Sept. 7, 1937. R. C. KETTLES, JR 2,092,168

DISPENSING APPARATUS FOR INTERFOLDED TOWELS

Filed June 25, 1936

FIG. 1.

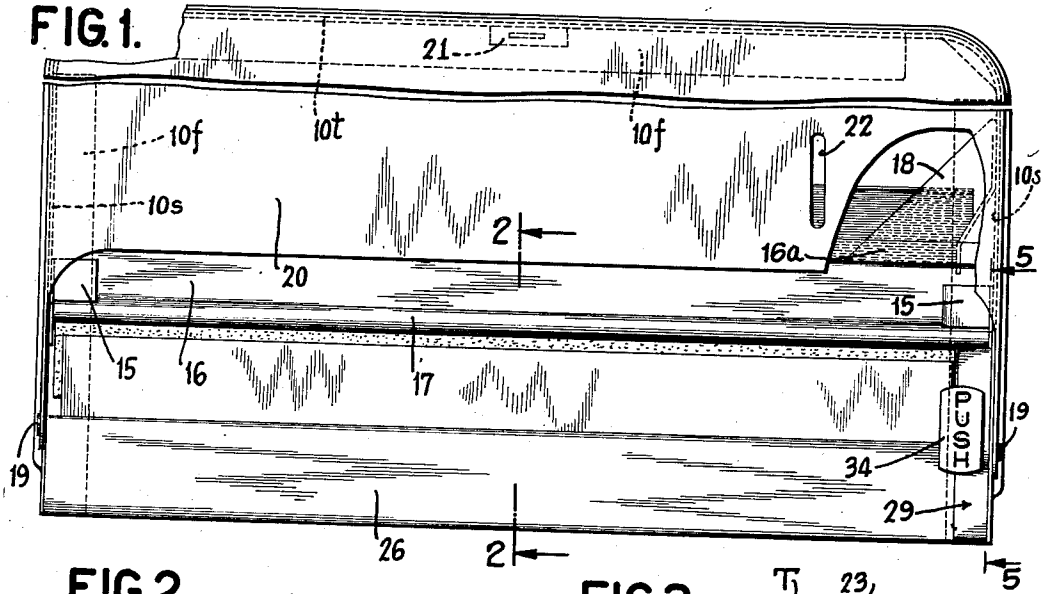


FIG. 2.

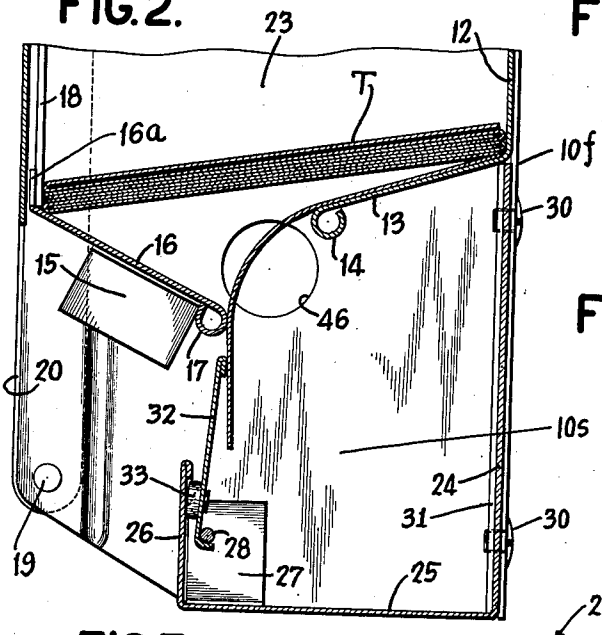


FIG. 3

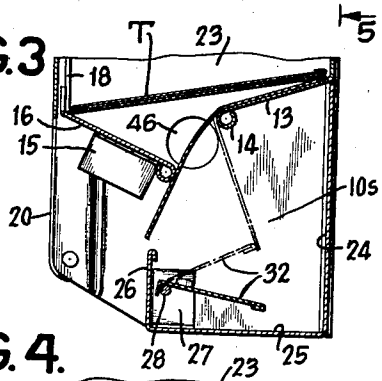


FIG. 4.

