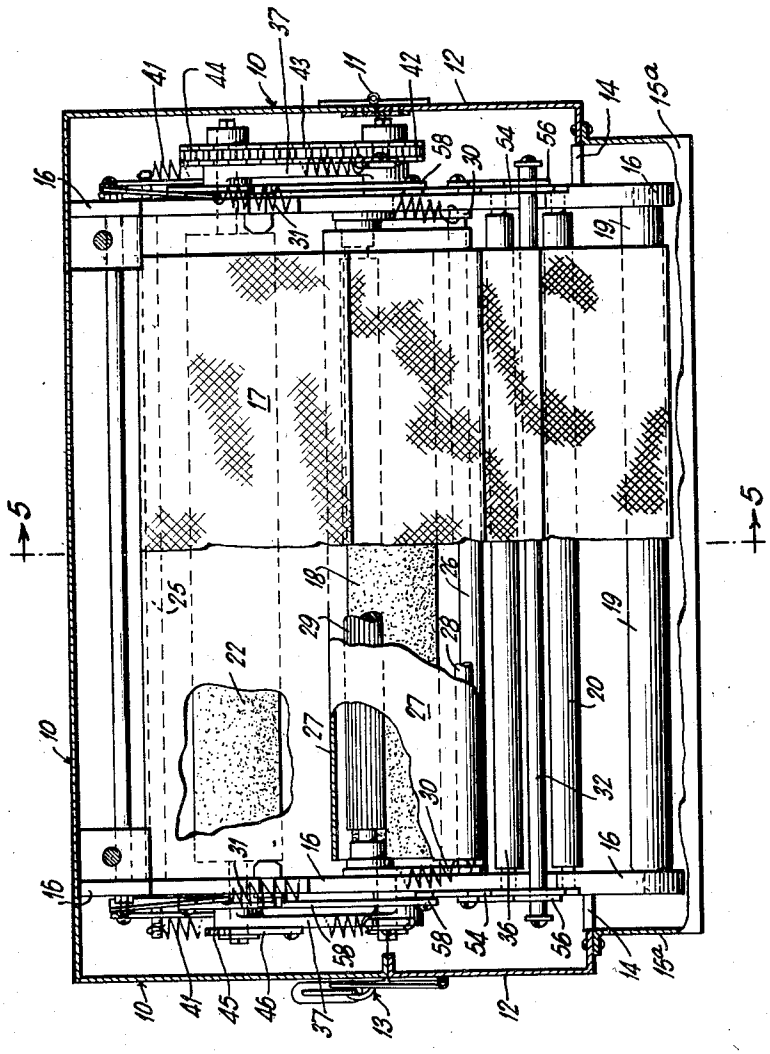
Aug. 22, 1939. W. L. SYLVESTER 2,170,223

TOWEL CABINET

Filed Sept. 17, 1936 4 Sheets-Sheet 1

Fig. 1.



