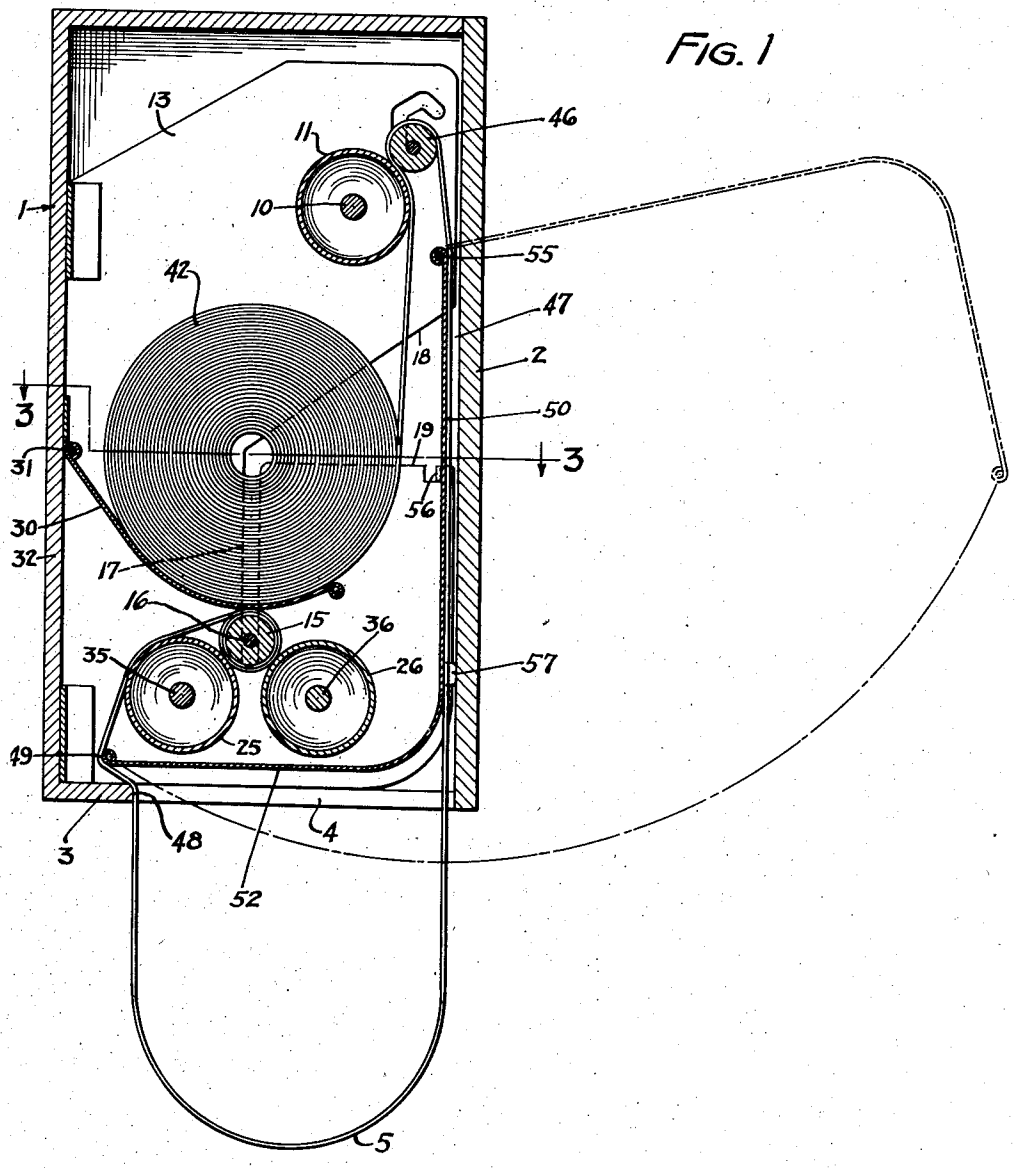
Dec. 13, 1938. C. A. CHIDSEY, JR 2,140,440