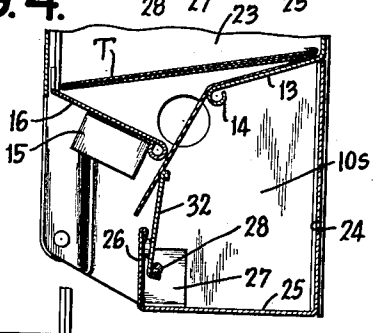


FIG. 5.

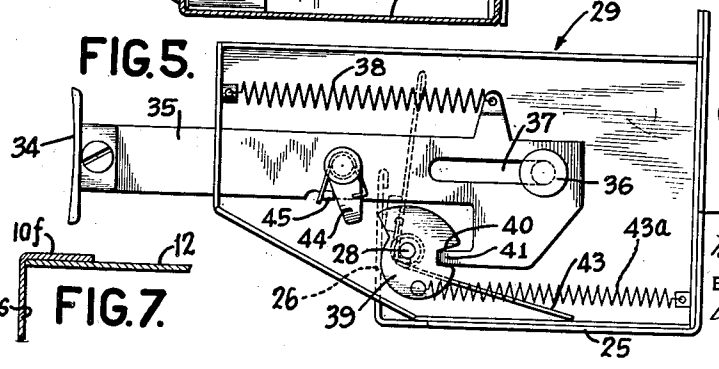
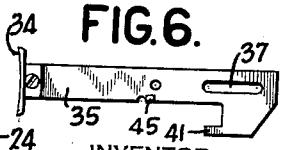


FIG. 7.

FIG. 6.



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DISPENSING APPARATUS FOR INTERFOLDED TOWELS

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Application June 25, 1936, Serial No. 87,127

14 Claims. (Cl. 312—51)

This invention relates to a towel dispensing apparatus for dispensing inter-folded paper towels. More particularly, the invention has for its object the provision of a dispensing apparatus for paper towels, which will be exceedingly cheap and inexpensive to manufacture and which will be of such construction that it will not be likely to get out of order when in use.

A further object of the present invention resides in the provision of a simple push button operating mechanism for apparatus of this class cooperating with a displaceable barrier which is shiftable with the operating mechanism from a position in which it is locked thereby and in which position it prevents access to the leading edge of a towel to another position in which the edge of the towel may pass over the top of the barrier. The barrier is adapted for automatic return movement by which movement it moves up back of the leading edge of the towel which is presented in a position in which it may be manually withdrawn by the user. Upon the barrier assuming the last mentioned position, it is again locked by the operating mechanism and the leading edge of the following towel which is drawn out from the inter-folded stack upon manual withdrawal of the preceding towel descends in back of the barrier so that it cannot be accessible for withdrawal until a further manipulation is made of the operating member.

The present invention accordingly has for its objects the provision of means and mechanism to provide for the foregoing barrier operations and to provide for the locking of the barrier at its proper stage of operation to the general end that towel wastage may be discouraged.

Further objects reside in the provision of a simple apparatus and locking controls for a shiftable barrier in a towel dispensing apparatus.

Further and other objects of the present invention will be hereinafter set forth in the accompanying specification and claims and shown in the drawing, which shows by way of illustration a preferred embodiment and the principle thereof and what I now consider to be the best mode in which I have contemplated of applying that principle. Other embodiments of the invention employing the same or equivalent principle may be used and structural changes made as desired by those skilled in the art without departing from the present invention and within the spirit of the appended claims.

In the drawing:

Figure 1 is a front elevational view of the cabinet. The top and bottom portions of the cabinet are shown separated by broken away lines to diminish the height of the figure. In this figure certain portions of the front cover are broken away to show the interior construction;

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1 and looking in the direction of the arrows;

Figs. 3 and 4 are detail positional views similar to Fig. 2 but on a smaller scale and with the parts in the leading edge of the towels in various positions assumed during the successive stages of operation;

Fig. 5 is a detail sectional view taken on line 5—5 of Fig. 1 and looking in the direction of the arrows. This view shows the operating mechanism for the barrier plate and the assembly mounting therefor;

Fig. 6 is a detail view of a modified operating mechanism;

Fig. 7 is a detail view showing the flanged construction for supporting the back plate from the top and side plates of the cabinet.

The cabinet comprises side and top portions 10*s* and 10*t* formed of one piece of sheet metal having bent over flanges such as 10*f* (Fig. 7) at the rear to provide abutments for supporting the back plate 12 and other parts. The back plate may be secured in any desired manner to these flanges as by spot welding. The back plate 12 (see Fig. 2) it its lower end is bent inwardly as shown at 13 to provide a shelf-like support for the rear of the stack of towels.

