United States Patent [19]

Rasmussen

[11] **3,858,951**

[45] **Jan. 7, 1975**

[54] **TOWEL DISPENSER**

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[73] Assignee: **Georgia-Pacific Corporation,** Portland, Oreg.

[22] Filed: **Mar. 30, 1973**

[21] Appl. No.: **346,360**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 239,126, March 29, 1972, abandoned.

[52] **U.S. Cl.** **312/38,** 312/39

[51] **Int. Cl.** **B65h 19/00**

[58] **Field of Search** 312/37–39

[56] **References Cited**

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Primary Examiner—Casmir A. Nunberg

[57] **ABSTRACT**

A towel dispensing apparatus comprising a dispensing roller linked by a chain coupling to a soiled towel drive roller which in turn drives a soiled towel take-up roller. A pinch roller is associated with the dispensing roller to facilitate dispensing a length of toweling from a clean supply within the apparatus. A spring motor is also coupled to the dispensing roller, as well as to an auxiliary take-up roller. The spring motor is wound and energy stored therein during the dispensing of clean toweling incident rotation of the drive roller. A sensing release device senses exhaustion of clean toweling and thereupon releases the spring motor for operation, which in turn causes the auxiliary take-up roller to rotate and draw the trailing end of the toweling into the dispenser cabinet independently of the primary soiled towel take-up roller.

8 Claims, 10 Drawing Figures

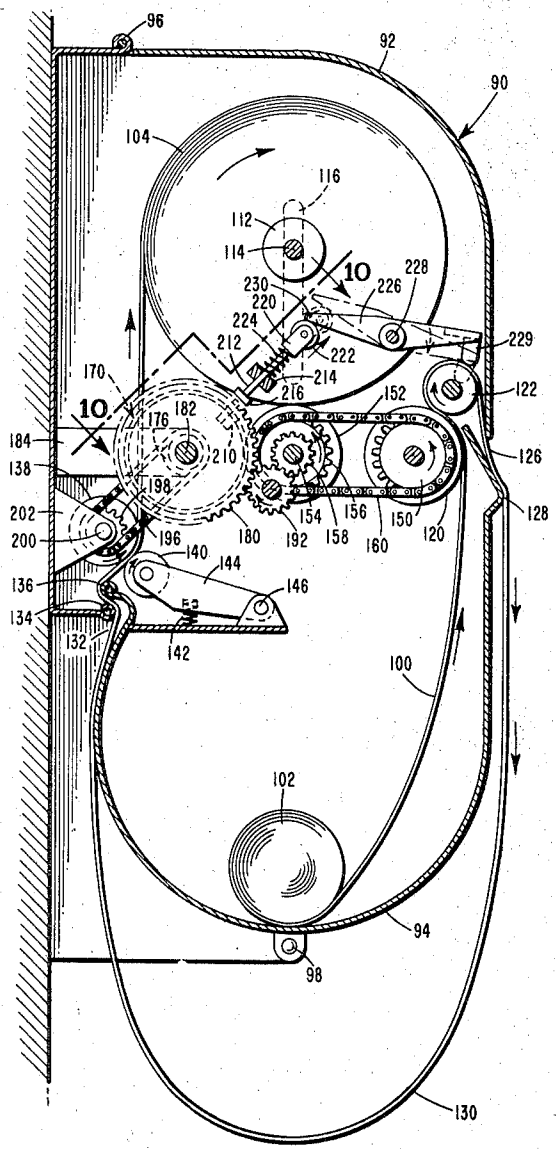


FIG. 1 (PRIOR ART)

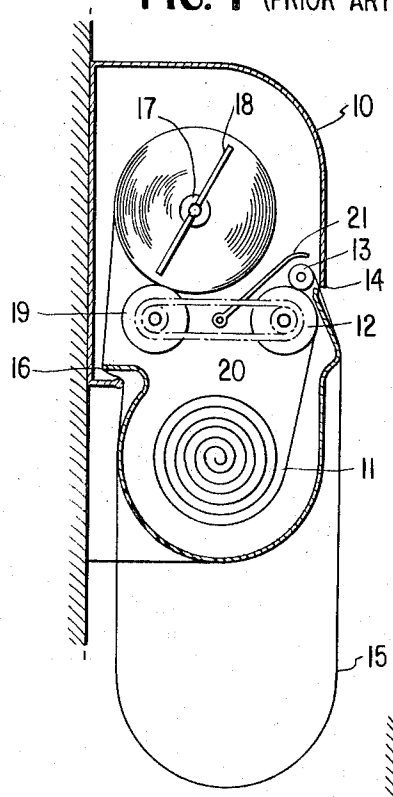


FIG. 2 (PRIOR ART)

