an object of this invention is the provision of a roll dispenser that allows for tamper proof storage of reserve rolls.

Another object of this invention is the provision of a roll dispenser that does not employ external handles or buttons for operation and allows tamper proof storage of the depleted spindle.

A further object is to provide a dispensing apparatus having means to prevent wasteful use of paper, as well as means to ensure that the entire roll will be used before an additional roll is made available.

Other objects will become apparent from the following description and appended claims, taken in connection with the accompanying drawings.

SUMMARY OF THE INVENTION

The present improved dispenser attains the above objectives by employing opposed roll carrying tracks leading from a reserve position forward and downward to a dispensing position. The tracks then lead rearward and downward to a tamper proof storage area that is protected by inaccessible latches. Automatic refill at the dispensing position is accomplished only by pushing the depleted roll manually in a rearward direction into the storage area, rather than by the manipulation of handles or buttons. The roll must be entirely depleted before it may be pushed into the storage area. Moreover, means in the form of latches are provided to prevent premature manipulation of the roll in service on the opposed tracks until the roll is entirely depleted. The cover over the device is of unitary, tamper proof construction, and internal parts of the refill mechanism are not accessible through the dispensing window.

THE DRAWINGS

FIG. **1** is a perspective view of a tissue dispenser that incorporates the improved dispensing mechanism of the presently described invention.

FIG. **2** is a front elevation of the dispensing mechanism, the view being taken from the inside of the front wall of the dispenser housing substantially along a vertical plane through section line **2—2** of FIG. **1**.

FIG. **3** is a fragmentary plan view of the dispensing mechanism, the view being taken along section line **3—3** of FIG. **2**;

FIG. **4** is a transverse vertical section of the apparatus shown in FIGS. **1** and **2**, showing a full roll in reserve position and a full roll in dispensing position.

FIG. **5** is a side view of the dispensing mechanism with the exterior housing removed, wherein the roll in dispensing position has been almost but not quite fully depleted.

FIGS. **6**, **7** and **8** are views similar to FIG. **5**, but showing the successive stages of operation of the refill mechanism after a roll in service has been entirely depleted.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Now, in order to acquaint those skilled in the art with the manner of making and using the invention, a preferred embodiment thereof will be described in connection with the accompanying drawings. Referring first to FIGS. **1** and **2**, the dispensing mechanism is housed within a unitary front enclosure, generally indicated at **10**, said enclosure having substantially parallel side walls **12** and **14** connected between respective top and bottom walls **16** and **18**. A front wall **20** extends between the front edges of the two side walls and the top and bottom walls to complete the enclosure. A roll of toilet tissue **22** projects through a rectangular opening or window **24** in a lower portion of the front wall **20**, said roll being in dispensing position and available for use. A vertically elongated narrow opening **26** near the top of the front wall **20** allows for visual inspection of the interior of the enclosure. This feature enables maintenance personnel to visually determine if an extra roll is in the reserve position without the bother of opening the enclosure.

As shown in FIGS. 2–5, a back plate 28 covers the rear of the enclosure 10 and may have various apertures 30 therein at convenient locations to enable mounting of the dispensing device on a wall. A forwardly extending channel 32 across the top of the back plate 28 may have an opening containing a tab 34 to be engaged or gripped by opposed latches 36 of a conventional locking mechanism 38 (FIG. 4). The locking mechanism 38 may be secured to the inside surface of the enclosure top wall 16 by tamper proof rivets or the like and may comprise an externally accessible head extending through an opening in the top wall and having the usual slot for receiving a lock operating key.

The front enclosure 10 is pivotally mounted at the bottom rear corners of the side walls thereof on the back plate 28 by means of opposed pins or rivets, such as 40, connected between the lower rear corners of the side walls 12 and 14 and respective vertical tabs 42 extending forwardly from the bottom of back plate at each side thereof. The front enclosure 10 is thus pivotable about the rivets 40 away from the back plate 28 to provide access to the interior following opening of the lock 38 by authorized personnel.

A pair of opposed and spaced side frame members 44 and 46 extend forwardly from respective sides of the back plate 28 and terminate at flanged edges adjacent the inside surface of the enclosure front wall 20. A strut 47 (FIG. 4) is secured between the lower forward corners of the side frames 44 and 46 in order to additionally secure the sides in a spaced relationship. Also, the sides 44 and 46 are connected by a rearwardly upwardly sloped cross beam 49 located within a downwardly slanting notch 52 in the back plate and sides near the bottom thereof.

