

[54] **TOILET PAPER ROLL HOLDING
DEVICE**

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[22] Filed: **May 5, 1971**

[21] Appl. No.: 140,324

[52] U.S. Cl. 242/55.3, 242/55.53, 312/37

[51] Int. Cl. B65h 19/04

[58] Field of Search 242/55.3, 55.53, 37; 312/38,
312/39

[56] **References Cited**

UNITED STATES PATENTS

2,794,604 6/1957 Jacomaro 242/55.3

Primary Examiner—Leonard D. Christian
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[57] **ABSTRACT**

A toilet paper roll holding device comprising a housing; a pair of opposite and spaced vertical paper roll guide groove forming means provided within said housing; track means provided within said housing below said guide groove forming means; weir members slidably received in said track means for blocking and allowing the falling of a toilet paper roll by gravity within said housing; and a manipulation bar operatively connected to said weir members to slidably move the weir members back and forth relative to said track forming means.

7 Claims, 5 Drawing Figures

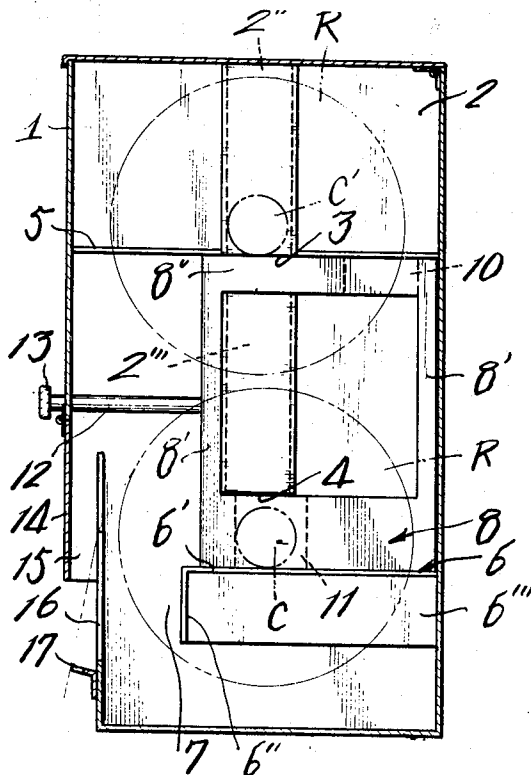


FIG. 1

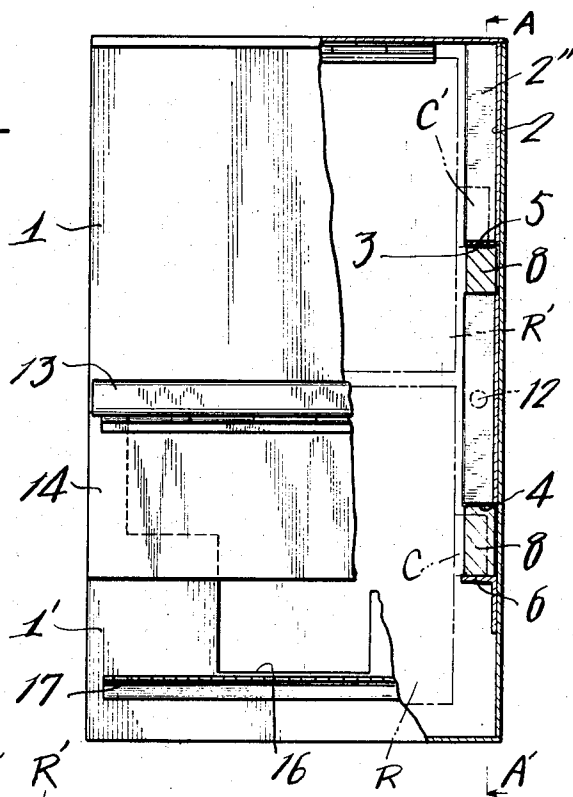
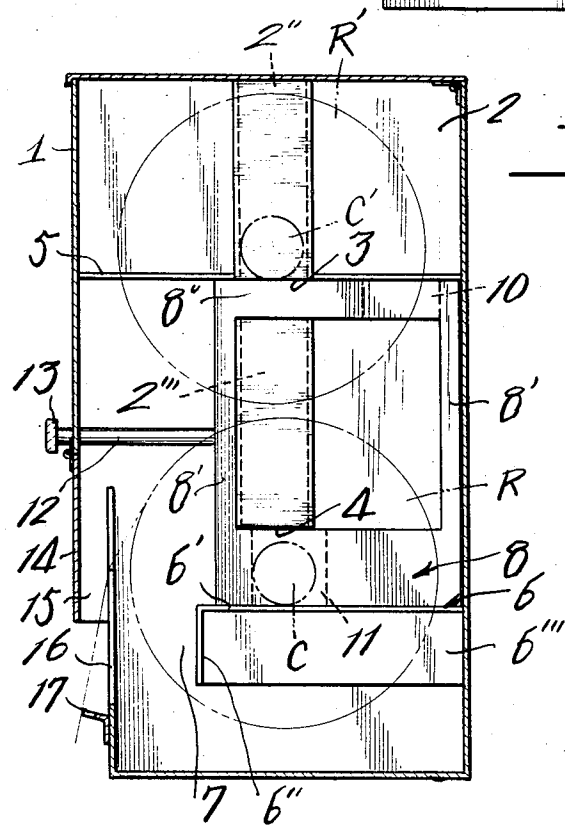
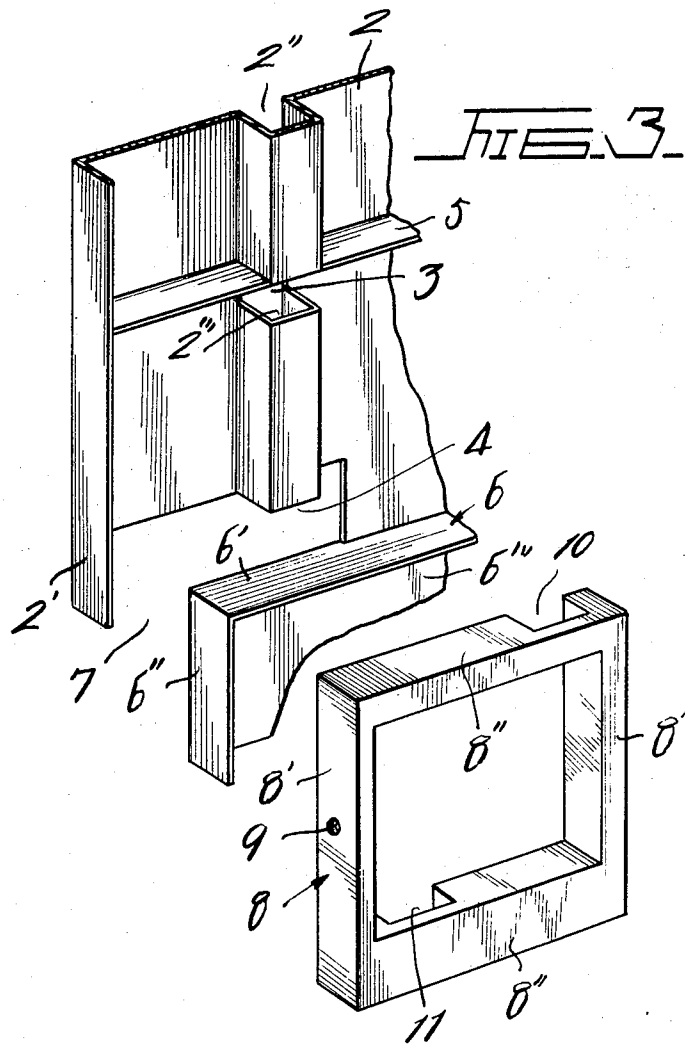
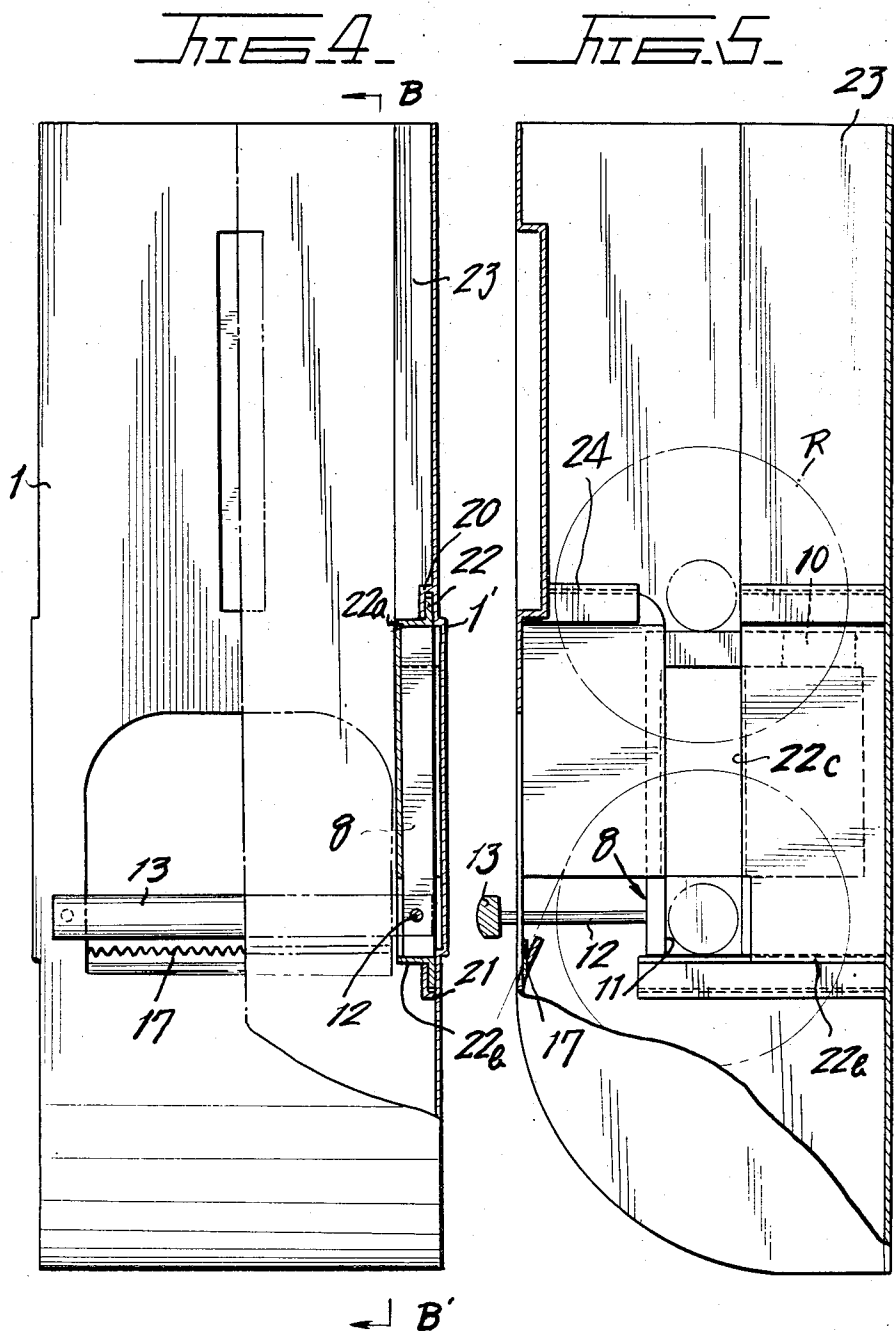