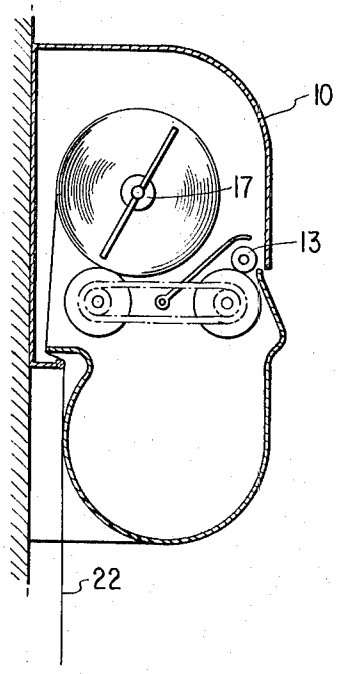


FIG. 3

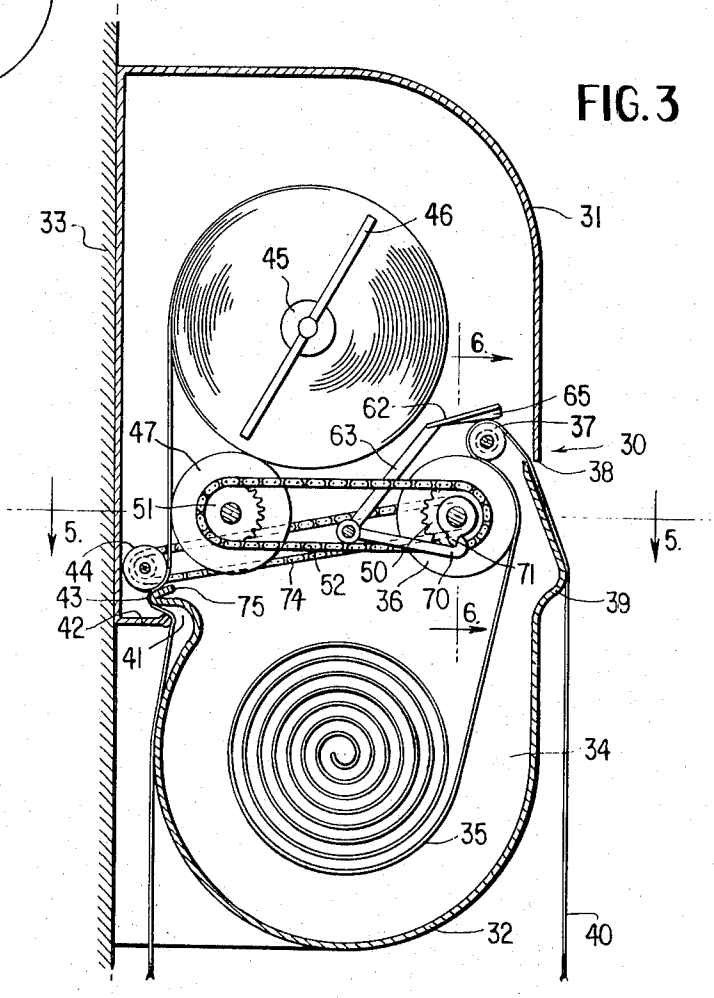


FIG. 8

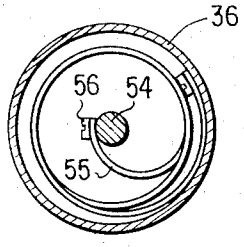


FIG. 4

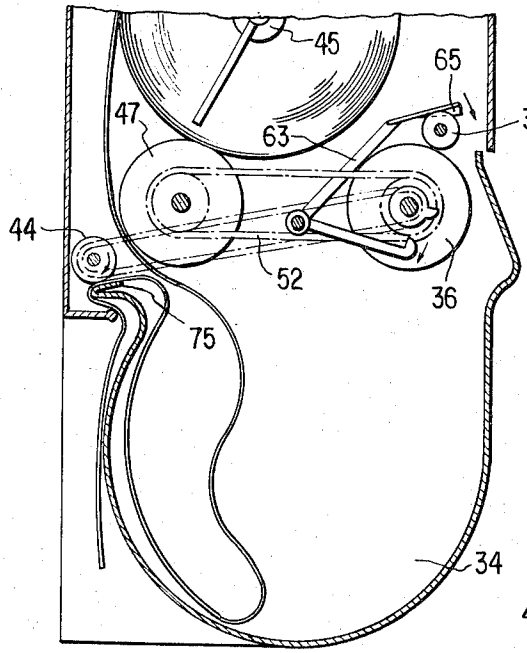


FIG. 5

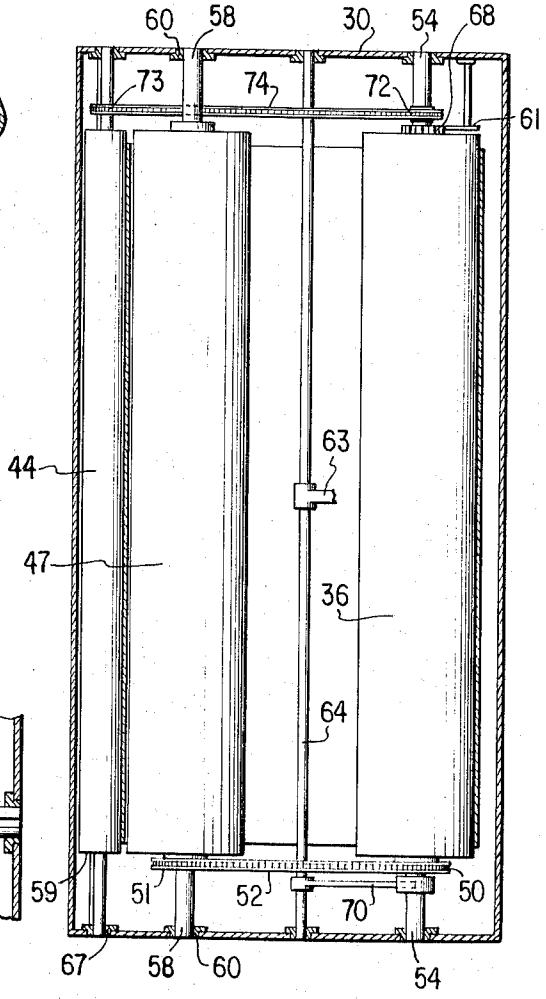
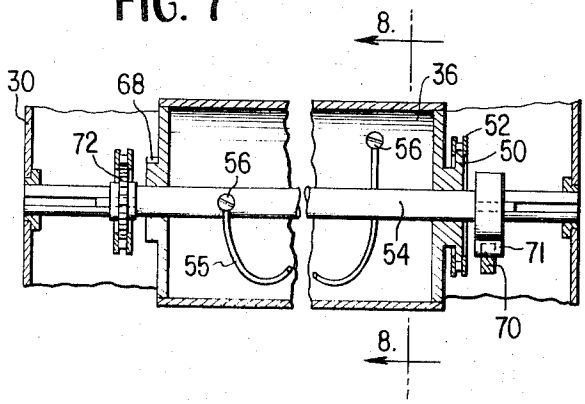