Opposed tracks or guideways 54 and 56 are formed in the respective side frames 44 and 46 and extend between the top and bottom thereof. The guideways 54 and 56 are sufficiently spaced from one another and sufficiently wide to freely receive opposite cylindrical spindle ends 48 of a spool 50 upon which a roll of toilet tissue 22 is mounted. The guideways 54 and 56 are preferably formed of outwardly boxed channels in the straight sections thereof. To facilitate economical construction from stamped components, the outer wall is omitted from the curved sections of said guideways 54 and 56 as indicated at 58 in FIG. 5.

The opposed guideways 54 and 56 essentially define three downwardly connected locations, namely, a reserve location, a dispensing location, and a spent roll ejecting location. The guideways are arranged to guide the spool spindles and thus the roll from the storage or reserve position downwardly and forwardly to a dispensing position, and to guide a depleted roll from the dispensing position rearwardly to a spent roll or dead storage area. As shown in FIGS. 2, 4 and 5, the reserve location 60 comprises the top vertical and straight portion of the opposed guideways 54 and 56 located substantially centrally in the side walls, said guideways being open at the top ends thereof to receive the spindle ends of a spool 62 for a reserve roll 64. It will be noted that the slots in the side walls that form each guideway are flared or curved outwardly from the open tops thereof, as at 66, in order to guide entrance of the reserve roll spool thereinto. The upper straight sections of the guideways 54 and 56 lead downward to a forwardly curved section 58 commencing just below the top of the window 24, which in turn leads to a forwardly and downwardly slanted straight section 66 which defines the dispensing location. The straight or dispensing section 66 commences approximately centrally of the window 24 and terminates above the bottom of said window. The ends of a limit rod 68 are rotatably mounted in respective bearings held within respective side walls 44 and 46, such that the limit rod is rotatable around an axis parallel to the axis of the spool 50 which carries the roll 22 in dispensing position. The limit rod 68 is located slightly inward from the inwardly flanged bottom of the window 24 and rotatably supports the outer periphery of the roll 22 at the underside thereof along a line forward of a vertical plane passing through the center of the lower ends of the dispensing section 66.

From the foregoing, it may be seen that the forwardly sloped dispensing section 66 in combination with the limit rod 68 provides a simple expedient for maintaining the roll 22 in dispensing position in the window 24. As shown in FIG. 4, a new roll 22 has a known total radius R from the axis of the spool 50 to the outer edge of the roll. The limit rod 68 is spaced from the upper end of section 66 a given distance approximately equal to the radius R of a full roll and limits downward movement of the full roll to a position wherein the spool spindles 48 are at the top of slanted dispensing section 66 of the guideways 54 and 56. As the tissue from the roll 22 is dispensed, the decreasing radius R allows the roll to move downwardly and outwardly in the sections 66 with respect to the window 24 as the roll is supported on the limit rod 68. This feature ensures that the roll will continue to project from the window as it is depleted, notwithstanding the decrease in radius of the roll.

As shown in FIG. 5, the almost completely depleted roll 22a has moved to the bottom end of the forwardly sloped section 66, but said section is sloped to such a degree with reference to rod 68 that the roll continues to project from the window near the bottom thereof.

The dispensing combination of the forwardly sloped section 66 with the limit rod 68 provides an additional benefit in connection with the dispensing of tissue from the roll 22. As shown, the roll 22 is installed such that the free end of the tissue projects from the bottom thereof, whereby the roll rotates away from the window as tissue is withdrawn. Such rotation, along with a slight lifting effect imparted on the roll during the initial stage of the pull, causes the roll to travel upwardly momentarily and then fall by its own weight against the limit rod 68. Thus, the roll may rotate relatively freely during upward travel, but shortly falls and encounters the rod 68 to abruptly increase frictional resistance to roll rotation and to cause severance of the tissue under stress. This simple and convenient expedient prevents long and unnecessarily wasteful segments of tissue from being withdrawn in a single pull and serves to cause automatic severance of the tissue at the proper time.

As mentioned previously, it is desirable to prevent unauthorizing tampering of the mechanism by shoving on the roll. Hence, latch means are provided in one or both of the guideways 54 and 56 to prevent excessive upward travel of a roll after it has reached the dispensing position. As best shown in FIGS. 2–5, it is

preferable that two pairs of latches be employed, one pair **70** being located across the respective guideways comprising the outwardly curved sections **58**, and the other pair **72** being located across the respective dispensing sections **66** of said guideways through a slot **74** (FIG. **5**) in one side of the outwardly boxed channel thereof.

