

[54] TOWEL DISPENSER

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[58] Field of Search 312/38

[56] References Cited

UNITED STATES PATENTS

2,899,251 8/1959 Birr 312/38
 3,574,431 4/1971 Henderson 312/38

Primary Examiner—James C. Mitchell
 Attorney, Agent, or Firm—Prangley, Dithmar, Vogel,
 Sandler & Stotland

[57] ABSTRACT

A continuous towel dispensing cabinet includes a housing provided with a hingedly mounted casing movable between open and closed positions and having associated therewith a loop of towel which extends along an exit path to an exposed position accessible to a user and thence along a return path into the housing, a generally cylindrical clean towel receptacle suspended exteriorly of and beneath the housing within the loop of towel so as to be substantially concealed thereby, the receptacle having support members engaging rails on the housing so as to accommodate sliding of the receptacle between a towel dispensing position and an intermediate position wherein certain of the support members clear the rails and so as to accommodate consequent pivotal movement of the receptacle to a towel servicing position spaced forwardly of the housing and with the forward edge of the receptacle pivoted downwardly away from the housing.

12 Claims, 4 Drawing Figures

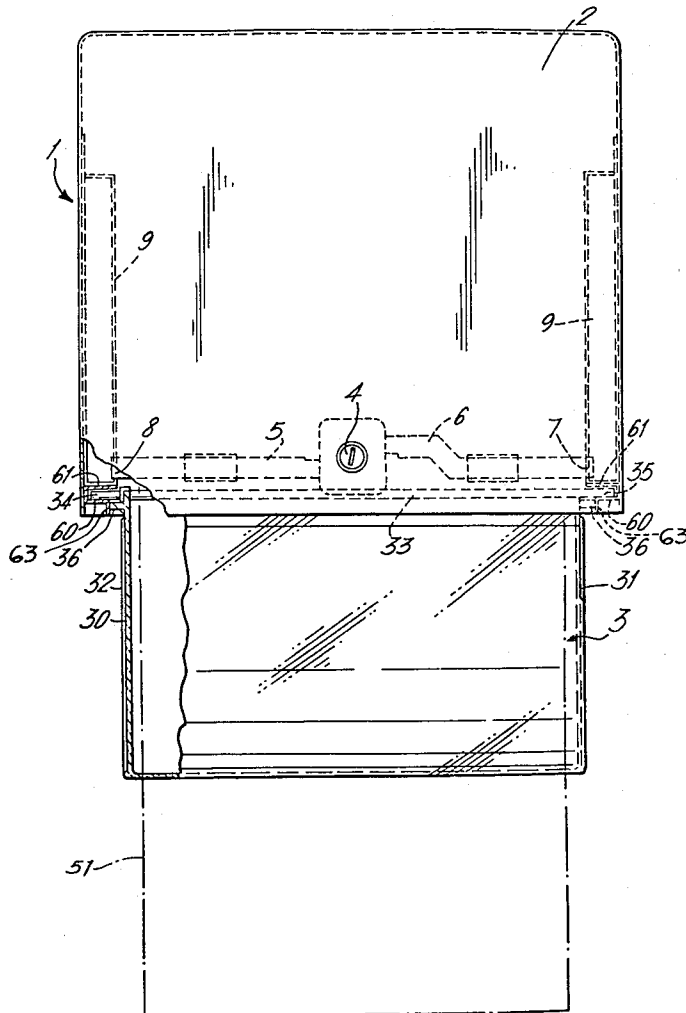
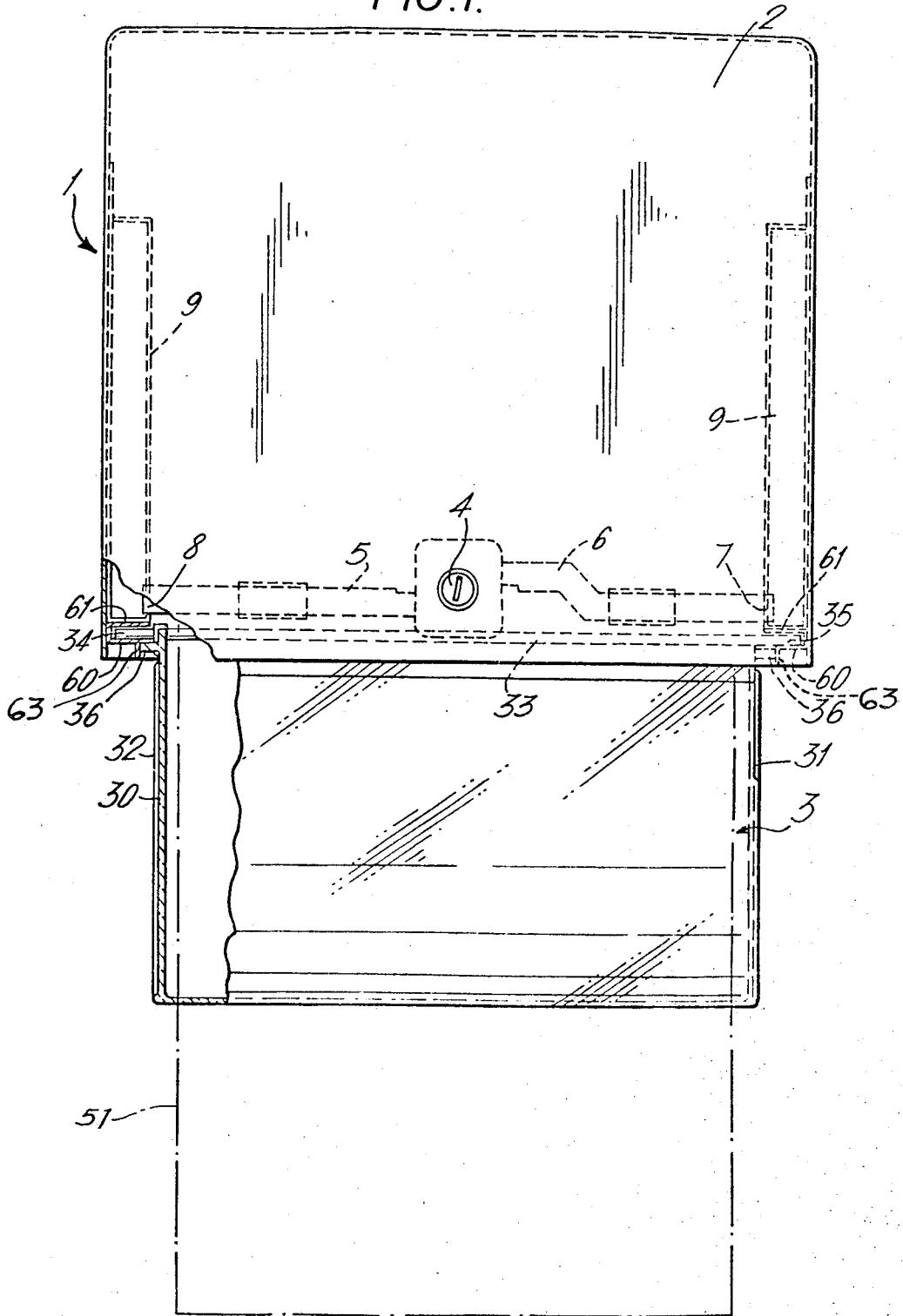