Preferably the forward end of the sloping part 13 is turned over into a rolled configuration as indicated at 14. Fixed to the side plates in any desired manner as by spot welding to clips 15 is another sloping bottom member 16 provided with a rolled over rear terminating end 17. This member 16 affords support for the forward edge of the stack of towels. The forward edge of plate 16 is bent upward as shown at 16*a* (Fig. 2, see also Fig. 1). To this part 16*a*, triangular shaped guiding members 18 are also secured to form forward guides for the towel stack at the corners of the magazine. The cross-member 16*a* also forms a forward guide for the lower edge of the towel stack. Hinged to the side portions by loose rivets at point 19 is a hinged cover 20. The cover member may be locked to the top portion when in closed position by the usual lock, the position of which is indicated at 21. The cover member 20 may be provided with a slotted opening 22 to permit visual inspection of the supply of towels within the supply magazine.

In Fig. 2 the supply magazine is generally in-

dicated by the reference numeral **23**. The usual stack of inter-folded towels T is placed in this magazine. The bottom of the magazine is defined by the sloping bottom portions **13—14** and **16—17** which are disposed in the relation shown in Fig. 2, affording a magazine delivery outlet between the rolled over ends **14** and **17** through which the leading end of each towel of the series may extend. Carried by the inwardly turned back flange portions **10***f* of the side portions **10***s* (see Fig. 2) is a lower plate and operating mechanism assembly shown in Fig. 5 (see also Fig. 2, which shows this assembly secured to the flanges **10***f* by means of screws **30**). This assembly comprises a vertical plate **24** which is bent horizontally forward to afford a bottom at **25** which at the forward end, is bent upward at **26**. The ultimate discharge aperture of the apparatus is defined at its bottom by the upper edge of member **26** and at its top by the rolled over end **17** of the bottom portion **16** and this discharge aperture constitutes the space through which the towels after passing the magazine delivery outlet are discharged from the machine. At the left side of the apparatus as viewed in Fig. 2, is an angle clip **27** which is secured by spot welding to plate **25** and which affords a pivotal support at this end for a transversely extending shaft **28**. At the right hand side of the apparatus is a sheet metal housing generally designated **29** in Figs. 1 and 5. This housing is secured in any desired manner as by spot welding at the bottom to plate **25** and at the back to plate **24**. Its open side is closed by the lower part of the right hand side wall of the apparatus when the lower plate assembly is in place. Such lower plate assembly may be secured in place by means of screws **30** (Fig. 2) which are threaded through the plate **24** and into a supplemental plate **31** which is secured by spot welding to the back of the vertical plate **24**.

Referring again to shaft **28**, this shaft, as previously stated, is journaled at the left in the clip **27** (see Fig. 2) and at the right hand end of the cabinet this shaft extends through and is journaled in the wall of the housing **29**. Normally disposed in front of the leading end of the leading towel projecting downward between **14** and **17** is a shiftable barrier plate **32** fixed to and rotatable with shaft **28**. As shown in Fig. 2, the shaft **28** is disposed back of and below the top of the transversely extending plate **26**. The barrier plate **32** may be provided with a resilient bumper **33** which abuts the plate **26** and limits the anti-clockwise movement of the barrier plate.

Referring now to Fig. 5, as stated before, shaft **28** extends through the casing of the operating mechanism housing. This operating mechanism comprises both an operating and a locking mechanism. Preferably such mechanism comprises an operating button **34** fixed to a flat member **35** which at its forward end extends through a slot in the mechanism casing and which at its rear is guided for sliding movement by a stud **36** extending through a slot **37** in the member **35**. A spring **38** is preferably provided disposed and secured as shown to keep the operating button plate assembly in outer position but if desired, the spring can be dispensed with and outward and inward movements of the operating member effected by hand. Fig. 6 shows such modified construction of operating member. Fixed to the end of the shaft **28** and within the mechanism casing is a cam shaped disc **39** provided with a locking recess **40** adapted to receive a tongue **41** projecting forward from a depending rear end of the operating member. This arrangement serves to lock the barrier plate **32** against inward movement and prevent access to the leading end of the towel when the operating member is in its normal outward position (the position shown in Fig. 5). The barrier plate **32** is normally swung to the position of Fig. 2 by a spring **43** which is curled around the shaft **28** and secured to the cam disc **39**. The other end of this spring preferably bears against the bottom of the case as shown. The barrier plate is normally swung to the position of Fig. 2 by resilient means such as **43—43***a*. The spring **43** is curled around the shaft **28** and secured to the cam disc **39** and the other end of such spring preferably bears against the bottom of the case as shown. Either one or both of such springs **43—43***a* may be used as desired and such resilient means are stressed by such manipulation of the manually manipulable member or operating member **34—35**.