FIG. 2







TOILET PAPER ROLL HOLDING DEVICE

BACKGROUND OF THE INVENTION

There have been proposed and practically employed various types of toilet paper roll holding devices and in one of the conventional toilet paper roll holding device, each time a toilet paper roll has been exhausted a new complete toilet paper roll has to be disposed on the core the toilet paper on which has been exhausted to be put to use requiring cumbersome and inconvenient handling. In addition, in such a conventional toilet paper roll holding device, a substantial portion of a toilet paper roll in use has to be at all the times exposed out of the housing of the device and accordingly, the paper roll is readily subjected to moisture and cannot be maintained under dry and sanitary conditions. Furthermore, in the conventional toilet paper roll holding device, it has been frequently seen that the user suffers from inconvenience because of being unaware of the absence of any toilet paper within the device.

SUMMARY OF THE INVENTION

This invention relates to a novel and improved toilet paper roll holding device which holds a plurality of toilet paper rolls therein in such a manner that each time a roll paper in the operative position has been exhausted, a manipulation bar is manually operated so as to discharge the core the paper roll on which has been exhausted out of the operative position and thereafter, the manipulation bar is again operated so as to place a next paper roll into the operative position which was previously occupied by the first paper roll.

A principal object of the present invention is to provide an improved toilet paper roll holding device for holding a plurality toilet paper rolls without jamming in which at least one spare toilet paper roll is held in an inoperative position in such manner that the spare paper roll will not interfere with a paper roll in the operative position.

Another object of the present invention is to provide an improved toilet paper roll holding device in which a plurality of toilet paper rolls can be held under dry and sanitary conditions.

A still further object of the present invention is to provide an improved toilet paper roll holding device which is simpler in construction and more efficient in operation as compared with the conventional corresponding toilet paper roll holding devices.

The above and other objects and attendant advantages of the present invention will be more readily apparent to those skilled in the art from a reading of the following detailed description in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of one preferred embodiment of toilet paper roll holding device according to the present invention with a portion thereof broken away in order to show the inner construction of said device;

FIG. 2 is a vertically sectional view in side elevation of said toilet paper roll holding device taken along substantially the line A—A' of FIG. 1;

FIG. 3 is a fragmentary exploded perspective view on an enlarged scale showing one inner wall member and

its associated paper roll guide frame member of said holding device.

FIG. 4 is a front elevational view of a modified embodiment of toilet paper roll holding device according to the present invention with a portion thereof broken away in order to show the inner structure of said device; and

FIG. 5 is a vertically sectional view in side elevation of said toilet paper roll holding device taken along substantially the line B—B' of FIG. 4.

PREFERRED EMBODIMENT OF THE INVENTION

The present invention will be now described referring to the accompanying drawings which show preferred embodiments of toilet paper roll holding device according to the invention for illustration purpose only, but not for limiting the scope of the invention. Referring first to FIGS. 1 through 3 of the drawings, the toilet paper roll holding device generally comprises a housing 1 which has a dual side wall construction on the left- and right-hand sides thereof as seen in FIG. 1. The open top of the housing is normally closed by a hinged cover plate and the bottom of the housing is permanently closed by its integral bottom wall which is also integral with the left- and right-hand side walls of the housing one of which side walls is provided with a core discharge opening (not shown) adjacent to the bottom wall for taking cores the toilet paper rolls on which have been exhausted out of the housing and the core discharge opening is normally closed by a hinged cover plate on one of the side walls (not shown). Although the dual side wall construction on only the right-hand side of the device is shown in FIGS. 1 and 2 and description will be made of only the right-hand side dual wall construction hereinbelow since the dual side wall construction on the left-hand side is a mirror image of that on the right-hand side, description of such a side wall construction on the right-hand side will be equally applicable to the dual side wall construction on the left-hand side. A bent inner wall member 2 extends vertically along the adjacent outer side wall of the housing 1 from the open top of the housing toward the closed bottom wall thereof by a substantial distance of the housing bottom. The bent inner wall member 2 has at one side edge a leg 2' outwardly extending at right angles to the body of the member and secured to the adjacent side wall of the housing and the other side edge of the leg is also secured to the adjacent side wall of the housing 1. The inner wall member 2 is provided with a paper roll guide groove 2'' in the intermediate portion or body between the opposite side edges which intermediate portion extends parallel to and spaced from the adjacent housing side wall. The guide groove 2'' extends vertically from the upper rim of the inner wall member 2 by a distance in parallel to the leg 2' and a similar second paper roll guide groove 2''' is also provided in the intermediate portion of the inner wall member 2 right below the first guide groove 2'' in vertical alignment with and spaced from the lower end of the latter so as to provide a space 3 between the lower end of the first guide groove and the upper end of the second guide groove for the purpose to be described hereinbelow. The lower end of the second paper roll guide groove 2''' terminates short of the lower rim of the inner wall member 2 and a rectan-