INVENTOR
WILLIAM L. SYLVESTER
BY
ATTORNEY

Aug. 22, 1939. W. L. SYLVESTER 2,170,223

TOWEL CABINET

Filed Sept. 17, 1936 4 Sheets-Sheet 2

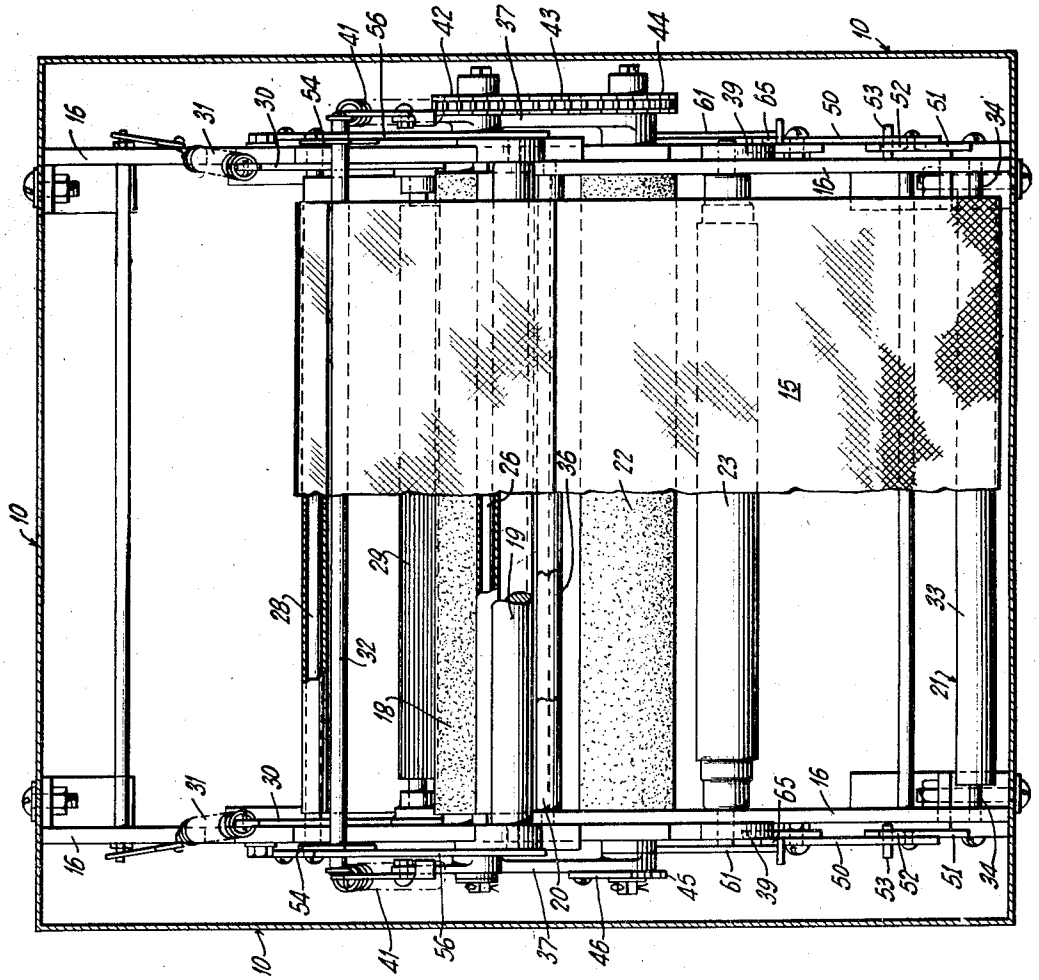


Fig. 2.

INVENTOR
WILLIAM L. SYLVESTER
BY
ATTORNEY

Aug. 22, 1939. W. L. SYLVESTER 2,170,223

TOWEL CABINET

Filed Sept. 17, 1936 4 Sheets-Sheet 3

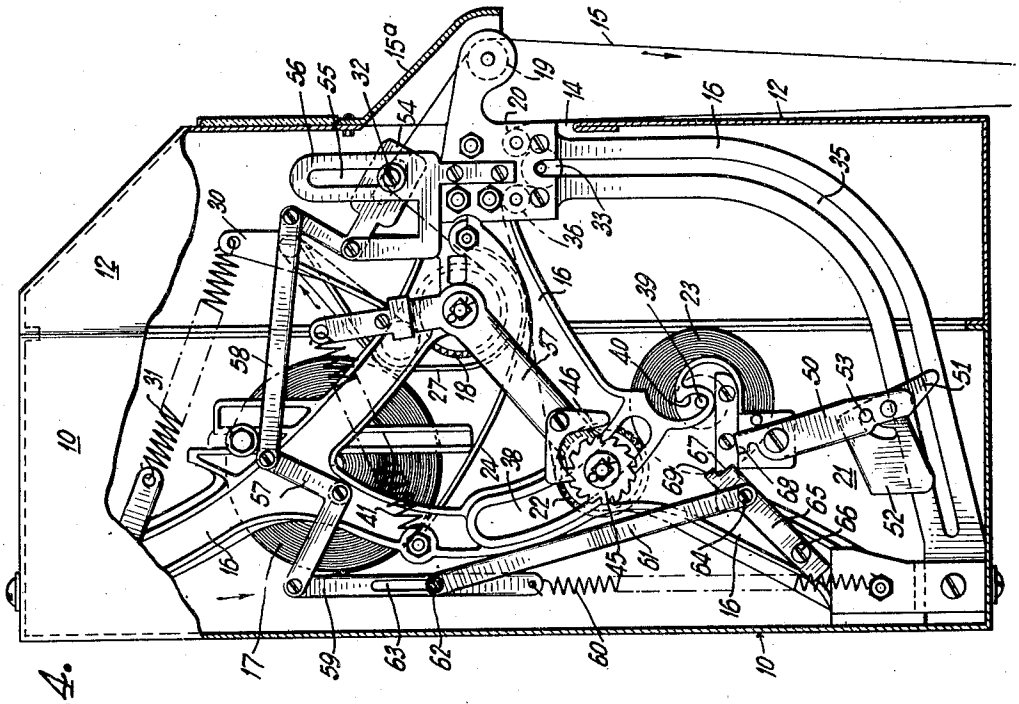


Fig. 4.