FIG. 1.



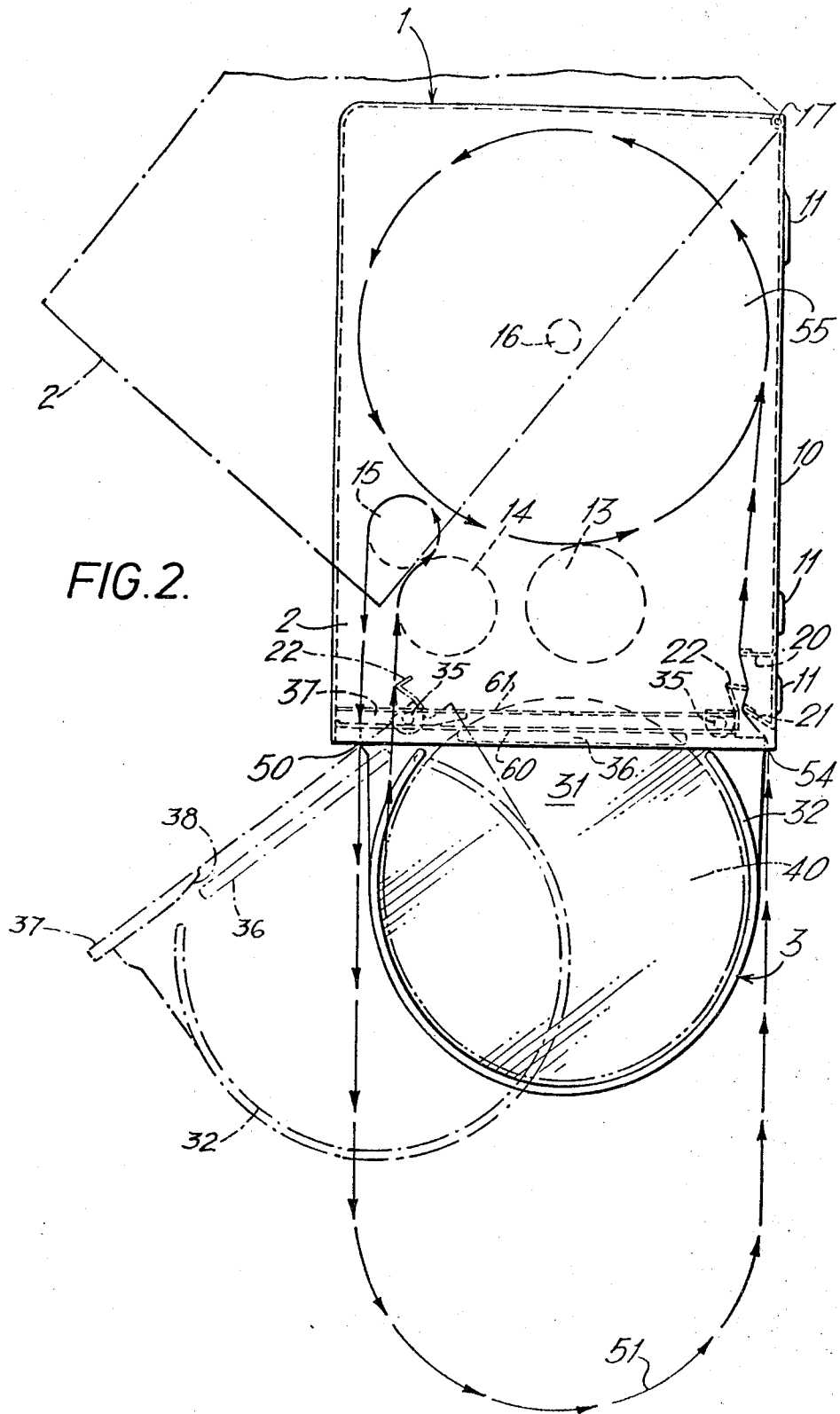


FIG. 2.

FIG. 3.

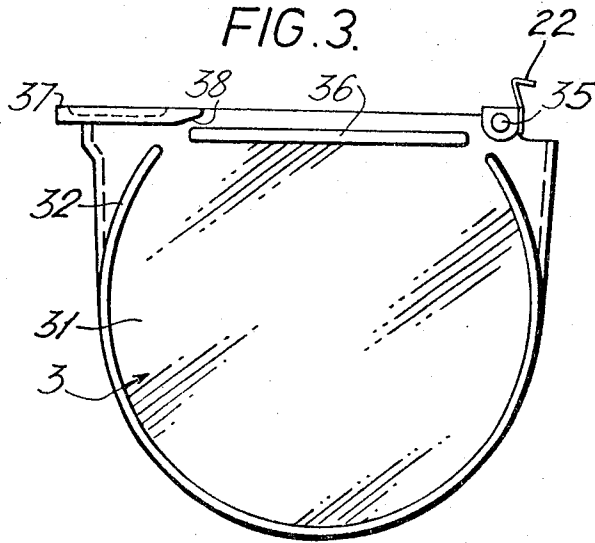
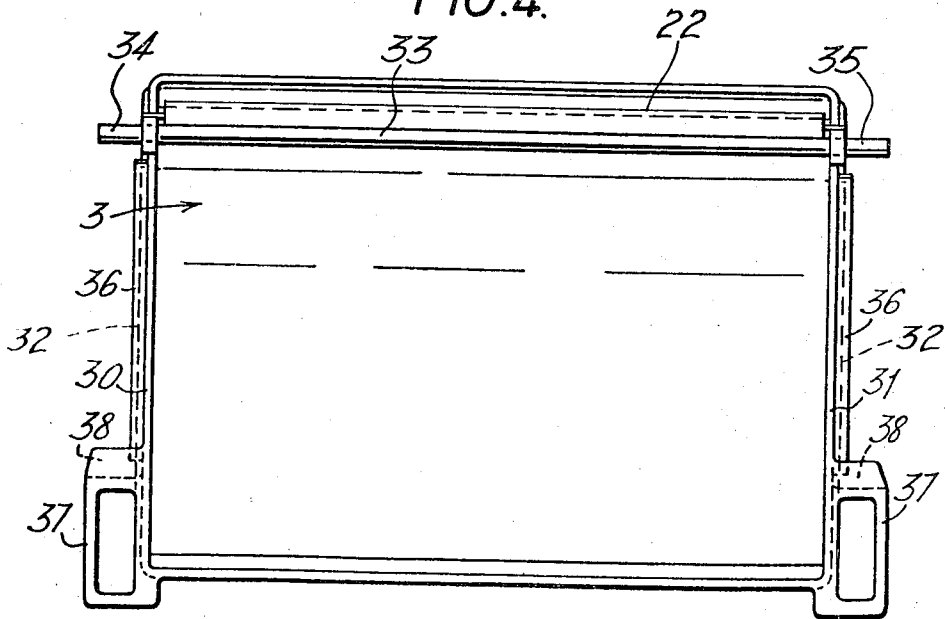