gular cut 4 is provided in the intermediate portion of the inner wall member 2 extending transversely of the intermediate portion right below the second guide groove 2''' and the cut extends from the leg 2' to a position beyond the second guide groove 2''' in the horizontal direction whereas in the vertical direction the cut extends from the lower end of the second guide groove 2''' to the lower rim of the inner wall member. A cross plate or track member 5 extends transversely of the intermediate portion of the inner wall member 2 between the opposite side edges thereof right below the first paper roll guide groove 2'' and has a center opening (not shown) which has the same cross-section and shape as those of the first and second paper roll guide grooves for the purpose to be described hereinbelow. A plate assembly or second track member 6 is provided just below and integrally secured to the lower rim of the inner wall member 2 and includes a horizontal plate portion 6' which is secured at one end to the inner surface of the rear wall of the housing 1 and terminates at the other end short of the fore wall of the housing, a vertical plate portion 6'' which extends downwardly from and at right angles to the adjacent end of the horizontal plate portion 6' and a panel portion 6''' which extends across the horizontal and vertical plate portions in the same plane as the intermediate portion of the inner wall member 2 whereby a paper roll core discharge passage 7 is defined between the second track member 6, the leg 2' of the inner wall member 2 and a further member of which description will be made hereinbelow. The above-mentioned cut 4 forms a portion of the core discharge passage 7.

A slidable weir member 8 in the form of a square ring is slidably received between the first and second track members 5 and 6 for slidable movement in a horizontal plane between the leg 2' of the inner wall member 2 and the rear wall of the housing 1. The weir member 8 includes four frame portions, that is, a pair of vertical frame portions 8', 8' and a pair of horizontal frame portions 8'', 8''. The left vertical frame portion 8' (as seen in FIG. 3) is provided with a threaded bore for the purpose to be described hereinbelow. The upper horizontal frame portion 8'' is provided with a vertical through recess 10 which has substantially the same cross-section and shape as the guide grooves 2'' and 2''' and the lower horizontal frame portion 8'' is also provided with a similar vertical through recess 11 in a staggered relationship to the recess in the upper frame portion. The recess 10 in the upper horizontal frame portion 8'' is positioned adjacent to the right-hand side vertical frame portion 8' (as seen in FIG. 3) whereas the recess 11 in the lower horizontal frame portion 8'' is positioned adjacent to the left-hand side vertical frame portion 8' (as seen in FIG. 3) for the purpose to be described hereinbelow. The height of the weir member 8 is so selected that the weir member can slidably move in contact with the first and second track members 5 and 6. The height of the upper horizontal frame portion 8'' is so selected that the frame portion can slidably move in contact with the first track member 5 and the upper end of the second guide groove 2''' and similarly, the height of the lower horizontal frame portion 8'' is so selected that the frame portion can slidably move in contact with the lower end of the second guide groove 2''' and the upper surface of the

horizontal plate portion 6' of the second track member 6. The recesses 10 and 11 in the weir member 8 are so positioned that when the recess 10 is in communication with the two guide grooves and vice versa.

A horizontal connection bar 12 is threaded at one end into the threaded bore 9 in the left-hand side vertical frame portion 8' of the weir member 8 and outwardly projects at the other end through the fore wall of the housing 1. A transverse manipulation bar 13 extends transversely of the outer surface of the fore wall of the housing 1 and is connected at suitable points to the projecting adjacent end of each of the connection bars 12 so that the weir member 8 on both the left- and right-hand sides can be simultaneously moved back and forth in sliding contact with the first and second track members 5 and 6 by manually manipulating the bar 13 in one direction or the other direction.