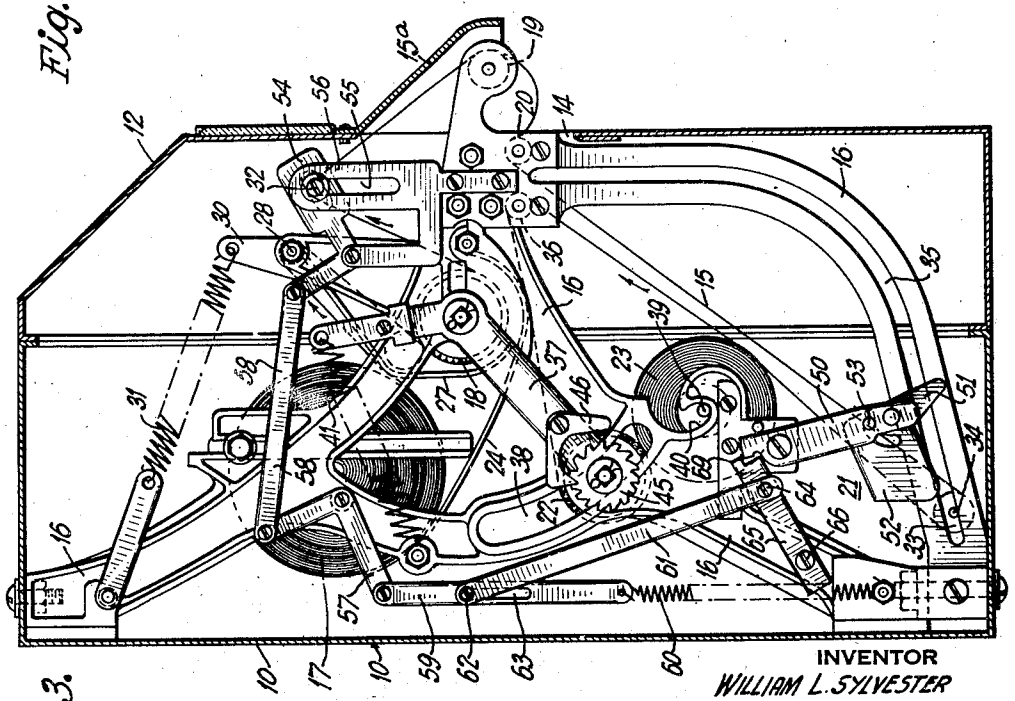


Fig. 3.

INVENTOR
WILLIAM L. SYLVESTER
BY
ATTORNEY

Aug. 22, 1939. W. L. SYLVESTER 2,170,223

TOWEL CABINET

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Fig. 6.

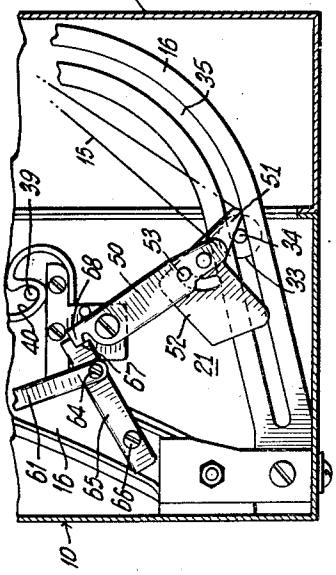


Fig. 7.

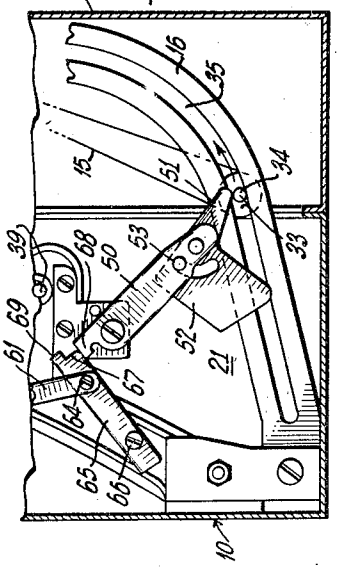


Fig. 8.