FIG. 4.



TOWEL DISPENSER

BACKGROUND OF THE INVENTION

The present invention relates generally to improvements in dispensing cabinets and specifically to improvements in the operation of cloth towel dispensing cabinets of the continuous type.

Admittedly towel dispensing cabinets of the continuous type are well known in the prior art but difficulty has been experienced in loading clean toweling into the prior art cabinets and in threading the clean toweling through the dispensing and take-up mechanisms thereof. For example, U. S. Pat. No. 1,765,631, issued to F. M. Steiner and G. Olson disclosed such a towel cabinet, wherein it is necessary to open at least three members including the door **9**, the panel **26** and the door **34** in order to place clean toweling therein and to thread the clean towel through the dispensing mechanism, which threading even then is accomplished only with difficulty.

U. S. Pat. No. 2,889,251, issued to R. G. Birr, discloses a towel cabinet wherein a receptacle **29** having a roll of clean toweling is provided, the receptacle being pivotally mounted about the pivot screws **34** to facilitate loading of the clean toweling therein into an opening of the front cover **18**. Despite this improved structure, difficulty still was experienced in use in loading clean toweling into the dispensing cabinet and threading the clean toweling through the dispensing mechanism.

U. S. Pat. No. 3,574,431, issued to C. A. Henderson, discloses yet another approach to the method of loading clean toweling, wherein two doors **24** and **33** must be opened to gain access to two vertically spaced apart compartments for the clean toweling and soiled toweling, respectively, in order to place clean toweling therein. Despite this arrangement, difficulty still is experienced in attempting to load the clean toweling into the dispensing cabinet.

SUMMARY OF THE INVENTION

The present invention provides a dispensing cabinet for continuous cloth toweling which permits ready loading of clean toweling into the cabinet and threading of the clean toweling through and into the dispensing mechanism with ease and certainty.

This is accomplished in the present invention, and it is an object of the present invention to accomplish these desired results, by providing a towel dispenser wherein the clean towel receptacle is suspended exteriorly of and beneath the housing containing the towel dispensing apparatus and the loop take-up means, there being cooperating rails on the housing and first and second support members on the receptacle suspending the receptacle from the housing for accommodating transverse sliding movement of the receptacle between a towel dispensing position disposed immediately below the housing and an intermediate position wherein the second support members clear the rails and for accommodating subsequent pivotal movement of the receptacle between the intermediate position and a towel servicing position spaced forwardly of the housing and from the towel dispensing position and with the forward edge of the receptacle pivoted about the first support members downwardly away from the housing to

provide ready access to the interior of the receptacle.

In connection with the foregoing object, it is another object of the invention to provide a towel dispenser of the type set forth, wherein the first support members are cylindrical in shape to facilitate pivoting of the receptacle about the axis thereof, and the second support members are each provided with a ramp surface engageable with the associated rail to assist in moving the receptacle from the towel servicing position thereof to the intermediate position thereof.