The fore wall of the housing 1 terminates at the lower end short of the bottom wall of the housing and a transparent cover plate 14 is hinged at the upper edge to the lower end of the housing fore wall. The bottom wall of the housing 1 terminates at the fore end short of the housing fore wall and a vertical extension 1' is integrally formed therewith and extends upwardly from the fore end of the housing bottom wall at right angles thereto so as to define the above-mentioned core discharge passage 7 in cooperation with the vertical plate portion 6'' of the second track member 6 and the leg 2' of the inner wall member 2. The vertical extension 1' also defines on the other side a paper dispensing passage 15 in cooperation with the cover plate 14 through which the leading end of a paper roll which is in the lowest position of a plurality of similar paper rolls or in the operation position can be pulled out of the housing 1. The vertical extension 1' is provided with an access opening 16 in the center thereof and the opening has a size just sufficient to allow the user's finger to pass therethrough to separate the leading end of the lowermost paper roll from the remaining portion of the roll. The outer surface of the vertical extension 1' is provided with a transverse saw tooth-shaped cutting blade 17 along the lower edge of the access opening 16 against which blade the dispensed or pulled out leading end of the paper can be torn off the remaining paper roll within the housing 1.

With the above construction of the toilet paper roll holding device of the invention, in operation, first of all, both the left- and right-hand side weir members 8 are initially held in their predetermined retracted position in which the upper horizontal frame portions 8'' thereof block communication between the first and second guide grooves 2'' and 2''' and the hinged top cover is opened. Thereafter, a toilet paper roll R is placed into the housing 1 of the toilet paper roll holding device by inserting the opposite ends of the core C of the paper roll into the guide grooves 2'' in the left- and right-hand side inner wall members 2. After having been inserted into the guide grooves 2'', the core C descends by gravity down the guide grooves 2'' until the movement of the core is arrested by the upper horizontal frame portions 8'' of the weir members 8 which now block communication between the upper and lower guide grooves 2'' and 2''' and the core seats on the horizontal frame portions 8''. Then, the manipulation bar 13 is manipulated so as to simultaneously ad-

vance the guide frame members 8 through the connection bars 12 respectively associated with the weir members until the recesses 10 in the upper horizontal frame portions 8'' communicate between the upper and lower guide grooves 2'' and 2''' whereby the paper roll core C is allowed to descend through the upper guide grooves 2'' and then down the lower guide grooves 2''' until the movement of the core is arrested by the lower horizontal frame portions 8'' of the weir members 8 and seats thereon. Thereafter, the manipulation bar 13 is again manipulated so as to retract the weir members 8 until the recesses 11 in the lower horizontal frame portions 8'' of the weir members 8 communicate with the lower guide grooves 2''' whereupon the core C is received into and held in the recesses 11 in the lower horizontal frame portions 8'' and the paper roll R is ready for use. A second or spare paper roll R' is then placed into the housing 1 by inserting the opposite ends of its core C' into the upper guide grooves 2'' in the left- and right-hand side inner frame members 2 and the core is allowed to descend by gravity down the grooves 2'' until the movement of the core C' is arrested by the upper horizontal frame portions 8'' of the weir members 8 in the same manner as mentioned in connection with the first paper roll R.

In use, the user opens the hinged cover plate 14 to uncover the access opening 16 and separates the leading end of the lower paper roll R from the remaining portion of the roll by his finger tip through the access opening 16. The thus separated leading end of the paper roll R is then pulled out of the housing 1 thorough the dispensing passage 15. After the paper roll R has been exhausted or almost exhausted, the manipulation bar 13 is manipulated to advance the weir members 8 until the core C which is now received in the recesses 11 and the paper roll R on which has been exhausted or almost exhausted has passed over the fore edges of the horizontal plate portions 6' of the second track members 6 into the core discharge passage 7 through which the core drops onto the bottom wall of the housing from where the core is stored to be taken out of the device through the core discharge opening (not shown) later after the discharge opening has been uncovered.

