A roll towel dispensing cabinet includes two spaced wall portions which define a roll supporting cradle located above a well. When the roll is reduced to a certain diameter, it falls from the cradle into the well and a new roll can be installed in the cradle with both the stub roll and new roll simultaneously fed through the driver roller assembly. Adjustable centering plates afford use of rolls of a different length and a swing-out drive roller assembly enables use of different diameter rolls in the same dispenser. The dispenser is pivoted about a different axis than the drive roller assembly, and side flanges on the cover enclose the pivotal mounting screws for the drive roller assembly to prevent tampering. The forward roll supporting portion cooperates with a curved paper guiding surface to provide a progressively increasing paper dispensing throat which minimizes jamming during dispenser operation.

8 Claims, 6 Drawing Figures
ROLL TOWEL DISPENSER

SUMMARY OF INVENTION

The invention provides a roll towel dispensing cabinet which includes a roll supporting cradle defined by a rear cradle portion which is struck from the rear dispenser wall and a curved forward wall. When the diameter of the supported roll decreases to a preselected dimension, the roll drops through the gap between the cradle portions into a stub roll well beneath the cradle and rests on the floor of the dispenser enabling insertion of a full roll in the cradle to simultaneously dispense webs from both the full and stub rolls. Thus, there is no waste of paper because the serviceman can install a full roll when periodically inspecting the cabinet without removing a partially filled roll.

The drive roller assembly is an integral unit mounted on a U-shaped bracket which is pivotally connected by mounting screws within the cabinet side walls. The drive roller assembly can be pivoted from a swing-out position forwardly of the cabinet to a recessed position within the cabinet during use. When the drive roller assembly is in the swing-out position, large rolls are easily installed in the cabinet. The drive roller assembly also includes a paper guiding plate with a curved surface which cooperates with the forward cradle wall portion to provide a dispenser throat which progressively increases in size toward the dispenser outlet to minimize jamming of the web in use.

The screw mounting for the drive roller assembly enables easy removal and replacement of the drive roller unit. The cabinet cover is pivotally mounted to the side walls by rivets at a point below and rearwardly of the drive roller assembly and side flanges on the cover enclose the mounting screws of the drive roller assembly to prevent tampering with the dispenser.

In addition to accommodating rolls of different diameters, the dispenser is provided with roll centering plates which are detachably secured to the side walls and bottom wall. The centering plates have flanges of different lengths and can be detachably mounted in the cabinet interior in different positions to vary the spacing between the plates to accommodate rolls of different lengths.

Further objects, advantages and features of the invention will become apparent from the following disclosure.

DRAWINGS

FIG. 1 is a side and front perspective view of a towel dispenser in accordance with the invention.

FIG. 2 is an enlarged fragmentary view with portions broken away and in fragmentary section of the dispenser shown in FIG. 1 and showing the drive roller assembly.

FIG. 3 is an enlarged fragmentary perspective view with parts broken away of the dispenser shown in FIG. 1.

FIG. 4 is a fragmentary end view of the drive roller assembly shown in FIG. 2 in the swing-out position with the cabinet cover open.

FIG. 5 is a fragmentary view of a roll centering plate.

FIG. 6 is a view similar to FIG. 5 of a centering plate in a position reversed from that shown in FIG. 5.

DESCRIPTION OF PREFERRED EMBODIMENT

Although the disclosure hereof is detailed and exact to enable those skilled in the art to practice the invention, the physical embodiments herein disclosed merely exemplify the invention which may be embodied in other specific structure. The scope of the invention is defined in the claims appended hereto.

In the drawings, FIG. 1 shows a towel dispensing cabinet 10 in accordance with the invention which includes a cabinet interior 15 defined by opposed side walls 12 and 14, a top wall 16, a rear wall 18, and a bottom wall 20. A cover 22 has opposed side flanges 24 and 26 which overlap the side walls 12 and 14 to enclose the cabinet. The bottom wall 20 has an upturned, flat wall portion 25 which is spaced from a lower flange 27 on the cover 22 to define a dispenser outlet 29.