Yet another object of the invention is to provide a towel dispenser of the type set forth wherein ribs are respectively mounted on the opposite sides of the receptacle and engage beneath an associated rail firmly to position the receptacle with respect to the housing in a vertical direction in use.

Another object of the invention is to provide a towel dispenser of the type set forth, wherein the receptacle is shaped and dimensioned conformably with a supply of clean toweling and is substantially disposed within the lateral edges of the associated loop of towel so as to be substantially concealed thereby, the receptacle in certain instances being formed of transparent plastic material.

Still another object of the invention is to provide a towel dispenser of the type set forth, wherein the housing has a casing movable between open and closed positions, the casing in the closed position thereof holding the towel receptacle in the towel dispensing position thereof and the casing in the open position thereof permitting transverse sliding movement and substantially pivotal movement of the receptacle to the towel servicing position.

A further object of the invention is to provide a towel dispenser of the type set forth, wherein a fixed towel breaker is mounted on the housing and a movable towel breaker is mounted on the receptacle, the towel breakers cooperating to smooth the towel along the return path of the loop, movement of the receptacle to the towel servicing position separating the towel breakers to facilitate threading of the clean towel.

Further features of the invention pertain to the particular arrangement of the parts of the compact towel dispenser whereby the above outlined and additional operating features thereof are attained.

The invention, both as to its organization and method of operation together with further features and advantages thereof, will best be understood with reference to the following specification taken in connection with the accompanying drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front view, partially in section, of a towel dispensing cabinet, a slack towel loop hanging from the cabinet being shown in dashed lines;

FIG. 2 is a side view of the cabinet showing the housing and the clean towel receptacle in full lines in the towel dispensing position and in dashed lines in the towel servicing position, the path of the towel being shown by arrows;

FIG. 3 is a side view of the clean towel receptacle of the cabinet; and

FIG. 4 is a top plan view of FIG. 3.

Referring to FIG. 1, the towel dispensing cabinet of the present invention comprises a box-like housing **1** having a casing **2** beneath which housing is suspended

a transparent clean towel receptacle 3. The casing 2 is provided in the center of its lower face with a lock 4. Slide bolts 5 and 6 are projected laterally when the lock is turned to pass through openings 7 and 8 formed in the side plates 9 fixed to a back panel 10 shown in FIG. 2.

The back panel 10 is provided with mounting embossments 11 having openings therein to enable the cabinet to be attached to a wall and is fixed to a frame which includes the side plates 9 and also mounts for various rollers within the housing 1 including rollers 14 and 15 of a towel dispensing apparatus and rollers 13 and 16 of a loop take-up mechanism. A hinge 17 provided in the top back corner of the frame allows the casing 2 to be hinged for pivotal movement forwardly and upwardly, as shown in dashed lines in FIG. 2, to enable access from the front to the interior of the housing 1. The frame has two vertically spaced ribs 20 and 21 extending inwardly from its rear wall to provide fixed towel breakers and between which a movable rib 22 may be positioned to provide a movable towel breaker in order to smooth the used towel as it is fed to the loop take-up rollers 13 and 16.

The clean towel receptacle 3 is shown in FIGS. 3 and 4 and comprises a smoked transparent molding of polycarbonate plastic resin material having a generally part-cylindrical shape. The receptacle 3 is open at its upper side and is of trough-like configuration having integrally molded end walls 30 and 31. A part-cylindrical rib 32 is formed in each end wall for aesthetic reasons and follows the contour of a new clean towel roll when placed in the receptacle 3. A rod 33 extends across the upper rear portion of the receptacle 3 and is molded in position so that its opposite end portions 34 and 35 project from the end walls 30, 31 to provide pivots. Beneath the level of the pivots and in the upper portion of the end walls 30 and 31 are integrally molded ribs 36 which assist location of the receptacle 3 in its towel dispensing position beneath the housing 1. The forward upper end of the receptacle 3 is provided with a pair of lugs 37 each provided with a ramp surface 38.