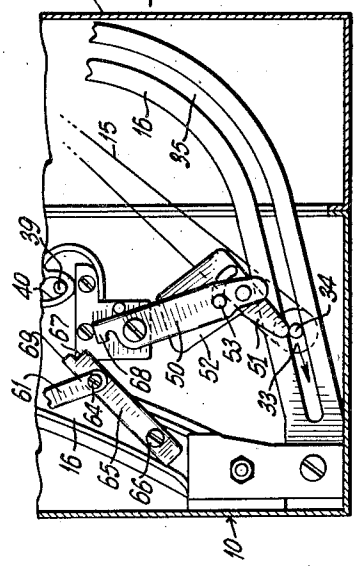
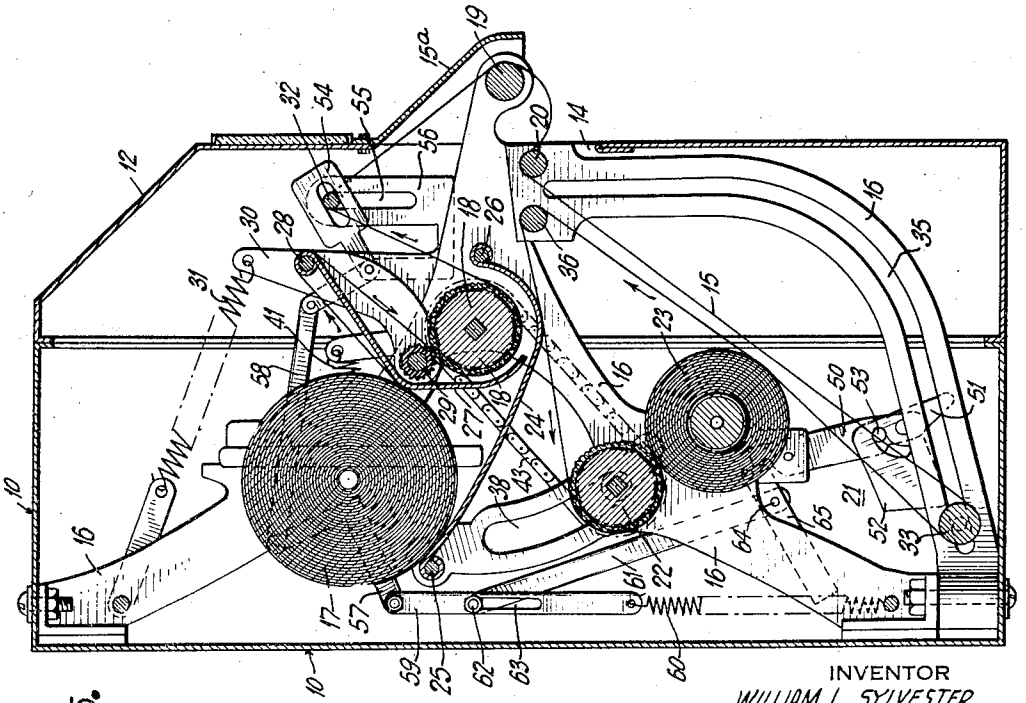


Fig. 5.



INVENTOR
WILLIAM L. SYLVESTER
BY
ATTORNEY

Patented Aug. 22, 1939 2,170,223

UNITED STATES PATENT OFFICE

2,170,223

TOWEL CABINET

William L. Sylvester, Lyndhurst, N. J.

Application September 17, 1936, Serial No. 101,186

11 Claims. (Cl. 312—38)

This invention relates to towel cabinets.

This invention is a substitution in part for my prior application Serial #35,034, filed August 7, 1935. It is an object of this invention to provide a towel cabinet for the handling of towels of the continuous roller variety, in which a portion of the towel is unrolled from the supply at each time of use, and at the end of the use, a portion is re-rolled upon a take-up roller.

It is an object of this invention to provide a mechanism of the character described which will faithfully feed a predetermined quantity of towel at each use, the portion of the towel for use being taken from the supply, without danger of continuously back feeding the used towel so that the same portion would be used over and over again.