TOWEL DISPENSING APPARATUS

Filed May 13, 1936 2 Sheets-Sheet 1

FIG. 1



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FIG. 2

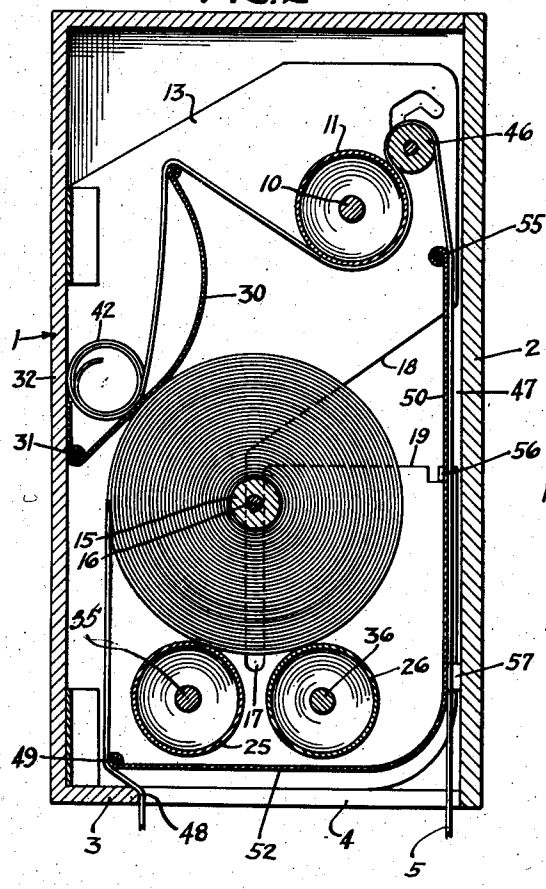


FIG. 4

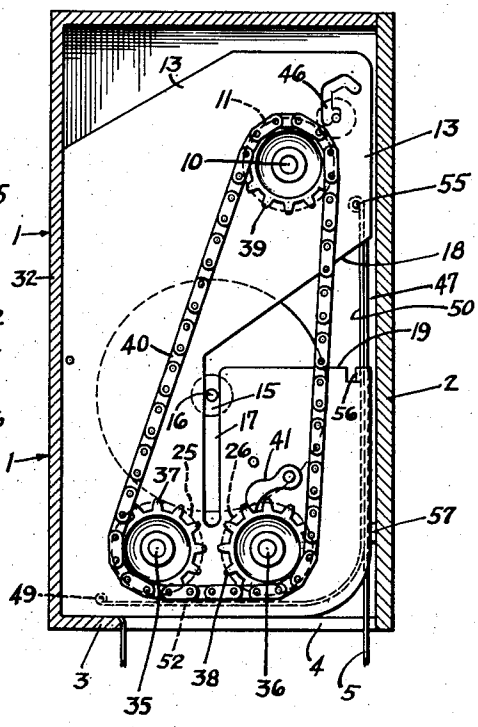
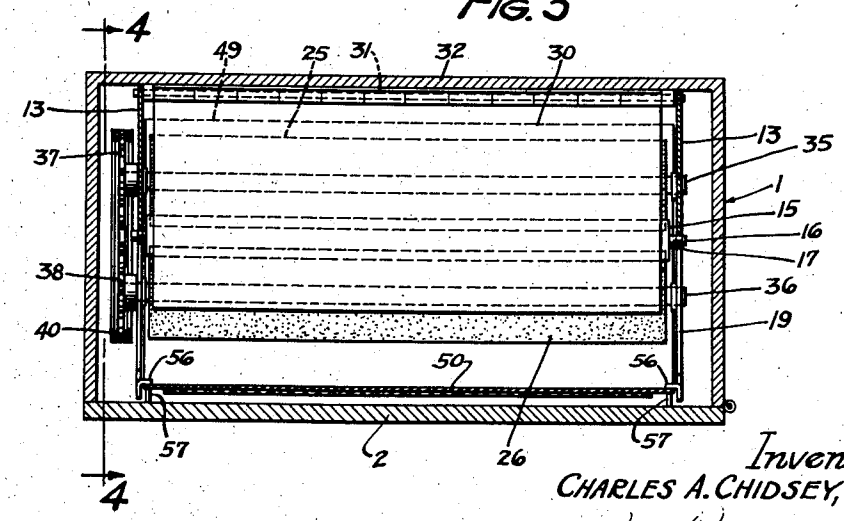