The latches of the pairs **70** and **72** each comprises a lever pivotally mounted adjacent a passageway, one end **76** of said arm being downwardly beveled, and the other end **78** of said arm being enlarged and relatively heavy with respect to the other end. The levers are each disposed parallel to the side walls **44** and **46** and are normally disposed along substantially a horizontal axis by means of contact between the relatively light end **76** thereof and a stop surface above said end. In the case of the upper pair of latches **70**, the stop comprises the lower terminal end of the boxed sections forming the reserve guideways **60**. In the case of the lower pair of latches **72**, the lighter end **76** contacts the top of the slot **74** (FIG. **5**) to limit upward rotation thereof and maintain the same in operative position. Thus, the latches are biased across the path of the guideways to freely permit downward passage of the ends of a roll spool but prevent upward passage because of contact with the downwardly facing stops.

The functions of the latches **70** and **72** are best illustrated by again referring to FIGS. **4** and **5**. As a roll moves from reserve to dispensing position, it encounters and passes the first pair of latches **70** as shown in FIG. **4**, and such latches thereafter prevent movement of the roll above the curved sections **58**. The second pair of latches **72** are contacted in the full roll dispensing position (FIG. **4**) but are not passed until the roll is nearly depleted (FIG. **5**). Normally, the weight of the nearly depleted roll **22***a* is not sufficient to cause severance of tissue being withdrawn. However, since the latches **72** are only slightly spaced from the spindle ends of the nearly-depleted roll **22***a*, the ends, upon being suddenly lifted in response to tugging on the end of the tissue, tend to bounce off the bottom surfaces of the latches **72**. Thus, upward free movement of the roll **22***a* is limited, and the roll is returned to the limit rod **68** with sufficient force and rapidity to cause severance of the tissue before an excessive quantity has been withdrawn. In the absence of the latches **72**, the relatively light roll might continue to move upward in the guideways and to rotate freely, thereby causing excessive waste of tissue.

In FIGS. **2**, **4** and **5**, it may be seen that means are provided to allow pushing of a completely depleted roll into a dead storage location. The lower ends of the forwardly sloped sections **66** of the guideways **54** and **56** terminate at opposed corners **80** which lead to straight rearwardly and downwardly slanted sections **82**. The sections **82** comprise outwardly boxed channels and are open at their lower ends, thereby enabling a depleted roll to pass into the bottom of the enclosure **10**. A pair of forwardly curved tabs **84** formed from lower portions of the back plate **28** serve to catch the depleted roll as it is emitted from the lower open ends of the sections **82** and to guide or impart a rolling motion on said roll toward the front of the bottom of the enclosure.

Although the angle of the corners **80** is not critical and may vary in the order of about 80° to 130°, it is important that the corner be sharp enough to accurately define the distance between the corner and the limit rod **68**, said distance being critical in preventing downward ejection of the roll before depletion. The distance between the respective centers of the corners **80** and the limit rod **68** is preferably about the same as or just slightly greater than the radius of an entirely depleted roll, i.e., the tubular paperboard core on which the tissue was wound to form the original roll. This important feature prevents premature ejection of the roll before entire depletion thereof, because the radius of a nearly depleted roll will be too great to allow passage of the roll spindle **48** around the corners **80**. Hence, the roll must be substantially entirely depleted before it may pass into the ejection sections **82**.

As shown in FIGS. **2–7** means are provided to allow automatic transfer of the reserve roll **64** into a dispensing position after the roll **22***a* in current dispensing position has been depleted. For this purpose, an operating mechanism is employed, said mechanism being activated by the manual pushing of a depleted roll spool down the track sections **82** into dead storage, whereby a roll in reserve position is released and allowed to drop in two steps into dispensing position. It will be understood that the operating mechanism comprises coacting parts mounted on the outside of each side wall **44** and **46**. Since parts at respective sides are substantially identical and function in the same manner with respect to the respective guideways **54** and **56**, discussion will be limited to one side for the sake of brevity.

The operating mechanism comprises an upper, substantially vertical lever **86** pivotally mounted on the side wall **46** adjacent and rearwardly of the vertical reserve guideway section **60** around a raised pivot point **88** located between the center of said lever and its upper end. The lever **86** is substantially flat and surfaces near the ends thereof are slidable along rounded abutments **90** that project form the side wall **46** and provide bearing support for said ends. Respective upper and lower catches or fingers **92** and **94** project laterally forwardly from the respective upper and lower ends of the lever **86** and are aligned with respective slots in the rear side of the track section **60**, such that said fingers may extend into the interior of the guideway **56**. The lever **86** is spaced sufficiently from the section **60** such that the fingers **92** and **94** may enter guideway **56** only alternately, depending upon the direction of rotation of the lever. A coil spring **96** under tension extends between an aperture in the lever **86** below the pivot point **88** and a fixed location **98** on the side wall **46** rearwardly of the lever. The spring **96**, therefore urges the lever to rotate in a counterclockwise direction such that the upper finger **92** extends into the guideway **56** while the lower finger **94** is normally urged away therefrom.