It is a further object to provide a towel device of the character described which will be rugged in construction and reliable in operation.

It is a further object to provide a towel device of the character described which will withdraw substantially the entire towel within the cabinet after use, except so much as is necessary to enable the operator to grasp the towel when use is desired.

It is a further object to provide a cabinet from which a greater length of towel may be withdrawn than will be soiled by use, thus providing an idle stretch of toweling to and from the machine that is for the time not in use, together with mechanism for taking the entire bight back into the machine, without the necessity of feeding a stretch of towel greater than the part actually used. This is accomplished by releasing from the cabinet enough of the soiled towel to form one idle stretch, while at the same time insuring a feed sufficient to give fresh towel for actual use.

It is a further object to provide a cabinet of the character described which will prevent the feeding of the previously exposed portion of the towel until the mechanism has been released to permit the feeding of a fresh portion.

The invention accordingly comprises the features of construction, combination of elements, and arrangements of parts, which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description, taken in connection with the accompanying drawings, in which:

Figure 1 is a top plan view of a cabinet involving this invention.

Figure 2 is a front elevation thereof.

Figure 3 is a side elevation of the operating mechanism with the casing removed.

Figure 4 is a side elevation similar to Figure 3, but with the mechanism at a different point in the operating cycle.

Figure 5 is a central section along the line 5—5 of Figure 1.

Figures 6, 7, and 8 are fragmentary views showing the take-up roller release mechanism in three different positions of operation.

In the drawings, the numeral 10 comprises a cabinet adapted to be attached to the wall, having hinged thereto at 11 a cover 12 which may be held closed by suitable fastening device 13. The towel supporting mechanism is carried by the cabinet and the cover is provided with an opening 14 through which a bight 15 of the towel may be extended and this opening is protected by a hood 15a.

The towel supporting and feeding mechanism is carried by a pair of brackets 16, at each side of the cabinet. The toweling and feed mechanism comprises generally a roll of clean towel 17, a clean towel feed roll 18, a pair of service rods 19 and 20, adapted to carry between them the bight of the towel for service, a pull-in device 21, a used towel feed roll 22, and a roll of soiled towel 23.

The clean towel roll 17 is supported upon a shelf 24 carried by rods 25 and 26 extending between the brackets 16 and a guide plate 27 pivoted about a rod 28 also carried by the brackets 16. The shelf 24 slants downwardly toward the front, and the guide plate 27 slants downwardly toward the rear, forming between them a trough in which the roll of toweling may rest.

The feed roll 18 is journaled in the brackets 16 and a pressure roll 29 is mounted upon the rear ends of levers 30 journaled to the main frame co-axially with the rod 28 and having their rear ends connected by springs 31 to the main frame whereby the pressure roll 29 is held into resilient engagement with the feed roll 18.

The roll 17 is placed in the machine with the free end of the towel extending from the underside of the roll toward the front. It is carried over the rod 28 around the feed roll 18, between that roll and the pressure roll 29 and then upwardly over a movable control rod 32, the purpose of which will be later described, in front of and beneath the service rod 19, then over and back of the service rod 20 to the pull-in device 21.

The pull-in device comprises a roller 33 having pivots 34 moving in slots 35, cut in the brackets 16. These slots being generally curved, preferably having their upper portions nearly vertical, and their lower portions inclined backwardly. The portion of the towel between the two feed rolls 18 and 22 being carried around the roller 33 is kept under tension by the weight of the roller 33. When the bight 15 is released by hand at the end of the use, the roller falls to the bottom end of the slot taking up the toweling and pulling it into the cabinet, but when the toweling is being pulled from the cabinet, the tension of the towel raises the roller by moving the pivots to the upper ends of the slot. Thus the roller forms an internal bight 15, corresponding to the external bight 15.

The towel coming from the pull-in device is carried over a guide rod 36 and then backwardly over the used towel feed roll 22. This latter feed roll is journaled in a pair of levers 37, which levers in turn are pivoted to the main frame coaxially with the feed roll 18 and arcuate slots 38 are cut in the brackets to receive the journals of the feed roll 22 and thereby permit the levers 37 to move about the axis of the clean towel feed roll 18 to carry the used towel feed roll 22 with them toward and from the used towel 23. The surface of both feed rolls is preferably roughened. It will be clear that as the roller 33 comes in contact with the rods 20 and 36 when the bight is fully withdrawn, the toweling is locked against further withdrawal.