FIG. 2 shows in broken outline a clean towel roll 40 mounted within the clean towel receptacle 3. The free end of the towel roll 40 is threaded upwardly through a pinch between the two rollers 14 and 15 of the towel dispensing apparatus and then hangs downwardly so that it falls through a feed slot 50 provided between the front of the casing 2 and the back of the casing 2. The towel thus hangs vertically down beneath the housing 1 to provide a slack towel loop 51 around the receptacle 3. The towel loop passes upwardly behind the receptacle 3 through a rear towel feeding slot 54 and then passes across the fixed towel breakers 20 and 21 and the movable towel breaker 22 so that it is slightly tensioned and smoothed as it passes upwardly to a used towel roll 55 which is built up on the roller 16 of the loop take-up mechanism. It will be appreciated that FIG. 2 is diagrammatic and shows the clean towel roll and the used towel roll with their diameters at a maximum. The details of the towel dispensing mechanism and the loop take-up mechanism are known in the art, and are preferably of the type illustrated in U. S. Pat. No. 2,899,251, issued to R. G. Birr on Aug. 11, 1959. The feed mechanism operates when the front run of the towel is pulled down by the user, and allows a predetermined length of clean towel to be drawn out of the cabinet. Simultaneously, the roller 13 is rotated and this

has the used towel roll 55 resting on it so that the used towel winds up the same length of used towel as is dispensed by the cabinet.

As the clean towel roll is consumed, its diameter diminishes and an attendant may see immediately, by looking at the end walls of the transparent receptacle 3, when towel replacement is necessary.

The pivot portions 34 and 35 each extend into a guide formed by upper and lower rails 60 and 61, respectively, which extend horizontally from the back to adjacent the front of the frame at a position slightly above the lower edge of the casing 2. These rails allow the receptacle 3 to be slid backwards and forwards on the frame when the casing 2 is in its open position. During such movement the ribs 36 engage the under side of the rail 60 and the ramp surface 38 on each of the lugs 37 provides a smooth entry for the lugs 37 which also engage between the upper and lower rails 60 and 61 when the receptacle 3 is moved finally into its towel dispensing position at which it is nested beneath the housing 1 as shown in full outline in FIG. 2.

To service the cabinet, the attendant releases the lock 4 so that the slide bolts 5 and 6 disengage from the openings in the side plates 9. The casing 2 can then be raised about the hinge 17 to allow access to the used roll holding chamber which comprises that portion of the housing 1 above the roller 13.

Raising of the casing 2 frees the lugs 37 of the receptacle 3 which are normally held trapped behind the lower marginal edge of the casing 2, so that the receptacle 3 can be drawn forwardly on the rails 60 and 61 to a position such that the ramp surfaces 38 clear the lower rail 60. The receptacle 3 can then be swung downwardly about the pivot axis provided by the pivot portions 34 and 35 of the rod 32 to enable the last of the clean towel roll 40 to be removed and wound up onto the used towel roll 55 which can then be withdrawn from the upper portion of the cabinet.

A new clean towel roll 40 is then inserted into the receptacle 3 and its leading end fed upwardly around the roller 15 and then down across the mouth of the receptacle 3 to provide the loop 51. The free end is then passed upwardly inside the rear of the cabinet, this being easily accomplished because the receptacle 3 is slid forwardly and there is adequate room for the attendant's hand to be inserted when the casing 2 is raised and the movable towel breaker 22 is well forward of the fixed towel breakers 20 and 21. The free end of the towel can then be fixed to roller 16 which is, in fact, the center roller of the used clean towel roll.

Finally, the attendant pivots the receptacle 3 about the pivot axis provided by the rod 33 and then slides it rearwardly, the ribs 36 and the ramp surfaces 38 assisting location of the receptacle 3. Final movement of the receptacle 3 is its operating position at which it is nested beneath the housing 1 and its casing 2, is facilitated by the ramp surfaces 38 which guide the lugs 37 so that they, too, are trapped between the rails 60 and 61. The casing 2 is then swung downwardly to the position shown in FIG. 1 and locked.

In order that the cabinet may be made more secure against unauthorized attempts to open it, the rear vertical edges of the casing 2 may be channeled to fit over respective side flanges on the back panel 10. This arrangement would hold the side panels of the casing 2 when the cabinet is in its closed position.

Although the above described cabinet is designed for use with cloth towels, the invention is equally usable with towel rolls made of paper or any other suitable absorbent material.