FIG. 7



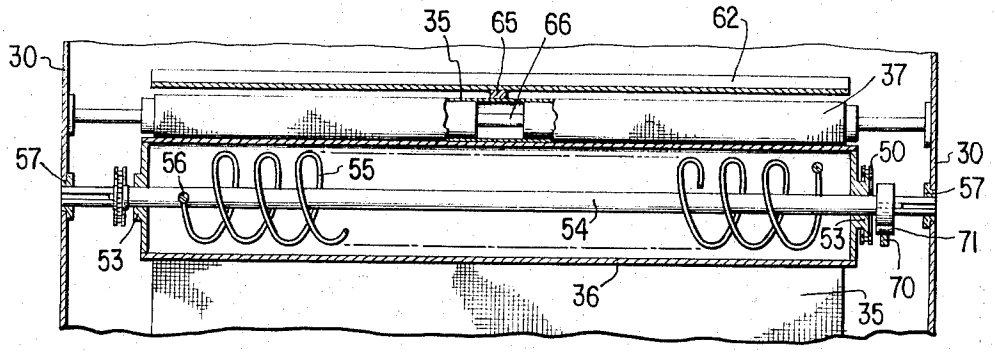


FIG. 6

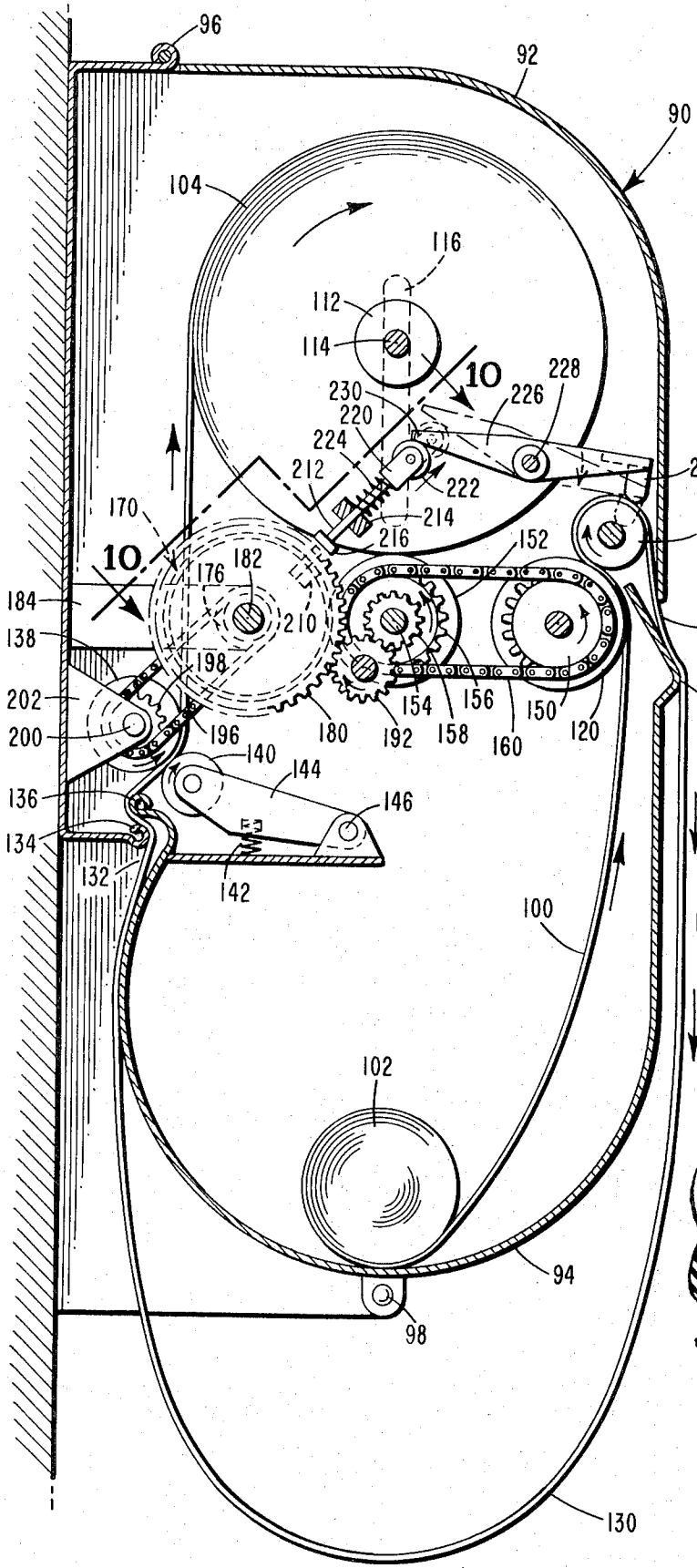

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FIG. 9

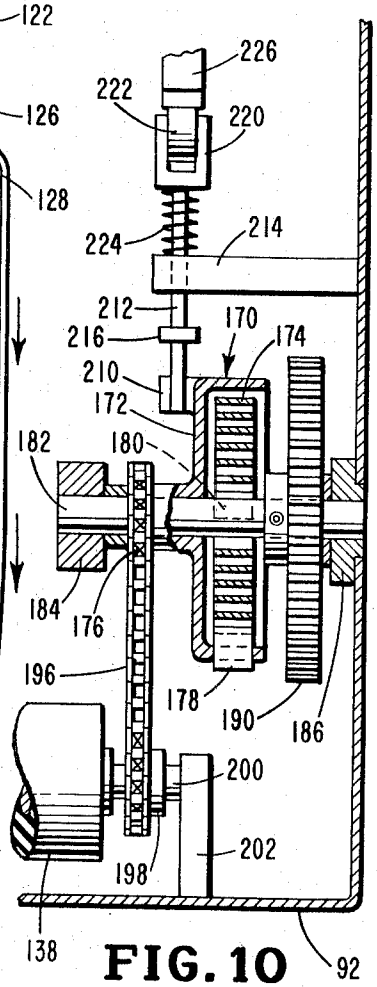

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FIG. 10

TOWEL DISPENSER

RELATED APPLICATION

This application is a continuation-in-part of copending application Ser. No. 239,126 filed Mar. 29, 1972 now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to continuous cloth towel dispensers and more particularly to such a dispenser having an automatic take-up mechanism for winding up the trailing end of a length of toweling into the cabinet of the dispenser.

2. Description of the Prior Art

Various prior art devices have heretofore been known for dispensing continuous lengths of toweling. Many of such prior art devices have been constructed so that the withdrawal of a length of clean toweling simultaneously winds up an equivalent amount of soiled toweling from the rear leg of a depending loop of the toweling extending down from the dispenser. With such devices when the final trailing end of the clean toweling is pulled out of the front of the dispenser, it hangs down along the wall from the back of the dispenser cabinet and generally remains hanging down until an attendant removes the soiled roll and installs a clean roll of toweling. In the meantime, this exposed trailing end of the toweling is accessable for use and becomes an unsanitary common towel, thus presenting a possible health hazard.

Other such continuous cloth towel dispensers have attempted to provide means for winding up the trailing end of the toweling have been complicated in construction requiring the use of various switches and electrical or other motor devices all of which are complicated in construction and therefore expensive to build and maintain.

SUMMARY OF THE INVENTION

Among the objects of the present invention is to avoid the disadvantages of prior art continuous towel dispensing devices enumerated above. Another object of the present invention is to provide a continuous towel dispensing apparatus having means for automatically taking up the trailing end of a length of toweling into the cabinet of the dispensing apparatus. A further object is to provide a towel dispensing apparatus employing a sensing means responsive to the passage of the trailing end of a length of toweling past a dispensing roller for releasing a spring motor to in turn drive an auxiliary take-up roller to automatically take up the trailing end of the length of toweling into the dispensing apparatus which is simple in construction.