Pivotally carried upon the operating member is a spring pressed pawl **44** normally urged against a stop **45** on the operating member by the spring. The nose of this pawl is disposed so as to intercept the abrupt shoulder of the cam disc **39** upon inward manual movement of the operating member. Engagement between the pawl **44** and the shoulder occurs after the nose or finger portion **41** has been dis-engaged from the notch **40** so as to unlock the cam disc **39**, the shaft **28** and the barrier plate. Further inward movement of the operating member will cause the cam disc to be rocked clockwise to thereby swing the barrier plate **32** from the position shown in Fig. 2 first to the dotted line position of Fig. 3. This movement of the barrier plate will bend back the leading edge of the towel and ultimately after the barrier plate **32** moves past the dotted line position of Fig. 3 toward the full line position of Fig. 3 the barrier plate will clear the end of the towel, whereupon the end of the towel by its own resiliency will move from the dotted line position of Fig. 3 to the full line position of Fig. 3. At approximately the time when the barrier plate **32** reaches the full line position of Fig. 3 the pawl **44** will have rocked the cam disc **39** to such an extent that the pawl will trip over the shoulder of the cam disc **39** whereupon spring **43** comes into action to rock the shaft **28** in an anti-clockwise direction. This movement of the barrier plate will hold the leading edge of the towel in the position shown in Fig. 4. At this stage of the operation the towel can be withdrawn by the user grasping the leading edge and drawing it out in the usual manner. The following towel will be drawn down in the usual manner but such leading edge of the following towel will assume a position back of the barrier plate **32** (see the Fig. 2 position). After release of the operating member the lock will again engage and the barrier plate will again be locked to prevent access to the leading edge of the following towel until the operating member is again pushed inward.

The foregoing described arrangement provides a simple means for preventing towel wastage. Comparatively few moving parts are required and these are all of simple construction and easy to manufacture. The mechanism further is one of such character that it is not likely to get out of order when in use. It may be desired to provide an inspection opening in the sides of the cabinet to permit inspection of the leading edge

of the towel and allow it to be straightened if it should become inadvertently wrinkled or crumpled. For this purpose round openings 46 (see Fig. 2) can be provided in each side member 10s. The openings are preferably disposed in the relation shown.

Summarizing, the mode of operation is as follows: First, the barrier plate blocks access to a towel and is locked in such blocking position. Second, the push button is pushed inward and the initial movement unlocks the barrier. Further movement swings the barrier to allow the towel edge to fly over the barrier. Third, the barrier returns but it is now behind the towel so that it holds the towel in accessible position for manual withdrawal. Upon release and return of the operating member the barrier is again locked.

What I claim is:

1. A towel cabinet for dispensing inter-folded paper towels, comprising an inclosed supply magazine having an elongated discharge aperture at the bottom thereof through which the leading edge of each towel may be successively projected and having means within said magazine for supporting inter-folded paper towels above the discharge aperture in a manner to permit the leading edge of a towel to be projected into said discharge aperture when open, a combined barrier and towel backing member pivoted adjacent its bottom on an axis substantially parallel with the elongated discharge aperture adapted to substantially close said discharge aperture normally to block access to the leading edge of a towel at said discharge aperture, said barrier being shiftable from towel access blocking position to another position in which the leading edge of a towel may pass the barrier and then back to a position behind said leading edge in which said leading edge is presented in position for manual withdrawal through said discharge aperture, a manually manipulable member for causing said shifting movements of said barrier, means for locking said barrier in its access blocking position, said locking means including means controlled by the manually manipulable member which unlocks the barrier upon the operation of said manually manipulable member.