While there has been described what is at present considered to be the preferred embodiment of the invention, it will be understood that various modifications may be made therein and it is intended to cover in the appended claims all such modifications as follow within the true spirit and scope of the invention.

What is claimed is:

1. A towel dispenser of the continuous loop type comprising a housing having associated therewith a loop of towel that extends along an exit path out of said housing to an exposed position accessible to a user and thence along a return path into said housing, towel dispensing apparatus mounted in said housing for dispensing clean towel from a supply thereof into said housing and from said housing into the loop along the exit path when the accessible portion of the loop is pulled by a user, loop take-up means mounted in said housing and coupled to said towel dispensing apparatus for retracting and storing in said housing soiled towel from the return path when the accessible portion of the loop is pulled by a user, a receptacle suspended exteriorly of and beneath said housing for accommodating therein a supply of clean towel exteriorly of said housing, rails respectively mounted on the opposite sides of said housing adjacent to the lower end thereof, and first support members mounted respectively on the opposite sides of said receptacle adjacent to the upper edge thereof and disposed adjacent to the rear edge thereof and engaging said rails and second support members mounted respectively on the opposite sides of said receptacle adjacent to the upper edge thereof and disposed adjacent to the forward edge thereof and engaging said rails, said rails and said support members suspending said receptacle from said housing and accommodating transverse sliding movement of said receptacle between a towel dispensing position disposed immediately below said housing and an intermediate position wherein said second support members clear said rails and accommodate subsequent pivotal movement of said receptacle between said intermediate position and a towel servicing position spaced forwardly of said housing and from said towel dispensing position and with the forward edge of said receptacle pivoted about said first support members downwardly away from said housing to provide ready access to the interior of said receptacle.

2. The towel dispenser set forth in claim 1, wherein said receptacle is formed of a transparent plastic material.

3. The towel dispenser set forth in claim 1, wherein a set of two of said rails is provided within said housing at each side thereof, the rails in each set being disposed one above the other in use and receiving said support members therebetween.

4. The towel dispenser set forth in claim 1, wherein said first support members are cylindrical in shape to facilitate pivoting of said receptacle about the axis thereof between the intermediate position and the towel servicing position of said receptacle.

5. The towel dispenser set forth in claim 1, wherein said second support members are each provided with a ramp surface engageable with the associated rail to assist in moving said receptacle from the towel servicing

position thereof to the intermediate position thereof.

6. The towel dispenser set forth in claim 1, and further comprising, ribs respectively mounted on the opposite sides of receptacle and engageable beneath the associated rail firmly to position said receptacle with respect to said housing in a vertical direction in use.

7. A towel dispenser of the continuous loop type comprising a housing having associated therewith a loop of towel that extends along an exit path out of said housing to an exposed position accessible to a user and thence along a return path into said housing, towel dispensing apparatus mounted in said housing for dispensing clean towel from a supply thereof into said housing and from said housing into the loop along the exit path when the accessible portion of the loop is pulled by a user, loop take-up means mounted in said housing and coupled to said towel dispensing apparatus for retracting and storing in said housing soiled towel from the return path when the accessible portion of the loop is pulled by a user, a receptacle suspended exteriorly of and beneath said housing for accommodating therein a supply of clean towel exteriorly of said housing, rails respectively mounted on the opposite sides of said housing adjacent to the lower end thereof, and first support members mounted respectively on the opposite sides of said receptacle adjacent to the upper edge thereof and disposed adjacent to the rear edge thereof and engaging said rails and second support members mounted respectively on the opposite sides of said receptacle adjacent to the upper edge thereof and disposed adjacent to the forward edge thereof and engaging said rails, said rails and said support members suspending said receptacle from said housing and accommodating transverse sliding movement of said receptacle between a towel dispensing position disposed immediately below said housing and an intermediate position wherein said second support members clear said rails and accommodate subsequent pivotal movement of said receptacle between said intermediate position and a towel servicing position spaced forwardly of said housing and from said towel dispensing position and with the forward edge of said receptacle pivoted about said first support members downwardly away from said housing to provide ready access to the interior of said receptacle, said receptacle being shaped and dimensioned conformably with a supply of clean towel and being substantially disposed within the lateral edges of the associated loop of towel so as to be substantially concealed thereby, whereby the size of said towel dispenser is minimized by location of said receptacle exteriorly of said housing while said receptacle is substantially concealed from view to afford a compact appearance for said towel dispenser.