Thereafter, the manipulation bar 13 is again manipulated to retract the weir members 8 by repeating the procedure described in connection with the first paper roll R until the recesses 10 in the upper horizontal frame portions 8'' of the weir members 8 communicate between the upper and lower guide grooves 2'' and 2''' and then, the manipulation bar 13 is again manipulated to advance the weir members 8 until the recesses 11 in the lower horizontal frame portions 8'' thereof communication with the lower guide grooves 2''' whereby the opposite ends of the core C' of the second paper roll R' seat on the horizontal plate portions 6' of the left- and right-hand side second track members 6 whereupon the second paper roll R' is held in the operation position. Thereafter, the paper roll is available for practical use by repeating the same procedure for separating and pulling out the leading end of the paper roll as described in connection with the first paper roll R.

Referring now to FIGS. 4 and 5 of the accompanying drawings which illustrate a second or modified embodiment of paper roll holding device according to the

present invention. The modified embodiment of paper roll holding device is substantially similar to the first embodiment except for the construction and arrangement of the housing, paper roll guide groove forming parts and track forming parts thereof.

The left- and right-hand side walls of the housing 1 are bulged outwardly in an intermediate position between the upper and lower ends thereof as indicated by reference numeral 1' (only one bulge 1' in the right-hand side wall as seen in FIG. 4 is shown). Since the bulge 1' in the left-hand side wall is a mirror image of that in the right-hand side wall, description on only the right-hand side bulge and its associated parts will be made herein. A L-shaped bracket 20 is provided on the inner surface of the adjacent housing side wall in opposite to and spaced from the bulge 1' and the horizontal portion of the bracket is secured at the outer end to the housing side wall in a position slightly above the upper end of the bulge 1' whereas the vertical portion of the bracket extends downwardly from the free end of the horizontal portion at right angles thereto so as to define a space between the vertical portion and the adjacent housing side wall. Similarly, a second or lower L-shaped bracket 21 is provided on the inner surface of the adjacent housing side wall in opposite to and spaced from the bulge 1' and first or upper bracket 20. The horizontal portion of the second or lower bracket 21 is also secured at the outer end to the housing side wall in a position slightly below the lower end of the bulge 1' whereas the vertical portion of the bracket extends upwardly from the free end of the horizontal portion at right angles thereto so as to define a space between the vertical portion and the adjacent housing side wall. The bulge 1' opens at one or the rear end for the purpose to be described just below herein. A track forming member 22 is detachably received between the upper and lower brackets 20 and 21 with the upper and lower ends fitted in the spaces between the upper and lower brackets 20 and 21 and the adjacent housing side wall, respectively. The track forming member 22 has a pair of spaced upper and lower horizontal tracks 22a and 22b extending inwardly from the inner surface of the track forming member and the distance between the tracks corresponds to the height of the bulge 1' for the purpose to be described hereinbelow. The track forming member 22 further has a vertical paper roll guide through groove 22c in such a position that when the track forming member is positioned in its operative position the guide groove vertically aligns with another paper roll guide groove which is positioned above the vertical guide groove 22c and of which description will be made hereinbelow. A weir member 8 identical with the corresponding part as described hereinabove in connection with the first embodiment is slidably in the track forming member 22 for slidable movement back and forth in sliding contact with the upper end lower tracks 22a and 22b in the same manner as mentioned in connection with the first embodiment.

A pair of opposite and spaced paper roll guide groove forming members 23 are provided within the housing 1 extending inwardly from the rear wall of the housing with the outer ends secured to the housing wall and the inner or free ends terminating short of the midpoint in the distance between the fore and rear walls of the housing and similarly, a pair of second opposite and

spaced guide groove forming members 24 are provided within the housing 1 extending inwardly from the fore wall of the housing 1 with the outer ends secured to the housing and the inner or free ends terminating short of the above-mentioned midpoint so as to define a paper roll guide groove in cooperation with the first-mentioned guide groove forming members 23 and the distance between the free ends to the first and second guide groove forming members 23 and 24 is sufficient to allow the core of a paper roll to pass freely, but insufficient to accommodate a full paper roll on the core.

The construction and arrangement of the remaining parts and the operation of the modified embodiment are similar to those described in connection with the first embodiment.