2. A towel cabinet for dispensing inter-folded paper towels, comprising an inclosed supply magazine having a discharge aperture at the bottom thereof through which the leading edge of each towel may be successively projected and having means within said magazine for supporting inter-folded paper towels above the discharge aperture in a manner to permit the leading edge of a towel to be projected into said discharge aperture when open, a combined barrier and towel backing member adapted to substantially close said discharge aperture normally to block access to the leading edge of a towel at said discharge aperture, said barrier being shiftable from towel access blocking position to another position in which the leading edge of a towel may pass the barrier and then back to a position behind said leading edge in which said leading edge is presented in position for manual withdrawal through said discharge aperture, a manually manipulable member for causing the shifting movement of said barrier from access blocking position to towel passing position, means to disconnect the barrier from the manipulable member upon the barrier reaching the towel passing position, means thereafter effective to return the barrier to its initial position, means for locking the barrier in its initial access blocking position, and means controlled by the manually manipulable member for causing unlocking and re-locking of the barrier locking means.

3. A towel cabinet for dispensing inter-folded paper towels, comprising an inclosed supply magazine having a discharge aperture at the bottom thereof through which the leading edge of each towel may be successively projected and having means within said magazine for supporting inter-folded paper towels above the discharge aperture in a manner to permit the leading edge of a towel to be projected into said discharge aperture when open, a combined barrier and towel backing member adapted to substantially close said discharge aperture normally to block access to the leading edge of a towel at said discharge aperture, said barrier being shiftable from towel access blocking position to another position in which the leading edge of a towel may pass the barrier and then back to a position behind said leading edge in which said leading edge is presented in position for manual withdrawal through said discharge aperture, a manually manipulable member for causing the shifting movement of the barrier from access blocking position to the other position in which the towel edge may pass the barrier, means for locking said barrier in its access blocking position, means controlled by the manipulable member for unlocking said barrier by the initial operation of said manipulable member whereupon further movement of said manipulable member may effect shifting of the unlocked barrier to the position in which the leading edge of a towal may pass said barrier and move to an accessible position.

4. A towel cabinet for dispensing inter-folded paper towels, comprising an inclosed supply magazine having a discharge aperture at the bottom thereof through which the leading edge of each towel may be successively projected and having means within said magazine for supporting inter-folded paper towels above the discharge aperture in a manner to permit the leading edge of a towel to be projected into said discharge aperture when open, a combined barrier and towel backing member adapted to substantially close said discharge aperture normally to block access to the leading edge of a towel at said discharge aperture, said barrier being shiftable from towel access blocking position to another position in which the leading edge of a towel may pass the barrier and then back to a position behind said leading edge in which said leading edge is presented in position for manual withdrawal through said discharge aperture, a manually manipulable member for causing the shifting movement of the barrier from access blocking position to the other position in which the towel edge may pass the barrier, means for locking said barrier in its access blocking position, means controlled by the manipulable member for unlocking said barrier by the initial operation of said manipulable member whereupon further movement of said manipulable member may effect shifting of the unlocked barrier to the position in which the leading edge of a towel may pass said barrier and move to an accessible position, means to automatically re-shift the barrier back to a position in back of the leading edge of a towel which is accessible for withdrawal, said barrier when in such position being re-locked by the locking means upon release of the manually manipulable member so that the locked barrier again blocks

access to the leading edge of the following towel behind said barrier.

5. A towel cabinet to discourage wastage of inter-folded paper towels, comprising a cabinet having portions defining a discharge aperture at the bottom thereof, such cabinet also including an inclosed supply magazine affording a support for inter-folded towels in such a manner that upon manual withdrawal of one towel the leading edge of the following towel is drawn out and presented in depending relation adjacent the discharge aperture for subsequent manual withdrawal therethrough, said cabinet including a shiftable barrier which normally assumes a position to substantially close said discharge aperture and block manual access to the depending towel edge, locking means to lock such barrier in such position, a manually manipulable member for controlling both the locking means for unlocking the barrier and for shifting the barrier after it is unlocked to a position in which a towel edge may pass the barrier and means for swinging the barrier back to a position in which it may again be locked by the locking means and in position to again block access to the leading edge of the next following towel.