As best shown in FIG. 3, a full roll 32 is supported by a rear cradle wall portion 34 which is struck from the rear cabinet wall 18 and a forward cradle wall portion 36 which is inwardly convex and spaced from the cradle portion 34. Both wall portions 34 and 36 remain in a fixed position during use and are spaced by a gap 40 which is located above a well 42. In use, the dispenser is initially filled with a full roll having a diameter of, for example, seven or eight inches, which is supported by the cradle wall portions 34 and 36. When the diameter of the roll is reduced during use, the roll 32 will fall through the gap 40 into the well and be supported by the cabinet bottom wall 20. The web from the reduced diameter or stub roll 46 will continue to be fed through the drive roller assembly 48. With the web 50 from the stub roll engaged in the drive roller assembly, a new full roll can also be installed and supported between the cradle wall portions 34 and 36 with the web superposed on the web 50.

The dispensing unit is adapted to accommodate rolls of toweling of different lengths and adjustable centering means are provided to accommodate the different length rolls. FIG. 3 shows a centering plate 56 which includes a plate portion 58 adapted to abut the end of a roll, and flanges 60 and 62 which project in opposite directions from the plate portion 58. Each flange 60 and 62 includes mounting lips 64 and 66 which are adapted to engage hooks 68 on the cabinet side walls 12 and 14, and hooks 70 on the bottom wall 20 of the cabinet. As shown in FIGS. 5 and 6, the centering plates can be anchored in either of two positions. In FIGS. 3 and 6, the wide flange 60 is located at the top of the plate 58 with the smaller flange 62 at the bottom, thus spacing the plate a distance d from the cabinet wall 12. In FIG. 5, the smaller flange 62 is oriented at the top of the plate 58 spacing the plate 58 a distance e from the side wall 12 which is less than distance d. Various combinations of centering plate arrangements are possible. For example, the centering plate 58 adjacent one side wall 12 can be positioned as shown in FIGS. 5 or 6, and the centering plate 58 on the other side wall 14 positioned in one or the other positions or completely removed from the dispenser.

The drive roller assembly 48 includes a U-shaped bracket 76 which has two spaced upstanding leg portions 78 connected to a web portion 80. The leg portions 78 are adapted to be located within the dispenser side walls 12 and 14 as shown in FIGS. 3 and 4. The leg portions 78 are pivotally connected to side walls 12, 14 by screws 82 which enable easy removal and replace-
ment of the drive roller assembly 48 by a serviceman. The assembly 48 includes at least two drive rollers 84 which are carried on a driven shaft 86, which is supported at one end by a nylon bearing fixed to the shaft 86 and rotatably supported in leg 78. The shaft 86 is tubular and receives a small one-way clutch 88 (FIG. 2), which is in a press fit in the interior 90 of the shaft 86. A crank 92 carries a nylon bearing 94 with the end 96 of the crank extending through and releasably engaged by the clutch 88. A retainer ring 98 fixed to the crank shaft 92 retains the crank in the tubular shaft 86. A nylon bearing 94 rotatably supports the crank 92. A boss 99 on the bearing 94 is received in an aperture 101 in the leg 78 to support the shaft 86. A notch 103 in side wall 14 (FIG. 4) receives the crank 92 when the drive roller assembly is positioned in the operative position within the side walls.

The drive roller assembly 48 also includes a paper guiding plate 100, which is fixed between the bracket legs 78 and inclined at an angle as shown in FIG. 3. The paper guide plate 100 has slots 102 through which project the drive rollers 84. Paper stripping members 104 are struck from the paper guide plate 100 and prevent the web from striking the drive rollers 84 and entering the slots 102. The paper guide plate 100 has an inwardly convex arcuate surface 103 (FIG. 3) which diverges from the forward cradle wall portion to provide a progressively increasing throat size in the direction of the dispenser outlet 29. The guide plate 100 terminates in a serrated margin 105. Attempts to cause a paper jam by blocking the outlet 29 while continuing to feed the web will not succeed. The tapered throat easily releases the accumulated web when blockage of the dispenser outlet 29 ceases.

The bracket 80 also supports a follower roller 110 which is carried by nylon pegs 112 which project through slots 114 (FIG. 4) in the legs 78. Torsion springs 116 have an eye supported by struck posts 118 and one spring leg engaged with a hook 120 and the other spring leg engaged with the nylon pegs 112 to bias the follower roller 110 against the drive rollers 84 to securely grip the paper webs.

The cabinet cover 22 is pivotally mounted to the side walls 12 and 14 by rivets 122 at a point located rearwardly and below the pivotal axis for the drive roller assembly provided by screws 82. The side flange 26 of the cabinet has an arcuate slot 124 which receives the crank 92 of the drive roller assembly. When the cabinet cover is positioned as shown in FIG. 1, the screws 82 for the drive roller assembly are enclosed between the cabinet side flanges to prevent tampering. A key actuated lock (not shown) secures the cover 22 in the closed position.