As shown in FIGS. **4** and **5**, the upper finger **92** of lever **86** is slightly spaced from the top of the section **60** to allow the ends of the spool of reserve roll **64** to be normally supported thereon. Means are then provided to rotate the lever **86** in such a manner that the finger **92** is removed from the path of the reserve roll ends, when the depleted roll is shoved to the dead storage

area. For this purpose, a second lever **100** is pivotally mounted near its upper end around a pivot point **102** on the side wall **46**, said pivot point being located adjacent the curved section **58**. The upper forward edge of the lever **100** is in engagement with a rounded abutment **104** on the lower end of the lever **86** to enable smooth transmission of motion between levers. Moreover, the spacing of the respective levers **86** and **100** is such that the pressure of the spring **96** is exerted on the lever **100** and tends to rotate said lever in a clockwise direction.

The lower end of the lever **100** is shaped in the form of an inverted L and extends substantially parallel to the downwardly slanting notch **52**. A cross member **106** is connected between the lower end of the lever **100** and the corresponding lever **100a** (FIG. **4**) at the other side of the structure, whereby said levers and the corresponding parts on both sides of the operating mechanism operate conjointly. It will be noted that the cross member **106** is located directly behind or is hidden by the cross beam **49** so to prevent tampering therewith through the enclosure window. The lowermost end of the lever **100** terminates in a recessed finger **108** adapted to engage the spool spindles **48**, said finger extending into a slot in about the center of the ejecting section **82**.

A third pair of latches **110** are pivotally mounted adjacent and parallel to the ejecting sections **82**, with the lower surface of said latches resting on the top of said sections. A rearwardly tapered ear **112** on each latch **110** extends into a slot in the ejector section **82** slightly above and forward of the finger **108**, such that the latch is encountered and passed by the spindles before the finger is urged thereby. The purpose of this feature is to prevent withdrawal of the spool to the front after the operating mechanism has been activated and a new roll has dropped into dispensing position.

The functions of the operating mechanism will now be described in connection with FIGS. **5–8**. Initially, as shown in FIG. **4**, the roll **22** in dispensing position is full, and a full reserve roll is at the top of the guideways **54** and **56** resting on the finger **92**. As the roll in service becomes gradually depleted, as shown in FIG. **5**, said roll continues to move outwardly in the dispensing sections **66** and approaches the corner **80**, said roll being at all times supported upon the limit rod **68**, as previously described.

As shown in FIG. **6**, after the roll **22** is completely depleted, the spool **50**, having the required minimum radius, may pass around the corner **80** and into the lower sections **82**. At this point, no tissue is available in dispensing position, and a sign on the front of the dispenser notifies the user that the spent roll must be pushed to the rear, in order to obtain additional tissue. The user, in response manually pushes the spool **50** in the direction of the arrow (FIG. **6**), thereby urging the latch **110** upward out of its path and causing the spindles to push on the recessed finger **108**.

As shown in FIG. **7**, pushing on the spool urges the lever **100** around its pivot **102** such that the upper end thereof pushes against the rounded end of the lever **86** and against the force of the spring **96**. The lever **86** thus rotates, whereby the upper finger **92** thereof is withdrawn from the guideway and the lower finger **94** thereof is moved into the guideway at the lower end of the vertical reserve section **60**. The reserve roll **64** therefore drops from its original position onto the lower finger **94** of the lever **86**, whereby downward motion of the roll is momentarily stopped. The purpose of this feature is to prevent the reserve roll from abruptly dropping on the hand of the user who is pushing the empty spool toward storage. At the same time, the lower latch **110** falls behind the spindles of the empty spool **50** and limits possible travel of the spool to a direction toward the storage location.

The final stage of operation is shown in FIG. **8**, wherein the empty spool has passed the finger **108** of the lever **100** and continues to the dead storage by falling and rolling in the direction shown. As the spindles of empty spool **50** pass the finger **108**, the operating mechanism returns to its original posture by the force of the spring **96**. In so doing, the lower finger **94** (FIG. **7**) of the lever **86** is withdrawn from the guideway, thereby allowing the reserve roll **64** to travel past the upper latch **70** and forwardly in the curved section into full roll dispensing position. Maintenance personnel, upon viewing through the aperture **26** (FIG. **1**) would then note the absence of a reserve roll and could open the enclosure to remove the empty spool and insert it into a new reserve roll. The spindles of a reserve roll would then be inserted into the top of the guideways **54** and **56**, whereupon the fully loaded condition of FIGS. **2** and **4** would be restored.