According to the present invention there is provided a towel dispensing apparatus comprised of a dispensing roller over which a length of toweling from a clean supply passes and which in turn drives a soiled towel take-up roller. A spring motor is also operatively connected to the dispensing roller. Means are provided for normally locking the spring motor against rotation so that as the dispensing roller is rotated during the dispensing of a length of toweling, the spring is wound up and stores energy. A normally stationary auxiliary take-up roller is coupled to the spring motor coupling means. Sensing means responsive to the passing of the trailing

end of the length of toweling past the dispensing roller operates to release the spring motor locking means to permit the spring motor to operate, thus rotating the auxiliary take-up roller to wind up the trailing end of the length of the toweling into the cabinet of the apparatus independently of the action of the primary soiled towel take-up roller. A pinch roller is provided adjacent the dispensing roller having a portion of its surface of reduced diameter. The sensing means includes a finger overlying the reduced diameter portion in contact with the length of toweling and operatively connected to the spring motor locking means whereby removal of the trailing end of the length of the toweling from the pinch roller causing the finger to drop into the reduced diameter portion and thereby release the spring motor locking means to allow the spring motor to operate, thus driving the auxiliary soiled towel take-up roll and pulling the dangling end portion of the soiled towel into the cabinet. By this arrangement, the entire heavy roll of soiled toweling is not rotated to retract the end of the soiled towel.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and advantages of the invention will become apparent by reference to the more detailed description of the invention and the accompanying drawings which follow wherein:

FIG. 1 is a cross sectional side elevational view of a prior art continuous towel dispensing apparatus showing a clean length of toweling in the form of a loop depending from the bottom of the apparatus;

FIG. 2 is another cross sectional side elevational view of a prior art continuous towel dispensing apparatus showing the trailing end of a length of soiled toweling hanging down below the dispensing apparatus;

FIG. 3 is a cross sectional side elevational view of a continuous towel dispensing apparatus according to a first embodiment of the invention showing the apparatus filled with a supply of clean toweling;

FIG. 4 is a partial cross sectional side elevational view of a towel dispensing apparatus according to the first embodiment of the invention showing the manner in which the auxiliary take-up roller operates to take up the trailing end of a length of toweling into the cabinet of the apparatus;