8. The towel dispenser set forth in claim 7, wherein said receptacle is substantially cylindrical in shape and conforms to the dimensions of an associated supply roll of clean towel.

9. A towel dispenser of the continuous loop type comprising a housing having associated therewith a loop of towel that extends along an exit path out of said housing to an exposed position accessible to a user and thence along a return path into said housing, towel dispensing apparatus mounted in said housing for dispensing clean towel from a supply thereof into said housing and from said housing into the loop along the exit path when the accessible portion of the loop is pulled by a

user, loop take-up means mounted in said housing and coupled to said towel dispensing apparatus for retracting and storing in said housing soiled towel from the return path when the accessible portion of the loop is pulled by a user, a casing mounted on said housing and movable between an open position providing access to the interior of said housing and a closed position covering said housing, a receptacle suspended exteriorly of and beneath said housing for accommodating therein a supply of clean towel exteriorly of said housing, rails respectively mounted on the opposite sides of said housing adjacent to the lower end thereof, and first support members mounted respectively on the opposite sides of said receptacle adjacent to the upper edge thereof and disposed adjacent to the rear edge thereof and engaging said rails and second support members mounted respectively on the opposite sides of said receptacle adjacent to the upper edge thereof and disposed adjacent to the forward edge thereof and engaging said rails, said rails and said support members suspending said receptacle from said housing and accommodating transverse sliding movement of said receptacle between a towel dispensing position disposed immediately below said housing and an intermediate position wherein said second support members clear said rails and accommodate subsequent pivotal movement of said receptacle between said intermediate position and a towel servicing position spaced forwardly of said housing and from said towel dispensing position and with the forward edge of said receptacle pivoted about said first support members downwardly away from said housing to provide ready access to the interior of said receptacle, said casing in the closed position thereof holding said receptacle in the towel dispensing position thereof and said casing in the open position thereof permitting transverse sliding and pivotal movement of said receptacle to the towel servicing position thereof.

10. The towel dispenser set forth in claim 9, and further including lock mechanism for locking said casing in the closed position thereof.

11. A towel dispenser of the continuous loop tupe comprising a housing having associated therewith a loop of towel that extends along an exit path out of said housing to an exposed position accessible to a user and thence along a return path into said housing, towel dispensing apparatus mounted in said housing for dispensing clean towel from a supply thereof into said housing

and from said housing into the loop along the exit path when the accessible portion of the loop is pulled by a user, loop take-up means mounted in said housing and coupled to said towel dispensing apparatus for retracting and storing in said housing soiled towel from the return path when the accessible portion of the loop is pulled by a user, a receptacle suspended exteriorly of and beneath said housing for accommodating therein a supply of clean towel exteriorly of said housing, rails respectively mounted on the opposite sides of said housing adjacent to the lower end thereof, first support members mounted respectively on the opposite sides of said receptacle adjacent to the upper edge thereof and disposed adjacent to the rear edge thereof and engaging said rails and second support members mounted respectively on the opposite sides of said receptacle adjacent to the upper edge thereof and disposed adjacent to the forward edge thereof and engaging said rails, said rails and said support members suspending said receptacle from said housing and accommodating transverse sliding movement of said receptacle between a towel dispensing position disposed immediately below said housing and an intermediate position wherein said second support members clear said rails and accommodate subsequent pivotal movement of said receptacle between said intermediate position and a towel servicing position spaced forwardly of said housing and from said towel dispensing position and with the forward edge of said receptacle pivoted about said first support members downwardly away from said housing to provide ready access to the interior of said receptacle, a fixed towel breaker mounted on said housing adjacent to the return path of the loop of towel, and a movable towel breaker mounted on said receptacle for movement therewith, said movable towel breaker in the towel dispensing position of said receptacle cooperating with said fixed towel breaker for smoothing the soiled towel as it moves to said loop take-up means, said movable towel breaker in the towel servicing position of said receptacle being spaced from said fixed towel breaker to facilitate threading of the free end of the towel onto the loop take-up means.

12. The towel dispenser set forth in claim 11, wherein said fixed towel breaker includes two spaced apart breaker members disposed respectively above and below said movable towel breaker when in the towel dispensing position thereof.

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