FIG. 3



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2,140,440

UNITED STATES PATENT OFFICE

2,140,440

TOWEL DISPENSING APPARATUS

Charles A. Chidsey, Jr., Detroit, Mich., assignor to Steiner Sales Company, Salt Lake City, Utah, a corporation of Utah

Application May 13, 1936, Serial No. 79,513

10 Claims. (Cl. 312—38)

This invention relates to improvements in towel dispensing apparatus and particularly to that type of apparatus in which soiled toweling is taken up as clean toweling is dispensed. One of the important objects of the invention is to so arrange the clean towel supply or roll in relation to the soiled towel takeup roll that as dispensing progresses the space initially occupied by the clean toweling is finally occupied by the soiled toweling, thus conserving space so that the towel cabinet can be made much smaller than is ordinarily the case.

Another feature relates to the use of a plate which functions with the door of the cabinet to form a guide for the clean toweling and which functions to prevent tampering by entry through an opening in the bottom, and which also functions in conjunction with other means for smoothing the soiled toweling before it is wound on the soiled towel takeup roll.

Features of the invention include the details of construction, along with the broader ideas of means inherent in the disclosure.

Objects, features and advantages of the invention will be set forth in the description of the drawings forming a part of this application, and in said drawings—

Figure 1 is a transverse section with the supply roll and soiled towel takeup roll as at the beginning of dispensing;

Figure 2 is a similar view as when the clean towel supply is substantially exhausted;

Figure 3 is a plan section approximately on line 3—3 of Figure 1; and

Figure 4 is a vertical transverse section approximately on line 4—4 of Figure 3.

The invention is shown applied in a wall cabinet, wherein it is particularly desirable that a maximum amount of toweling be handled in a minimum amount of space.

In the drawings, the numeral 1 generally indicates a cabinet having a service door 2. The bottom of the cabinet is indicated at 3 and has an opening 4 therein downwardly and upwardly through which the toweling passes to form a loop 5. Numeral 10 indicates the shaft of a measuring roll 11, said shaft being journaled in plates 13, see Figure 4. A soiled towel takeup roll is indicated at 15 and has a shaft 16, the opposite ends of which extend as shown in Figures 3 and 4 into vertical guide slots 17 of plates 13. Each slot is a continuation of a corresponding throat-like slot. The upper edge of the slot is indicated at 18 and the lower edge at 19. By this slot arrangement, the soiled towel takeup roll can be easily introduced to or removed from the position shown in Figure 1 or 2.

The drive for the soiled towel roll includes two rolls 25, 26 journaled in the plates 13, the shafts being horizontally aligned and parallel. The takeup roll rests by gravity on these drive rolls 25 and 26.

Associated with the soiled towel roll or support is a clean toweling support indicated at 30 and hinged or pivoted at 31 to the back wall 32 of the cabinet. This clean toweling support is adapted to rest by gravity upon the soiled toweling which is on the support 15, as shown in Figure 1. By this means, supports respectively for the soiled and clean toweling are provided and are so mounted and arranged that, as dispensing progresses, the space initially occupied by the clean toweling is finally occupied by the soiled toweling, compare Figures 1 and 2. Figure 2 shows the clean toweling supply substantially exhausted.

The shafts 35 and 36 respectively of rolls 25 and 26 are provided with sprocket wheels respectively indicated at 37, 38. Shaft 10 of the measuring roll 11 is provided with a sprocket wheel 39, and a chain 40 is operatively associated with these sprocket wheels in the manner shown. Associated with the sprocket wheel 38 is a pawl 41 for preventing reverse movement.

The clean toweling supply roll is indicated at 42. The toweling passes from the supply roll to the measuring roll 11, thence between roll 11 and pinch roll 46 and over the pinch roll downwardly through a throat 47, and opening 4 to form the loop 5, thence upwardly in contact with rear edge 48 of the opening 4, thence over the rear edge 49 of an extension of a plate later to be described, thence over drive roll 35 to the takeup roll 15. A pull on the front side of the loop 5 results in rotating the measuring roll, which through the sprocket and chain drive operates the rolls 25, 26 to take up toweling in an amount equal to that withdrawn.