FIG. 5 is a sectional view taken along line 5—5 of FIG. 3;

FIG. 6 is a sectional view taken along line 6—6 of FIG. 3;

FIG. 7 is an enlarged fragmentary sectional view of the dispensing roller and shaft of the dispensing apparatus of the first embodiment of the invention;

FIG. 8 is a sectional view taken along line 8—8 of FIG. 7;

FIG. 9 is a vertical, cross sectional view of a continuous towel dispensing apparatus according to a second embodiment of the invention showing the apparatus with a partially depleted roll of clean toweling;

FIG. 10 is a fragmentary plan view partially in section, of the take-up roller drive, taken along line 10—10 of FIG. 9.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, there is shown in FIGS. 1 and 2 an example of a conventional prior art continuous towel dispensing mechanism or apparatus com-

prised of a cabinet **10** having in the bottom thereof a clean towel supply or roll **11.** The clean towel supply is threaded over a drive roller **12** and under and over a pinch roller **13** out through an opening **14** in the front wall of the cabinet **10.** Then the clean towel extends downwardly to form a bottom loop **15,** from where it extends upwardly past a breaking strip **16** and onto a soiled towel roller **17** which is carried in a slot **18.** Soiled towel roller **17** is driven by a soiled towel drive roller **19** connected to the dispensing drive roller **12** by means of a suitable chain **20.** A shield **21** prevents the soiled towel collected on roller **17** from touching the clean towel **11** passing over dispensing drive roller **12** and pinch roller **13.**

As shown in FIG. **1,** the clean toweling being dispensed forms a bottom loop which is normally grasped by a user. As the user pulls on the clean toweling, a length of toweling is dispensed and, in the process, drive roller **12** is caused to rotate which in turn causes soiled towel drive roller **19** to rotate to take up a corresponding length of soiled towel on soiled towel roller **17.**

As shown in FIG. **2** in such a prior art device, as the trailing end **22** of the toweling passes out of the cabinet **10** it no longer passes over dispensing roller **12.** Therefore the soiled towel drive roller **19** and consequently the soiled towel roller **17** no longer are rotated to take up any further length of soiled toweling. The trailing end **22** therefore is left hanging from the back side of the cabinet **10.** This is very undesirable in that such a trailing end continues to be used and becomes unsightly and extremely soiled and could possibly constitute a health hazard. The present invention includes a mechanism to automatically take up the trailing end of the soiled toweling **22** as will be described more fully hereinafter.

Referring now to FIGS. **3** through **8** of the drawings, a first embodiment of the invention is shown. A towel dispensing apparatus comprises of a cabinet **30** having an upper portion **31** and a lower portion **32.** Cabinet **30** is adapted to be mounted on any suitable support structure such as wall **33.** The lower portion **32** of the cabinet is provided with a compartment **34** for receiving a clean towel supply or roll **35.**

The clean towel supply **35** is threaded upwardly over a dispensing or drive roller **36,** under and over an adjacent pinch roller **37** and out through a suitable opening **38** in the front of the cabinet. From opening **38** the clean toweling extends downwardly over outwardly protruding lip or flange **39** to form a bottom loop **40** from where it extends upwardly at the back of the cabinet through opening **41,** past an inwardly extending flange **42,** over a braking bar or strip **43** and around an auxiliary take-up roller **44.** From this point the toweling **40,** which is now soiled, is wound around a primary soiled towel take-up roll **45** which is movably mounted within a slot **46** in the cabinet **30** to accommodate various lengths of soiled toweling. The take-up roll **45** is driven by a soiled towel drive roller **47** connected to dispensing roller **36.** Dispensing roller **36** and soiled towel drive roller **47** are each provided at one end with a sprocket **50** and **51,** respectively, which are connected by a suitable roller chain **52** so that rotation of dispensing roll **36** during dispensing of a length of clean toweling causes a simultaneous equivalent rotation of soiled towel drive roller **47** to drive primary soiled towel take-up roll **45** to take up a length of soiled toweling equivalent to the length of clean toweling dispensed.

Referring now to the roller mechanisms of this embodiment in greater detail, as best shown in FIGS. **5** through **8,** dispensing or drive roller **36** is constructed in the form of a hollow cylinder rotatively mounted by suitable bearing means **53** on each end on a shaft **54.** Shaft **54,** as shown in FIG. **6,** extends completely through roller **36** and is journalled at its outer ends in suitable bearings **57** in the walls of the cabinet **30.** A torsion spring **55** is mounted inside of roller **36** wound around the shaft **54.** The spring is fastened at one end to the shaft **54** and at its other end to the inside of the cylinder of the dispensing roller **36** by suitable means such as screws **56.** Spring **55** is a torsion spring which is capable of storing energy as roller **36** is rotated independently of shaft **54.** Shaft **54** normally is locked against rotation by suitable locking means to be described more fully hereinafter.

