

March 15, 1932.

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1,849,063

TOWEL CABINET

Filed Nov 28, 1927

3 Sheets-Sheet 1

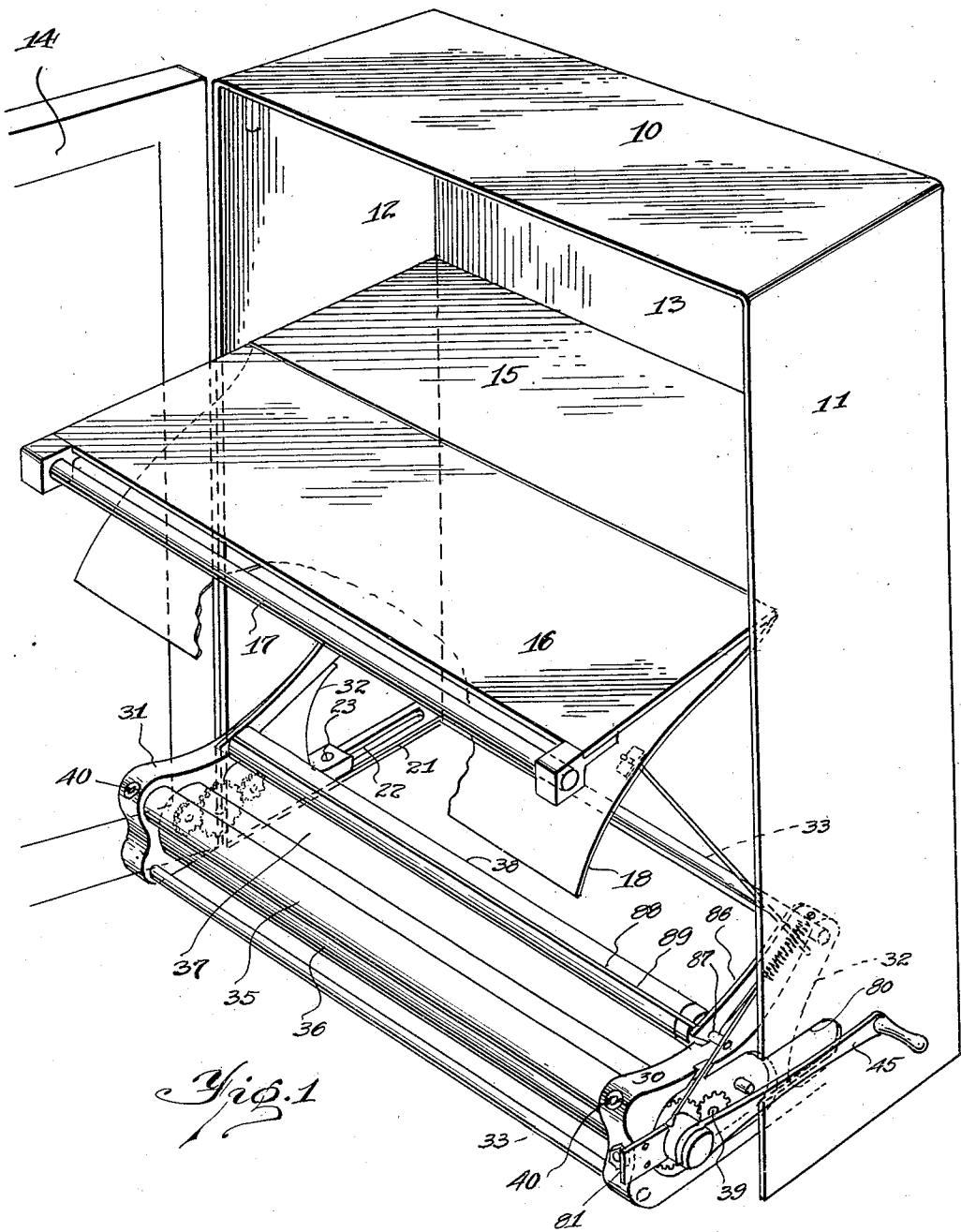


Fig. 1

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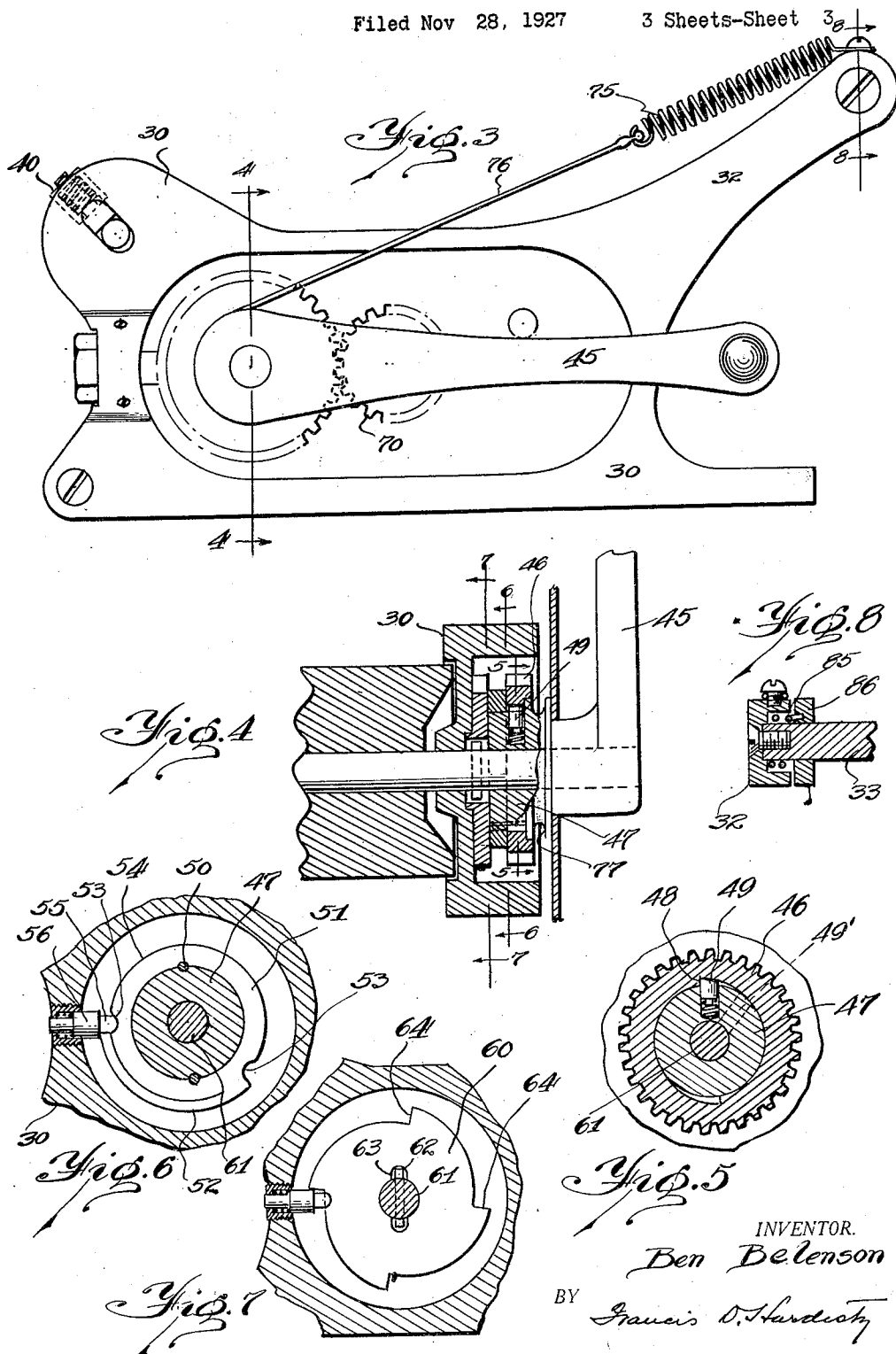
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3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

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TOWEL CABINET

Application filed November 28, 1927. Serial No. 236,178.