From the foregoing it may be seen that obvious modifications may be made to the device disclosed herein without departing from the scope of the invention. For example, provision could easily be made to accommodate a plurality of stacked rolls in reserve position, which would require less maintenance than the present embodiment. Accordingly, to the extent that such and other modifications are not expressly excluded from the appended claims, they are fully intended to be covered therein.

Having thus described the invention, what is claimed is:

1. A dispenser for roll material carried upon spools comprising means defining an enclosure for containing a spool of roll material, said housing having an opening in the lower portion thereof for projection therethrough of roll material to be dispensed from said spool, a pair of opposed and spaced spool guideways within said housing, said guideways having upper vertical portions above said window spaced rearwardly therefrom and lower portions adjacent said window and sloping downwardly and forwardly from below the top of the window to corners near the bottom of said window, said corners leading to exit portions of said guideways sloping downwardly away from said window, and limit means in said housing for rotatably supporting a lower periphery of said roll carried on a spool in said lower portions such that said roll continues to project from said window during the usage thereof, said limit means being spaced a fixed distance from said corners such that the roll must be depleted before passage between the corner and the limit means may occur, whereby said spool may move into the exit portion of said guideways.

2. The dispenser of claim **1** wherein latch means are provided in at least one of said lower portions above said corners engageable with an end of said spool, said

latch means being operative to freely allow movement of said spool therepast in a downward direction and to prevent upward return movement of said spool.

3. The dispenser of claim 1 wherein latch means are provided in at least one of said guideways above said lower portions, said latch means being operative to freely allow movement of said spool therepast in a downward direction and to prevent upward return movement of said spool.

4. The dispenser of claim 1 wherein a reserve roll is mounted on a spool carried in said upper vertical portions upon a catch, and means are associated with said exit portions to release said catch for downward movement of said reserve roll upon manual pushing of a substantially empty spool through said exit portions.

5. The dispenser of claim 4 wherein said exit portions open into dead spool storage area at the bottom of said enclosure.

6. A dispenser for roll material carried upon spools comprising an enclosure, a window in the lower forward portion of said housing through which a roll of material may project, a pair of spaced side frames within said housing disposed at right angles to said window, opposed guideways in said side frames extending from the top to the bottom thereof, said guideways being sufficiently spaced to slidably receive the ends of a spindle and being open at their top and bottom ends, whereby a spool may be inserted at the top and ejected at the bottom, said guideways extending above said window in respective vertical sections thereof and communicating downwardly with forwardly curved sections along a line corresponding substantially to the top of said window, said curved sections leading downward to forwardly sloped and straight dispensing sections commencing approximately centrally of said window and terminating in corner sections above the bottom of said window, said corner sections leading downwardly to rearwardly sloped straight exit sections terminating at respective bottom ends, a rotatably supported rod within said enclosure adjacent the bottom of said window, said rod supporting the decreasing periphery of a roll on a spindle when said spindle is within said dispensing sections, the distance between said rod and said corners being such that said spool will pass by said corners and into said exit sections only upon substantial depletion of the roll material carried thereon, means for mounting a reserve roll on a spool near the top of said vertical sections, and means for causing said spool to drop into said dispensing sections upon manual pushing of an empty spool through said exit sections.

7. In a dispensing apparatus wherein rolls of roll material within an enclosure are successively guided downwardly in opposed guideways from a reserve position into a dispensing position through a window and thence rearwardly to a depleted roll storage location in said enclosure, an operating mechanism for releasing successive rolls from said reserve position, said mechanism comprising first lever means pivotally mounted between its ends, said lever means having a first finger on one end thereof blocking said guideways at a reserve location, a second finger on the other end of said lever and movable, upon rotation of said lever into one of said guideways at a point spaced downward from said reserve location, and means for rotating said lever upon manual pushing of a substantially depleted spool toward said storage location.

8. The dispensing apparatus of claim 7 wherein said last-mentioned means comprises second lever means pivotally mounted between its ends, said second lever means having one end in operative engagement with an end of said first lever means and having another end extending in the path of said guideways between the dispensing position thereof and said storage location.

9. The dispensing apparatus of claim 8 wherein spring means biases said first lever means in a direction opposite to the indicated direction of rotation.

10. The dispensing apparatus of claim 8 wherein latch means is located adjacent said second lever means in said guideways, said latch means being operative to prevent return of an empty spool toward dispensing position upon engagement thereof with said second lever means.

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