During dispensing of a length of clean toweling, dispensing roller **36** normally is prevented from turning backwards under the influence of torsion spring **55** by a suitable anti-reverse pawl **61** which engages suitable teeth **68** on a hub mounted at one end of the roller **36** as shown in FIG. **5.**

Soiled towel drive roller **47** is provided with stub shafts **58** at each end which are journalled in suitable bearings **60** mounted in the sides of the cabinet **30.** As shown in FIG. **5,** the ends of auxiliary take-up roller **44** are also mounted in suitable bearings **67** in the sides of the cabinet **30** for rotation. Auxiliary roller **44** further is provided with a suitable gripping covering such as a rubber roll **59.**

A suitable shield **62** is positioned between pinch roller **37** and primary soiled towel take-up roller **45** as best shown in FIG. **3** to prevent the soiled toweling collected on the roll **45** from contacting or touching the clean toweling **35** passing over dispensing roller **36** and pinch roller **37.** Shield **62** is supported by a suitable bracket **63** connected to a rod **64** pivotally mounted at each end in the sides of the cabinet **30** as shown in FIG. **5.** Shield **62** is provided intermediate its width at the front thereof with a finger **65** extending down from the shield. Finger **65** is normally supported by a length of clean toweling over a portion of pinch roller **37** having a reduced diameter as shown at **66** in FIG. **6.**

A hook or latch means **70** is mounted on one end of rod **64,** and normally engages a lug **71** mounted on the end of shaft **54.** Shaft **54** is thus locked against rotation as long as hook means **70** engages the lug **71.** As shown in FIG. **5,** shaft **54** and auxiliary take-up roller **44** are each provided with a sprocket **72** and **73,** respectively, at one end which are connected by a suitable roller chain **74** so that auxiliary take-up roller **44** is rotated upon rotation of shaft **54.**

Referring now to FIGS. **3** and **4,** it will be seen that breaking strip or bar **43** is provided with suitable pressure means such as a plurality of fingers **75** which bear against auxiliary take-up roller **44.** The soiled toweling thus passes between auxiliary take-up roller **44** and the fingers **75.**

The operation of this embodiment of the invention will now be described. The cabinet with the various mechanisms as just described is loaded by passing a length of toweling from a clean towel supply **35** over dispensing roller **36,** around pinch roller **37** and under shield **62,** thereby raising finger **65** from reduced diam-

eter portion 66 of the pinch roller and causing the finger to rest on the length of clean towelling passing over the pinch roller. The raising of finger 65 causes rod 64 to pivot which in turn raises hook or latch means 70 to engage lug 71 on shaft 54 and thereby prevent shaft 54 from rotating with dispensing roller 36. As a length of clean toweling is dispensed from the cabinet by a user grasping the clean towelling 40 just below the flange 39, the dispensing or drive roller 36 is caused to rotate, which in turn rotates soiled towel drive roller 47 to rotate primary soiled towel take-up roll 45. Thus an equivalent amount of soiled towel is taken up on take-up roll 45 as is dispensed over dispensing roller 36 to normally maintain a constant loop of toweling below the cabinet. Normally the soiled toweling slides between the pressure means or fingers 75 and the normally stationary auxiliary take-up roller 44.

When the supply of clean toweling is exhausted, as shown in FIG. 4, there is not longer any toweling to keep finger 65 in raised so that the weight of the finger causes it to drop into the reduced diameter portion 66 of pinch roller 37 to correspondingly pivot hook or latch means 70 downwardly and release it from engagement with lug 71. The releasing of lug 71 thereby releases shaft 54 for rotation under the influence of the energy stored in spring 55. Rotation of shaft 54 causes auxiliary roller 44 to rotate through chain 74 to thereby draw up the trailing end of a length of soiled toweling into the bottom compartment 34 of the cabinet 30 as shown in FIG. 4.

It is apparent that auxiliary take-up roller 44 is free to rotate independently of primary soiled towel take-up roll 45 to thereby facilitate drawing up the trailing end of the soiled length of toweling into the cabinet. Thus it is not necessary to provide an excessive amount of spring power to rotate the entire soiled towel roll 45 simply to take up the trailing end of the soiled toweling. This permits use of a much smaller spring such as torsion spring 55 to furnish enough energy only to rotate the small roller 44 to take up the soiled trailing end of the length of toweling into the cabinet. The friction between the rubber covered auxiliary take-up roller 44 and the pressure means or fingers 75 is sufficient to draw up the trailing end of the toweling into the cabinet. The spring will then continue to unwind until it is in its normal relaxed position and ready for the next supply of clean toweling to be loaded into the cabinet.

A second embodiment of the invention is illustrated in FIGS. 9 and 10. A cabinet 90 has an upper portion 92 and a lower portion 94, each of which are openable, respectively, on hinges 96 and 98. A towel 100 is threaded through the apparatus from a clean towel roll 102 to a soiled towel roll 104. Clean towel roll 102 rests in the bottom of cabinet portion 94, while soiled towel roll 104 is mounted on a spindle 112 which has a shaft 114 slidably received in a pair of elongated slots 116 fixed in cabinet 90. Towel 100 goes from clean towel roll 102 upwardly over a dispensing roller 120 and around an adjacent pinch roller 122 and thereafter out of cabinet 90 through a suitable towel opening 126. The towel 100 then extends downwardly over a cabinet lip 128 to form a free hanging loop 130. Towel 100 reenters cabinet 90 through an opening 132 in the rear of the cabinet formed between two opposed shoulders 134 and 136. At this point, towel 100 is engaged between an auxiliary take-up roller 138 and an opposed pressure roller 140. A spring 142 acts on pressure roller mounting bracket 144 to urge pressure roller 140 toward auxiliary take-up roller 138. Bracket 144 is pivotally mounted upon a shaft 146 attached to the inside of cabinet 90. Towel 100 then is wound onto soiled towel roll 104.

Attached to dispensing roll 120, or mounted on a common shaft with it, is a drive sprocket 150. A soiled towel take-up roller 152 is also mounted in cabinet 90 beneath soiled towel roll 104 and in frictional contact therewith to drive soiled towel roll 104 in rotation to wind the soiled towels thereupon. Take-up roll 152 is mounted on a shaft 154, together with a driven sprocket 156 and a gear 158, the purpose of which will be explained. A chain 160 engages drive sprocket 150 and driven sprockets 156.