The present invention relates to towel cabinets for strip toweling in which a clean towel strip is fed out of a compartment for use and then into another compartment where it is rolled as an aid to handling.

Among the objects of the invention is an efficient, economically built, reliable mechanism for feeding the toweling to a position convenient for use and for rolling up the used toweling.

Another object is mechanism for delivering for use a measured amount of toweling and for locking the strip against movement while being used.

Other objects will readily appear to those skilled in the art upon reference to the following description and accompanying drawings in which:—

Fig. 1 is a perspective view of the cabinet in open position but without the toweling;

Fig. 2 is a view from the left of Figure 1 with the side of the cabinet removed and with parts in section;

Fig. 3 is an elevational view of the roller actuating and measuring means;

Fig. 4 is a section on line 4—4 of Figure 3;

Figs. 5, 6, and 7 are respectively sections on lines 5—5, 6—6, and 7—7 of Figure 4; and

Fig. 8 is a sectional view on line 8—8 of Figure 3.

As shown, the cabinet comprises a housing or box portion consisting of a top 10, sides 11 and 12, and back 13 provided with a hinged door 14. The lower side will be open as shown, but near the top is a shelf 15 to the forward edge of which is hinged an inner door 16 having at its free edge a roller or smooth rod 17 which, when the door 16 is closed, is spaced a short distance from the top 10 of the housing. Also, shelf 15 is somewhat less width than the depth of the housing so that, in closed position door 16 is spaced somewhat from door 14 when the latter is closed.

To the outer edge of shelf 15 is also hinged a depending curved shield member 18 over which passes the towel strip and behind which is rolled the soiled toweling.

In the lower portion of the housing and secured to the sides 11 and 12 are a pair of slide members 20 and 21, slotted as at 22 to

receive screws 23 on a frame which carries the feeding mechanism, which frame is thus allowed a limited forward and backward movement.

The frame mentioned comprises two end members 30 and 31 generally rectangular in shape and with upwardly and backwardly extending arms 32. These members 30 and 31 are connected by rods 33 and have bearings for and carry between them three rollers 35, 36, 37, and a drive shaft 39, roller 35 being an idle roller spring pressed toward roller 36 by the spring plungers 40.

Both end members 30 and 31 are hollowed out on their outer sides to receive gearing mechanism and in Figure 2 the rollers 36 and 37 are shown as carrying small gears 41 meshing with a larger gear 42 carried by the drive shaft 39.

The end member 30 carries in its hollowed portion the actuating mechanism for the towel feed which mechanism is set in motion by a crank handle 45.

As shown best in Figures 3 to 7, the actuating mechanism comprises a ring gear 46 loosely mounted on the hub 47 of the crank 45 and having two ratchet teeth 48 on its inner periphery adapted to cooperate with a spring pressed pawl 49 carried in the hub 47, and by means of which the gear 46 may be driven in one direction by crank 45. Also mounted on hub 47 and fixed thereto, as by keys 50, is a stop member and releasing cam 51. This member consists of a disc having about a third of its edge formed as an arc of a circle of greater radius than the remaining portion to provide a stop portion 52, with notches 53 at the ends of stop 52 sunk below the curve of the remaining portion of the periphery which latter forms the cam releasing member 54. The notches 53 and the ends of stop 52 cooperate with a spring pressed plunger 55 carried in frame member 30. This plunger 55 is provided with an enlarged portion 56 which extends laterally to cooperate with a locking disc 60.

Locking disc 60 is coaxial with disc 51 and hub 47 but is carried on the shaft 61 which is the shaft of roller 36. The disc 60 is prevented from rotating relative to the shaft 61

by means of a pin 62 in a recess 63 in the disc. The outer edge of disc 60 is provided with ratchet teeth 64 coacting with the enlarged portion 56 of plunger 55 to prevent rotation of the roller 36 in a forward direction unless the plunger is withdrawn.