When installing a roll of towingel, the drive roller assembly 48 can be displaced to the swing-out position shown in FIG. 4. This is particularly desirable when using a large diameter roll. The drive roller assembly is then pivoted to the FIG. 3 position. Locking tabs 128 on the inside of the side walls 12, 14 engage the outwardly flared ends 130 of the bracket legs 78 to maintain the drive roller assembly in its operative position as shown in FIG. 3.

What is claimed is:

1. A towelling dispensing cabinet comprising spaced side walls, a rear wall and a bottom wall defining a cabinet interior, a drive roller assembly, means for pivotally mounting said drive roller assembly to said side walls for movement between an operative position with said assembly located within said side walls and a swing-out position outwardly of said side walls, a cabinet cover having side flanges and means for pivotally mounting said cover to said housing to afford movement about a pivotal axis offset from said axis of said drive roller assembly and from a position wherein said cover side flanges are located exteriorly of and in overlapping relation with said side walls enclosing said pivotal mounting of said drive roller assembly and to an open position for access to the cabinet interior, said cover and said bottom wall having spaced edges to define a dispensing outlet.

2. A cabinet in accordance with claim 1 including an inwardly convex wall portion located between said side walls and wherein said rear wall has a wall portion struck from said rear wall and converging with said convex wall and spaced by a gap from said convex wall to form a roll supporting cradle above a stub roll well.

3. A cabinet in accordance with claim 1 wherein said cover includes spaced side flanges and said drive roller assembly includes a crank and a slot in one of said cover side flanges which receives said crank when said cover is pivoted to the cabinet enclosing position.

4. A towel dispensing cabinet comprising spaced side walls, a rear wall and a bottom wall defining a cabinet interior, a drive roller assembly, means for pivotally mounting said drive roller assembly to said side walls for movement between an operative position with said assembly located within said side walls and a swing-out position outwardly of said side walls, a cabinet cover and means for pivotally mounting said cover to said housing to afford movement about a pivotal axis and from a position enclosing said pivotal mounting of said drive roller assembly to an open position for access to the cabinet interior, said cover and said bottom wall having spaced edges to define a dispensing outlet and wherein said drive roller assembly includes a generally U-shaped bracket defined by spaced leg portions and a web portion, a drive member having ends supported by said leg portions, said drive member including spaced drive rollers, a paper guiding plate located between and fixed to said legs, openings in said guide plate, said guide rollers projecting into said openings, said guide plate having a surface with a planar portion and an inwardly convex arcuate portion which merges with said planar portion, said planar portion terminating in a serrated tearing edge.

5. A cabinet in accordance with claim 4 wherein said forward cradle wall cooperates with said guide plate to define a web delivery throat, said throat progressively increasing in size toward said dispenser outlet.

6. A towel dispensing cabinet comprising spaced side walls, a rear wall and a bottom wall defining a cabinet interior, a drive roller assembly, means for pivotally mounting said drive roller assembly to said side walls for movement between an operative position with said assembly located within said side walls and a swing-out position outwardly of said side walls, a cabinet cover and means for pivotally mounting said cover to said housing to afford movement about a pivotal axis and from a position enclosing said pivotal mounting of said drive roller assembly to an open position for access to the cabinet interior, said cover and said bottom wall having spaced edges to define a dispensing outlet and including centering means in the cabinet interior for engaging and centering a roll of towelling, said means
including plate portions for each side of the cabinet, said plate portions having upper and lower ends with oppositely extending flanges projecting at angles with the plates, said flanges having different lengths, and means for securing said plates within said cabinet at first and second positions, with said plates being spaced when in said first position at a distance greater than when in said second position to accommodate rolls of different lengths.

7. A towel dispensing cabinet comprising spaced side walls, a rear wall and a bottom wall defining a cabinet interior, a cabinet cover having a lower margin spaced from said bottom wall to define a dispenser outlet, a drive roller assembly pivotally connected to said side walls and having a guide plate with a planar portion and an inwardly convex arcuate portion which merges with said planar portion, said planar portion terminating in a cutting edge spaced from the juncture of said arcuate portion and said planar portion, and a second wall portion which is inwardly convex and fixed to said side walls and spaced from said guide plate arcuate portion to define a dispenser throat which progressively increases in size toward said dispenser outlet.

8. A cabinet in accordance with claim 7 including a cradle wall portion struck from said rear wall and converging with said second wall portion to define a roll supporting cradle.