6. In a towel cabinet wherein inter-folded towels are adapted for successive withdrawal from a stack, said cabinet comprising portions defining a discharge aperture at the bottom thereof and with other portions affording an inclosed supply magazine affording a support for inter-folded towels in such manner to permit the leading edge of a towel to project in depending relation adjacent said discharge aperture, a shiftable barrier to substantially close said discharge barrier and to normally block manual access to the leading edge of a towel at said discharge aperture, said barrier being shiftable from towel access blocking position to another position in which the leading edge of a towel may pass said barrier and then back to initial position in back of the towel which has passed the barrier and in which latter position the barrier again blocks access to the leading edge of the next following inter-folded towel drawn down from the stack, means to move said barrier from access blocking position to the towel passing position, means to move the barrier back from towel passing position to its initial position, means for normally locking said barrier in its access blocking position and for also re-locking the barrier upon its return to initial position, the aforesaid means for moving the barrier from its access blocking position including a manually manipulable member having means controlled thereby to cause unlocking of the barrier locking means before the barrier is shifted by it, said manually manipulable member upon its release and upon return of the barrier to its initial position causing re-locking of the barrier upon the locking means.

7. A dispensing cabinet for inter-folded paper towels, said cabinet having portions defining a discharge aperture at the bottom through which towels may be successively manually withdrawn, said cabinet also including an inclosed supply magazine affording support for the inter-folded towels in such a manner that upon manual withdrawal of one towel the leading edge of the next following towel is drawn out and presented in depending relation adjacent the discharge aperture for subsequent manual withdrawal therethrough, a barrier adapted to substantially close said discharge aperture and to normally block access to the leading edge of a towel depending adjacent said aperture, locking means to lock such barrier in such position, a manually manipulable member with means controlled thereby for first unlocking the locking means and with means also controlled thereby after unlocking is effected to shift the barrier to a position in which a leading towel edge may pass the barrier, means to shift the barrier back to initial position and means to guide the leading edge of a following towel upon manual withdrawal of a preceding towel back of said barrier so that such towel edge is inaccessible and behind the barrier.

8. A towel cabinet for discouraging wastage of inter-folded towels, comprising a cabinet having portions defining a discharge aperture, said cabinet also including an inclosed supply magazine affording support for inter-folded towels in such a manner that upon manual withdrawal of one towel the leading edge of the following towel is drawn out and presented in depending relation adjacent the discharge aperture for subsequent manual withdrawal therethrough, a pivotally mounted barrier for blocking access to the leading depending edge of a towel at such discharge aperture and for afterwards rendering such towel edge accessible for manual withdrawal, said barrier having an operating shaft, combined operating and locking mechanism for said shaft and barrier, said mechanism including a disc-like element secured to the shaft and provided with a locking recess and a shoulder, a manually shiftable sliding member having a finger to engage said recess and lock the barrier and having a pawl to engage the shoulder and rock the disc-like element, the shaft and the barrier after the finger and disc are in unlocked relation upon endwise shifting of the sliding member.

9. A towel cabinet for dispensing interfolded paper towels, comprising an inclosed supply magazine having a discharge aperture at the bottom thereof through which the leading edge of each towel may be successively projected and having means within said magazine for supporting inter-folded paper towels above the discharge aperture in a manner to permit the leading edge of a towel to be projected into said discharge aperture when open, a barrier mechanism including a combined barrier and towel backing member adapted to substantially close said discharge aperture normally to block access to the leading edge of a towel at said discharge aperture, said barrier being shiftable from towel access blocking position to another position in which the leading edge of a towel may pass the barrier and then back to a position behind said leading edge in which said leading edge is presented in position for manual withdrawal through said discharge aperture, a manually manipulable member including means adapted to engage the barrier mechanism for causing the shifting movement of said barrier from access blocking position to towel passing position, said means disengaging the barrier mechanism upon the barrier reaching the towel passing position so that the barrier may return to its initial position independently of the manually manipulable member and means urging the barrier to return to its initial position.

10. A towel cabinet for dispensing inter-folded paper towels and comprising parts affording an enclosed supply magazine and having sloping bottom portions defining therebetween a delivery outlet through which the leading edge of the bottom towel normally extends, a bottom assembly for said cabinet comprising a channel shaped

member removably secured to the cabinet and having an upstanding front portion terminating below and spaced from the lower end of the front sloping bottom portion of the magazine, defining therebetween an elongated discharge aperture for the towel, a plate-like member pivoted at its bottom on an axis parallel with the elongated aperture on said assembly behind said front upstanding portion and normally substantially closing the discharge aperture, an operating assembly support carried by said bottom assembly cooperating with the cabinet to provide a housing for operating mechanism, said operating mechanism comprising a manually manipulable member with means operated thereby for causing shifting movement of the plate from its normal position to towel passing position whereupon said plate is released and means thereafter effective to return the plate to its initial normal position.