The hub 47 of lever 45, and the parts carried thereby may conveniently be loosely mounted on the end of shaft 61, suitable means being provided to prevent their displacement.

In the rest position of handle 45, the pawl 49 lies in about the position 49' so that the handle may move a short distance before picking up the gear 46. In this short movement, the stop disc is also moved to lift plunger 55 out of notch 53 so that the portion 56 is moved out of the way of teeth 64 on lock disc 60. Rotation of the gear 46 then causes rotation of small gear 70 meshed therewith and keyed to shaft 39, and through this shaft, the rotation of rollers 36 and 37, multiplying the movement of these latter. Rotation is continued until the other end of stop 52 strikes plunger 55 and the latter drops into the second notch 53 and permits the part 56 to stop the disc 60.

The return of the handle 45 is caused by a spring 75 anchored to arm 32 of frame member 30 at one end and to a short cable 76 connected to hub 47. When the handle 45 is rotated counter clockwise (Fig. 3) the cable is reeled upon hub 47 in a groove 77 provided therefor. And the stop for the handle is provided by the stop member 52 and plunger 55.

Handle 45 of course projects out of the cabinet through a suitable slot or notch 80 and when the frame is in its rearward position this slot is filled by a small plate 81 carried by frame member 30.

The arms 32 of members 30 and 31 carry at their upper ends a rod 33 serving to hold the members together. These upper ends are counterbored as shown in Fig. 8 to receive springs 85 which are anchored at one end to the arm 32 and at the other secured to a guide arm and roller holder 86 serving to exert spring pressure on said guide arm to hold it down. There will be one of these holders 86 at each end of the frame and each is notched on the underside of its free end as at 87 to receive the shaft end of the soiled towel roll 38, the springs 85 being adapted to press the latter against feed roller 37. Roller 38 is easily removed from arms 86 and consists of a small roll having a longitudinal groove 88 in which lies a rod 89 hinged at one end and free at the other.

The cabinet, when in operation will be supported in any suitable manner from the back or top, leaving at least the front, right side and bottom clear to permit loading and unloading, and operating.

In loading the cabinet, toweling folded

in zigzag fashion, as indicated in Figure 1 at 100 will be placed in the upper compartment and the operating mechanism drawn forward to its outer position. When the latter is done, the apron or shield 18 will be automatically lifted by the link connection 90 which extends from the frame end members to the shield. The free end of the towel 100 is then brought down over the roller 17 and shield 18 and behind roller 35 over the front of roller 36. The toweling end is then rolled down by the roller 36 to produce the loop desired for use and brought back up behind the operating mechanism and the rod 33 and secured to roller 38 by lifting the rod 89 from its groove and passing the end of the toweling under the rod. A single turn of the roller 38 will then secure the toweling firmly thereto. The operating mechanism is then slid back into place and the door 16 closed and lastly the cabinet is closed by means of the door 14. The cabinet is then ready for use.

When the user desires to obtain clean toweling, he grasps the handle 45 and rotates it counter clockwise (Fig. 1) giving it about two-thirds of a turn until it is automatically stopped. This operation of the handle 45, through the gearing above described, will rotate the feed rolls 36 and 37 through several revolutions and cause the feeding of sufficient toweling for use. The operation also rotates the roller 38 to wind up the previously used towel at the same rate as the feed of clean toweling by roller 36.

It will thus be seen that the mechanism described provides a simple, easily operated and economically manufactured means for supplying clean toweling and rolling up the soiled toweling and also provides against extravagant usage by supplying a measured amount with each operation.

The disk members 54 and 60 provide against pulling the towel from the supply cabinet in preventing rotation of the rollers 36 and 37, and, as it is proposed to make the surfaces of these rollers of some friction producing material, the toweling will not slip thereover.

Now having described the invention and the preferred form of embodiment thereof, it should be noted that the said invention is to be limited, not to the specific details herein described and illustrated, but, only by the scope of the claims which follow.