The action of the user pulling clean toweling out of the cabinet causes dispensing roller 120 and attached drive sprocket 150 to rotate. This, through chain 160, causes driven sprocket 156 and its associated primary soiled towel take-up roller 152 also to rotate. This action also stores energy in a spring motor, as described below.

A spring motor 170 comprises a housing 172, a spiral spring 174, and an output gear 176. Spring 174 is anchored at one end 178 to housing 172 and at the other end 180 to a shaft 182 which is journaled in shaft mounting bearings 184 and 186. Housing 172 and its attached output gear 176 are rotatable with respect to shaft 182. Attached to shaft 182 is a drive gear 190. An idler gear 192 operatively interconnects drive gear 190 and gear 158. Another chain 196 connects output sprocket 176 with sprocket 198, which is attached to mounting shaft 200 by auxiliary take-up roller 138, which is supported in the cabinet on brackets 202, one at each end of roller 138.

Attached to housing 172 is a locking tab 210. A lock rod 212 is slidably mounted in bracket 214, and is engageable with locking tab 210. A collar 216 limits the axial movement of rod 212. A clevis 220 is attached to rod 212, and a cam follower wheel 222 is mounted therein. A spring 224 interposed between bracket 214 and clevis 220 urges rod 212 away from engagement with locking tab 210. A locking lever 226, pivotally mounted on a fixed shaft 228, has a sensing finger 229 attached to one end while the other end 230 engages wheel 222. Pinch roller 122 is divided at its longitudinal center, (as seen at 66 in FIG. 6) providing an annular groove 232 aligned with finger 229 into which finger 229 can drop when the end of the clean towel passes from under it.

The operation of the second embodiment of the invention is as follows: Each time that a user pulls down upon towel 100, dispensing roller 120 is caused to rotate, and take-up drive roller 152 rotates also because it is connected to dispenser roller 120 by chain 160. The periphery of take-up roller 152 engages soiled towel roll 104, thus winding up an amount of soiled towel equal to the clean towel pulled from the machine.

As take-up drive roller 152 rotates, so do drive gear 158, idler gear 192, and spring motor housing drive gear 190. At this juncture, locking rod 212 is engaged with locking tab 210, by virtue of the fact that finger 228 bears against towel 100 passing over pinch roller 122, and thus arm 226 pushes against spring 224 to hold rod 212 in the position shown in solid lines. Housing 172 is thus held against rotation. Gear 190 rotates,

causing shaft **180** to rotate, and spring **174** is thereby wound, storing energy.

When the end of clean towel **100** passes over pinch roller **122,** groove **232** is exposed, and finger **228** drops into groove **232,** causing arm **226** to pivot to the position shown in the dotted lines in FIG. **10.** This action allows rod **212** to move out of the path of tab **210.** Once unlocked, housing **172** is driven in rotation loosely upon shaft **180** by the stored energy of spring **174.** Sprocket **176** rotates with housing **172,** driving chain **196** and thus rotating auxiliary take-up roller **138.** This pulls the loose end of towel **100** into cabinet **90** without further action on soiled towel roll **104.** Rotation of shaft **180** in the opposite direction under the influence of the energy of spring **174** is resisted by the gear train and by soiled towel roll **104,** which bears against primary soiled towel take-up roller **152.**

Although the present invention has been illustrated and described with reference to two specific embodiments, it will be understood that various modifications may be made by persons skilled in the art without departing from the spirit of the invention which is defined solely by the appended claims.

I claim:

1. A towel dispensing apparatus comprising:

a dispensing roller around at least a portion of which a length of toweling from a toweling supply passes, said dispensing roller being rotatable by said toweling as said toweling is dispensed from said apparatus,

a primary soiled toweling take-up roll upon which the soiled toweling is wound,

a soiled toweling drive roller for rotating said primary soiled toweling take-up roll, said soiled toweling drive roller being drivingly coupled to said dispensing roller and rotatable therewith, whereby rotation of said dispensing roller during dispensing of toweling causes rotation of said soiled toweling drive roller and thereby said primary soiled toweling take-up roll,

an auxiliary soiled toweling take-up roller engageable with said soiled toweling in advance of said primary soiled toweling take-up roll,

motor means driving coupled to said auxiliary soiled toweling take-up roller for selectively rotating said auxiliary soiled toweling take-up roller, said motor means comprising a shaft passing through and rotatably mounted within one of said rollers, said shaft being drivingly connected to said auxiliary soiled toweling take-up roller, a spring motor having a spring input end driving coupled to said dispensing roller and adapted to store energy as said dispensing roller is rotated during dispensing of toweling and a spring output end attached to said shaft,

sensing means responsive to the passing of the trailing end of the toweling from the supply of toweling for operating said motor means to rotate said auxiliary soiled toweling take-up roller to take up the trailing end of the length of toweling into said apparatus, and

locking means operated by said snesing means for locking said spring output end, said locking means being engageable with said shaft to lock said shaft against rotation.