Another feature of the invention relates to an element which performs the triple function of forming a part of the guide throat for the clean toweling, guarding the opening 4 against tampering entry and forming part of means for smoothing the soiled toweling before it reaches the take-up roll. This means comprises a plate having a vertical portion 50 spaced from the service door to form the throat 47. The plate is bent to form a right-angled extension 52 having its rear edge rolled to form the smoothing edge 49. The portion 52 is so placed as to guard the

opening 4 to prevent tampering entry through this opening. The portion 49 and the rear edge 48 of the opening cooperate for smoothing the towel. The plate is pivoted as at 55 between the side plates 13 so that it can be swung outwardly to the dot-and-dash line position in Figure 1 to allow servicing of the cabinet. The plates 13 have lugs 56 to limit inward movement of the portion 50 of the plate and the door 2 has a spacer element 57 which prevents outward movement of the element 50 when the door is closed. Thus, pinching of the toweling in the throat 47 is prevented and the rear edge 49 is unfailingly held in the proper relation with the rear edge 48 of the opening. The relation of the stop 56 and spacer 57 is best shown in Figure 3.

The means for manually operating the measuring roll has not been shown. It is usual to provide a stop mechanism to limit the amount of toweling dispensed at a single operation. This mechanism has not been illustrated. Both mechanisms are well known in the art.

I believe myself the first to arrange and operate supports respectively for soiled and clean toweling so that the space initially occupied by the clean toweling supply is finally occupied by the soiled toweling, thereby enabling one to handle a maximum amount of toweling in a minimum amount of space.

I claim as my invention:

1. A towel dispensing apparatus comprising, a cabinet having front and rear soiled toweling drive rollers, a core roll upon which soiled toweling is wound and which rests upon and is driven by said rollers, means by which the core roll is mounted for translation in a direction perpendicular to its axis of rotation, a clean towel roll supporting shelf pivoted to the cabinet and constantly resting on the core roll or the soiled toweling thereon and adapted to swing upwardly as the amount of soiled toweling on said core roll increases, a measuring roll disposed above said shelf so located that the free side of the shelf will clear it, and means by which the measuring roll operates the drive rollers.

2. A towel dispensing apparatus comprising, a cabinet having a front door and having a bottom which is open from the door rearwardly to a point near the rear wall of the cabinet, towel dispensing means in the cabinet including soiled toweling takeup drive means arranged near the open bottom of the cabinet, a plate having a portion spaced from the door to form a guide therewith and acting as a supplemental closure for the front of the cabinet, and having an integral portion movable with it and disposed between said drive means and the open bottom of the cabinet to prevent tampering access through the open bottom, the spaced portion of said plate being pivoted by its upper portion to the cabinet at a point near the door and being adapted to swing outwardly to give access for servicing the cabinet.

3. A towel dispensing apparatus comprising, a cabinet having a front door and having a bottom which is open from the door rearwardly to a point near the rear wall of the cabinet, towel dispensing means in the cabinet including soiled toweling takeup drive means arranged near the open bottom of the cabinet, a plate having a vertical portion spaced from the door to form a guide therewith, and acting as a supplemental closure for the front of the cabinet, and having an integral horizontal portion movable with it and disposed to prevent tampering access through the open bottom, the vertical portion of said plate being pivoted by its upper portion to the cabinet at a point near the measuring roll and being adapted to swing outwardly to give access for servicing the cabinet, the cabinet having a soiled towel smoothing edge at the bottom and adjacent the rear of the takeup drive means and the horizontal portion of said plate having a rear towel smoothing edge which acts to draw the toweling against the first mentioned smoothing edge as the plate assumes anti-tampering position.

4. A towel dispensing apparatus comprising, a cabinet having a front door and having a bottom which is open from the door rearwardly to a point near the rear wall of the cabinet, the front and rear soiled toweling takeup drive rollers arranged near the open bottom of the cabinet, a core roll upon which soiled toweling is wound and which is driven by said rollers, a measuring roll near the door of the cabinet, means by which the measuring roll operates the drive rollers, a plate having a vertical portion spaced from the door to form a guide therewith and acting as a supplemental closure for the front of the cabinet, and having an integral horizontal portion movable with it and disposed to prevent tampering access through the lower open bottom of the cabinet, the vertical portion of said plate being pivoted by its upper portion to the cabinet at a point near the door and measuring roll and being adapted to swing outwardly to give access for servicing the cabinet, the cabinet having a soiled towel smoothing edge at the bottom and adjacent the rear of the rear drive roll, and the horizontal portion of said plate having a rear towel smoothing edge which acts to draw the toweling against the first mentioned smoothing edge as the plate assumes operative position.