Thus, according to the present invention, since the paper roll or rolls are at all the times held in the housing 1 in a substantially sealed state with only the leading end of the lowest paper roll in the operative position projecting out of the housing to be exposed to the atmosphere, the paper rolls can be protected from moisture and maintained under dry and sanitary conditions. And the paper roll replacement operation can be effectively and simply effected by merely manipulating the manipulation bar 13 so as to move the weir members 8 having the recesses which serve as a shutter mechanism back and forth whereby jamming of paper rolls within the device can be effectively prevented.

While only two embodiments of the invention have been shown and described in detail it will be understood that the same are for illustration purpose only and not to be taken as a definition of the invention, reference being had for this purpose to the appended claims.

What is claimed is:

1. A toilet paper roll holding device comprising a housing including a pair of opposite spaced inner side wall members each of which has vertically spaced separate first and second vertical guide grooves in vertical alignment and a first track member disposed below and extending transversely of said first guide groove and a second track member disposed below and extending transversely of said second guide groove; a slidable square ring-shaped weir member disposed between said first and second track members of each associated inner wall member for slidable movement back and forth in sliding contact with the first and second track members and having shutter means adapted to alternately communicate with said first and second vertical guide grooves; and a common manipulation bar operatively connected to said weir members and extending transversely of the outer surface of one wall of said housing to slidably move the weir members back and forth.

2. A toilet paper roll holding device as set forth in claim 1, in which each of said inner wall members is spaced from the adjacent wall of said housing and further has an outwardly extending leg at one edge secured to the adjacent housing wall and an intermediate portion between the opposite side edges thereof and said separate first and second vertical guide grooves are provided in said intermediate portion of the associated inner wall member and extend in parallel

to the first and second guide grooves.

3. A toilet paper roll holding device as set forth in claim 1, in which each of said second guide members includes a horizontal plate portion disposed below and extending transversely of said second vertical guide groove, a vertical plate portion integrally formed with and extending downwardly at one edge of said horizontal plate portion at right angles thereto and a panel plate portion integrally formed with and extending across said horizontal and vertical plate portions in the same plane as that of said intermediate portion of the inner wall member.

4. A toilet paper roll holding device as set forth in claim 1, in which said one edge of the horizontal plate portion of each second track member terminates short of said leg of the inner wall member and one wall of said housing defines a paper roll core discharge passage in cooperation with said leg of the inner wall member.

5. A toilet paper roll holding device as set forth in claim 1, in which each of said square ring-shaped weir members includes a pair of parallel spaced vertical frame portions one of which is operatively connected to said manipulation bar and a pair of opposite parallel horizontal frame portions integrally formed with and extending between said vertical frame portions and having said shutter means.

6. A toilet paper roll holding device as set forth in claim 1, in which said shutter means comprise a vertical through recess provided in one of said horizontal frame portions adjacent to one of said vertical frame portions and a similar vertical through recess provided in the other of said horizontal frame portions adjacent to the other of said vertical frame portions in a staggered relationship to said first-mentioned recess.

7. A toilet paper roll holding device comprising a housing having outwardly extending bulges in the side walls thereof and including a first pair of opposite and spaced paper roll guide groove forming members extending inwardly from the rear wall of the housing and terminating short of the midpoint in the distance between the fore and rear walls of the housing and a second pair of opposite and spaced paper roll guide groove forming members extending from the fore wall of the housing and terminating in said midpoint so as to define a paper roll guide groove in cooperation with said first-mentioned guide groove forming members; a pair of upper and lower opposite and spaced brackets provided on each of the side walls of said housing in opposite to and spaced from said bulge in the associated housing side wall; a detachable track forming member fitted between said upper and lower brackets on each of the side walls of the housing and having a pair of spaced upper and lower tracks extending inwardly of said track forming member further including a vertical second paper roll guide groove adapted to vertically align with said first-mentioned guide groove when the track forming member is in its predetermined operative position; a slidable weir member slidably received in said track forming member on each of the side walls of the housing; and a manipulation bar operatively connected to the slidable weir members on both the side walls of the housing to simultaneously move the weir members.

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