2. A towel dispensing apparatus comprising:

a dispensing roller around at least a portion of wich a length of toweling from a toweling supply passes, said dispensing roller being rotatable by said toweling as said toweling is dispensed from said apparatus,

a primary soiled toweling take-up roll upon which the soiled toweling is wound,

a soiled toweling drive roller for rotating said primary soiled toweling take-up roll, said soiled toweling drive roller being drivingly coupled to said dispensing roller and rotatable therewith, whereby rotation of said dispensing roller during dispensing of toweling causes rotation of said soiled toweling drive rollers and thereby said primary soiled toweling take-up roll,

an auxiliary soiled toweling take-up roller engageable with said soiled toweling in advance of said primary soiled toweling take-up roll,

motor means drivingly coupled to said auxiliary soiled toweling take-up roller for selectively rotating said auxiliary soiled toweling take-up roller, said motor means comprising a coil spring having an input end and an output end, a shaft element, and a housing element, said input end being connected to one of said elements and said output end being connected to the other of said elements, said one element being drivingly connected to said dispenser roller and said other element being drivingly connected to said auxiliary soiled toweling take-up roller,

sensing means responsive to the passing of the trailing end of the toweling from the supply of toweling for operating said motor means to rotate said auxiliary soiled toweling take-up roller to take up the trailing end of the length of toweling into said apparatus, and

locking means operated by said sensing means for locking said spring output end, said locking means comprising a lug mounted on said other member and a rod engageable with said lug and movable out of engagement with said lug in response to said sensing means.

3. A towel dispensing apparatus comprising:

a dispensing roller around at least a portion of which a length of toweling from a toweling supply passes, said dispensing roller being rotatable by said toweling as said toweling is dispensed from said apparatus,

a primary soiled toweling take-up roll upon which the soiled toweling is wound,

a soiled toweling drive roller for rotating said primary soiled toweling take-up roll, said soiled toweling drive roller being drivingly coupled to said dispensing roller and rotatable therewith, whereby rotation of said dispensing roller during dispensing of toweling causes rotation of said soiled toweling drive roller and thereby said primary soiled toweling take-up roll,

an auxiliary soiled toweling take-up roller engageable by said soiled toweling in advance of said primary soiled toweling take-up roll,

motor means drivingly coupled to said auxiliary soiled toweling take-up roller for selectively rotating said auxiliary soiled toweling take-up roller, said motor means comprising a shaft element, a housing element loosely rotatably mounted on said shaft element, and a coil spring having an input end

attached to said shaft element and an output end attached to said housing element,

an input gear attached to said shaft element and coupled to said soiled toweling drive roller,

an output gear attached to said housing and coupled to said auxiliary soiled toweling take-up roller,

sensing means responsive to the passing of the trailing end of the toweling from the supply of toweling for operating said motor means to rotate said auxiliary soiled toweling take-up roller to take up the trailing end of the length of toweling into said apparatus, and

locking means operated by said sensing means for locking said spring output end, said locking means being engageable with said housing element.

4. A towel dispensing apparatus comprising:

a dispensing roller around at least a portion of which a length of toweling from a toweling supply passes, said dispensing roller being rotatable by said toweling as said toweling is dispensed from said apparatus,

a primary soiled toweling take-up roll upon which the soiled toweling is wound,

a soiled toweling drive roller for rotating said primary soiled toweling take-up roll, said soiled toweling drive roller being driving coupled to said dispensing roller and rotatable therewith, whereby rotation of said dispensing roller during dispensing of toweling causes rotation of said soiled toweling drive roller and thereby said primary soiled toweling take-up roll,

an auxiliary soiled toweling take-up roller engageable with said soiled toweling in advance of said primary soiled toweling take-up roll,

motor means drivingly coupled to said auxiliary soiled toweling take-up roller for selectively rotating said auxiliary soiled toweling take-up roller,

a pinch roller adjacent to and in opposed relationship with said dispensing roller, said length of toweling passing between said dispensing roller and said pinch roller and around at lest a portion of said pinch roller,

sensing means responsive to the passing of the trailing end of the toweling from the supply of toweling for operating said motor means to rotate said auxiliary soiled toweling take-up roller to take up the trailing end of the length of toweling into said apparatus, said sensing means comprising an annular groove in said pinch roller and a finger overlying said annular groove and urged theretoward, said finger normally being separated from said annular groove by the presence of said length of toweling around said pinch roller but being movable into said annular groove upon the passing of the trailing end of said toweling around said pinch roller, and

locking means operated by said sensing means for locking said motor means, said locking means comprising stop means carried by said motor means and means operated by said finger engageable with said stop means.

5. A towel dispensing apparatus according to claim **4** wherein said motor means comprises a spring motor having a spring input end drivingly coupled to said dispensing roller and adapted to store energy as said dispensing roller is rotated during dispensing of toweling and a spring output end drivingly coupled to said auxiliary soiled toweling take-up roller, and locking means operated by said sensing means for locking spring output end.

6. A towel dispensing apparatus according to claim **5** wherein said motor means further comprises a shaft passing through and rotatably mounted within one of said rollers, said shaft being drivingly connected to said auxiliary soiled toweling take-up roller, wherein said spring input end is attached to said one roller and said spring output end is attached to said shaft, and wherein said locking means engages said shaft to lock said shaft against rotation.

7. A towel dispensing apparatus according to claim **6** wherein said spring motor comprises a torsion spring wrapped around said shaft.

8. A towel dispensing apparatus according to claim **4** wherein said motor means comprises a coil spring having an input end and an output end, a shaft element, and a housing element, said input end being connected to one of said elements and said output end being connected to the other of said elements, wherein said one element is drivingly connected to said dispenser roller and said other element is drivingly connected to said auxiliary soiled toweling take-up roller, and wherein said locking means is engagable with said other element.

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