11. A towel cabinet for dispensing inter-folded paper towels, said cabinet having top, rear and side wall portions and sloping front and back bottom portions defining therebetween a towel delivery outlet, a lower plate and operating mechanism assembly carried by said cabinet by the bottom thereof and comprising a channel shaped plate-like member having back, bottom and upstanding front portions, which front portion terminates at a point below and spaced from the lower end of the front sloping bottom portion of the cabinet affording a discharge aperture, a plate-like member for normally closing said aperture mounted on a pivot structure on said assembly behind said front upstanding portion, and operating mechanism assembly carried by the channel shaped member and comprising a housing, said operating mechanism comprising a manually manipulable member, operating and returning means for the plate-like member and means carried by said manually manipulable member for pivoting said plate-like member to towel passing position, said means carried by the manually manipulable member disengaging the pivot structure upon the plate-like member reaching towel passing position so that the plate-like member may return to the initial position before release and return of the manually manipulable member, and means urging the plate-like member to return to its initial position.

12. A towel cabinet for dispensing inter-folded paper towels, comprising an enclosed supply magazine having sloping bottom portions defining therebetween a towel outlet, said cabinet having side wall portions extending below said outlet, a bottom assembly for said cabinet including a channel shaped member removably secured to the side wall portions of the cabinet and including a front portion upstanding from the bottom portion and terminating short of the front sloping bottom of the towel magazine to afford a discharge aperture, a plate extending across and substantially normally closing said discharge aperture, said plate being pivoted on the bottom assembly behind the upstanding front portion on an axis substantially parallel to said front portion, operating mechanism for said plate including manually manipulable means and plate returning means for shifting the plate from normal position to towel passing position and for thereafter returning the plate to normal position, and supporting means for said plate operating mechanism secured to and removable with the bottom assembly and cooperating with the side wall portions of the cabinet to form a housing for the operating mechanism and also affording access to the mechanism upon removal of the bottom assembly.

13. A towel dispening cabinet for dispensing inter-folded towels, comprising a cabinet having portions defining a discharge aperture, said cabinet also including an inclosed supply magazine affording support for inter-folded towels in such a manner that upon manual withdrawal of one towel the leading edge of the following towel is drawn out and presented in depending relation for subsequent manual withdrawal therethrough, a pivotally mounted barrier for blocking access to the leading depending edge of a towel at such discharge aperture and for afterwards rendering such towel edge accessible for manual withdrawal, operating mechanism for the barrier for retaining the barrier in access blocking position or for operating it to towel access permitting position, said mechanism including a pivoted shaft carrying the barrier, a disc-like element secured to the shaft and provided with a retaining recess and a shoulder, a manually shiftable slidable member having an extension to engage said recess and retain the barrier in access blocking position and having a pawl to engage the shoulder and rock the disc-like element, the shaft and the barrier upon endwise shifting of the sliding member, said pawl disengaging the disc-like element after rocking the barrier to towel passing position and resilient means cooperating with said mechanism to return the barrier to initial position and resilient means for returning the manually shiftable member to initial position.

14. A towel dispensing cabinet for dispensing inter-folded towels, comprising a cabinet having portions defining a discharge aperture, said cabinet also including an inclosed supply magazine affording support for inter-folded towels in such a manner that upon manual withdrawal of one towel the leading edge of the following towel is drawn out and presented in depending relation for subsequent manual withdrawal therethrough, a pivotally mounted barrier for blocking access to the leading depending edge of a towel at such discharge aperture and for afterwards rendering such towel edge accessible for manual withdrawal, and means including resilient means for normally maintaining said barrier in an upright position to substantially block the discharge aperture, said resilient means also acting to return said barrier to access blocking position after it has been rocked to towel passing position, a slidable manually manipulable member, and intermediate mechanism between it and the barrier including a trip pawl for first positively swinging the barrier to towel passing position and for thereafter releasing it for spring return to normal position prior to the return of the slidable means to normal position.

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