I claim:—

1. A towel cabinet having therein a support for a clean towel supply in the upper portion of the cabinet, a pair of members in the lower portion of the cabinet, a frame having a limited forward and backward movement on said members, delivery and take up feed rolls mounted in said cabinet, a shield hinged to said support and normally depending below it, said shield having a surface for normally contacting with the de-

pending web of towel and means to move said shield upwardly to allow access to said rolls for threading the toweling onto said rolls when said frame is pulled forward.

2. A towel cabinet comprising a casing having therein an upper compartment for a length of clean toweling, a pivoted shield in front of which said toweling passes in a downward direction, and horizontal slides carried by said casing near the bottom thereof, a frame movable on said slides from within said casing outwardly, towel moving means mounted in said frame and movable therewith and means connecting said frame and shield whereby said shield is moved outward with said frame.

3. A towel cabinet comprising a casing having therein an upper compartment and a support for a length of clean toweling, a shield pivoted on said support in front of which said toweling passes in a downward direction, and horizontal slides carried by said casing near the bottom thereof, a frame movable on said slides from within said casing outwardly, towel feeding means and towel winding means mounted in said frame and movable therewith and means connecting said frame and shield whereby said shield is movable outwardly with said frame.

4. A towel cabinet comprising a casing having therein an upper compartment for a length of clean toweling, a shield pivoted in the forward portion of the cabinet and in front of which said toweling passes in a downward direction, and horizontal slides carried by said casing near the bottom thereof, a frame movable on said slides from within said casing outwardly, means connecting said frame and shield, towel moving means mounted in said frame and movable therewith, said means comprising a pair of feed rollers mounted in substantially the same horizontal plane and geared to rotate simultaneously in the same direction, the forward roller rotatable to feed clean toweling and the rearward roller rotatable to cause take-up of soiled toweling and a soiled towel take-up roller mounted in said frame and resting on said rearward roller whereby rotation of the latter will cause rotation of the soiled towel roller.

5. A towel cabinet having a door normally closing the open front thereof, a support for a clean towel supply in the upper portion of the cabinet, a pair of slide members in the lower portion of the cabinet, a frame having a limited forward and backward movement on said slide members, delivery and take up feed rolls mounted in said frame, a door hinged to the support of the towel supply and projecting upwardly therefrom and over which the web of towel may be stretched to depend within said cabinet, a shield also hinged to said support and depending below it and having a surface for contacting with

the depending web of towel, said door being swung outwardly to a position substantially on a level with said support and said shield being moved outwardly to a position under said door when said frame is pulled forwardly through the door opening.

6. A towel cabinet comprising a casing, a shelf mounted in the upper portion thereof and adapted to support a supply of clean towel, a shield pivotally connected with said shelf and depending therefrom, a frame slidably mounted in the lower portion of said casing below said shield and having a forward and backward movement, towel moving means mounted in said frame, said shield operating to smooth and guide the towel web between the supply and said towel moving means and a rod connecting said frame with said shield whereby forward and backward movement of said frame will impart a similar movement to said shield.

7. A towel cabinet comprising a casing, a support in the upper portion thereof adapted to receive a supply of clean towel, a frame having a forward and backward movement in the lower portion of said casing, towel moving means mounted in said frame and movable therewith, a shield supported beneath said towel support and adapted to contact with the clean web of towel between said support and said towel moving means, and means connecting said frame and shield whereby said shield is moved forwardly and backwardly with said frame.

8. A towel cabinet comprising a casing having a support in its upper portion for a clean towel supply, a shield in the forward portion of said casing in front of which the towel may pass downwardly, a frame movable forwardly and backwardly in said casing and means connecting said frame with said shield, towel moving means mounted in said frame and movable therewith, said means comprising a pair of feed rolls geared to rotate simultaneously in the same direction, the forward roll rotatable to feed the clean toweling and the rearward roll rotatable to cause take up of soiled toweling, a soiled towel take up roller mounted in said frame contacting with said rearward roller, whereby rotation of the latter will cause rotation of the soiled towel roller, said shield being in position to contact with the clean web as it passes from said supply to said forward roller.

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