5. A towel dispensing apparatus comprising, a cabinet having a front door and having a bottom which is open from the door rearwardly to a point near the rear wall of the cabinet, a soiled toweling drive roller arranged near the open bottom of the cabinet, a core roll upon which soiled toweling is wound and which is driven by said roller, a measuring roll disposed above the drive roller, means by which the measuring roll operates the drive roller, a plate having a vertical portion spaced from the door to form a guide therewith, and having an integral horizontal portion movable with it and disposed to prevent tampering access through the open bottom, said plate being pivoted to the cabinet at a point near the door and measuring roll and being adapted to swing outwardly to give access for servicing the cabinet.

6. A towel dispensing apparatus comprising a cabinet having a service door and having a bottom wall cut away to provide an opening extending from the door to a point near the back wall of the cabinet, said opening allowing the toweling to pass downwardly then upwardly to form a loop, soiled towel takeup means near the bottom of the cabinet, a plate pivoted to the cabinet and having a portion opposed to and spaced from the door to form therewith a guide for clean toweling, said plate having a portion interposed between the opening and said takeup means to prevent tampering by entry through the bottom but permit movement of the toweling into the cabinet to the takeup means, said plate being adapted to swing to allow servicing of the cabinet.

7. In a towel dispensing apparatus, a movable shelf for supporting a roll of clean toweling, a movable support about which said toweling is wound as a roll after it has become soiled, said rolls being positioned adjacent to each other with the shelf interposed therebetween and in direct contact with the contiguous surfaces of said rolls, means in frictional drive engagement with the soiled roll, said means being adapted to support the combined weight of the rolls and the interposed shelf thereby to insure a friction drive of constant force, said shelf functioning as a separating partition to prevent contact of the clean roll by the soiled roll, and means by which dispensing of said clean toweling causes the drive means to wind the soiled toweling as a roll of increasing diameter about the movable support.

8. In a towel dispensing apparatus, a pivoted shelf for supporting a roll of clean toweling, a core roll upon which said toweling is wound after it has become soiled, means for mounting said core roll for translation in a direction perpendicular to its axis of rotation, said rolls being positioned adjacent to each other with the shelf interposed therebetween and in direct contact with the contiguous surfaces of said rolls, means in frictional drive engagement with the soiled roll, said drive means being adapted to support the combined weight of the rolls and the interposed shelf thereby to insure a friction drive of constant force, said shelf functioning as a separating partition to prevent contact of the clean roll by the soiled roll, and means by which dispensing of said clean toweling causes the drive means to wind the soiled toweling as a roll of increasing diameter about the movable core.

9. A towel dispensing apparatus in which soiled toweling is taken up as clean toweling is dispensed, comprising a soiled takeup roll mounted to move in a direction perpendicular to its axis of rotation as the amount of soiled toweling thereon increases, a substantially frictionless movable division element for supporting a roll of clean toweling, said element being interposed and in direct contact with contiguous surfaces of the clean and soiled rolls, and roller means frictionally supporting the soiled take-up roller for drive rotation thereof, said roller means being adapted to substantially receive the combined gravital effect of the rolls and their interposed division element.

10. In a towel dispensing apparatus, a roll upon which soiled toweling is wound, a pair of drive rolls supporting the soiled towel roll and by which said roll is driven through contact with soiled toweling thereon, means mounting the soiled towel roll so that it can move upwardly as the amount of the soiled towel thereon increases, a shelf constantly resting by gravity against the soiled toweling, and adapted to support a roll of clean toweling which constantly acts by gravity against the gravity-acting shelf thereby to force the gravitating soiled towel roll against said drive rolls, a clean towel measuring roll, and means by which said roll operates the drive rolls.

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