The roll 23 of used towel may be carried upon a wooden roller having journals 39 turning in notches 40 in the main frame, and the purpose of the pivoting of the feed roll 22 is to permit the surface of that roller to bear against the surface of the used towel on the roll 23 at all times so as to turn the latter to wind up the used towel as the feed roll 22 is rotated. A spring 41 connects the free end of the levers 37 with the bracket 16 to hold the feed roller 22 in contact with the surface of the roll of used toweling 23.

Means are provided to insure the co-ordination between the movement of the clean towel feed roll and the used towel feed roll, comprising, in the form illustrated, a sprocket wheel 42 on the shaft of the clean towel feed roll connected by a chain 43 to a sprocket 44 on the shaft of the used towel feed roll to insure that the peripheral movement of the two rollers shall be at all times identical, thus insuring that the length of toweling available for use shall be invariable. A ratchet 45 upon the shaft of the used towel feed roll 22 cooperates with a pawl 46 upon the main frame to insure that the feed roll may not be moved in the reverse direction.

Means are provided upon the device for insuring that whenever toweling is pulled from the device for use, that the portion actually to be used will be fresh. This means that the bight 15 will include the same pre-determined amount of clean toweling each time without danger that the same portion of towel will be repeatedly withdrawn from the machine from the pull-in device. It is desirable to permit more toweling to be withdrawn in the bight 15 than will actually be soiled, since only the central portion of the bight is convenient to use. Thus, it is possiible to permit an idle portion of the toweling to be withdrawn on each end of the bight before and after the portion intended for use, while still presenting fresh toweling for use.

This system insures the maximum convenience to the user consistent with every portion of the towel being used and no portion being used more than once.

To accomplish these results there is mounted upon the brackets 16, a device for locking the release of the pull-in device comprising an arm 50 having pivoted thereto a dog 51 having a weighted portion 52, normally to hold the dog across the slots 35 in the pathway of the pivots 34 of the roller 33. The purpose of this dog is to permit the pivots 34 to move backwardly through the slot by the mere tilting of the dogs 51. A stop 53 is provided to limit the reverse movement of the dog so that the pivots 34 may not be moved forwardly except by the movement of the arms 50 about their pivots.

The rod 32 is loosely journaled in levers 54 pivoted to the main frame, and this rod also extends through slots 55 in upwardly extending brackets 56 upon the brackets 16 so that the rod 32 is guided for vertical movement by the slots 55, but this vertical movement is accompanied by a rotation of the levers 54 about their pivots.

These levers 54 are arranged to control the lock and release of the arms 50 through a suitable lever mechanism, which, as illustrated, comprises a bell crank lever 57 pivoted to the rear of the bracket 16 having one arm connected by a link 58 with one arm of the lever 54, and having its other arm anchored to the frame by a link 59 and spring 60, the strength of the spring being such as normally to raise the movable rod 32 to its uppermost position.

A link 61 has a pivot 62 moving in a slot 63 in the link 59 and has pivoted at its other end at 64, an arm 65 which in turn is pivoted to the bracket 16 at 66. This arm 65 has an inter-locking surface 67 adapted to engage the free end 68 of the arm 50 to limit the movement of the arm 50 except when the arm 65 is raised and the latter arm may also have a projecting finger 69 to extend over the end of the arm 50 to limit the downward movement of the arm 65 when the link 59 is in its lowermost position.

With this construction there is rather extensive movement of the link 59 as the mechanism is operated, and only a very small movement is required of the arm 65. This difference is taken care of by the lost motion provided by the slot 63.

When the towel is first fed through the machine in the manner described, it is wound on the used towel roll to the point when the roller 33 is at the bottom of its slot, the toweling being substantially taut between the rods 19 and 20, so that no appreciable amount of the towel will extend downwardly out of the front of the machine.

In normal operation, when the stretch of toweling between the rods 19 and 20 is grasped by the hands, the upper reach of the towel first depresses the rod 32 and gives a small length of towel. At the same time the lower reach of the towel raises the roller 33 until its pivots engage the dog 51, since at this time the locking arm 65 has been freed by the depression of the movable rod 32, the pivots slide past the dog releasing the roller 22. The further pulling out of the towel, therefore, feeds a certain stretch of toweling from the fresh towel supply and releases substantially the same amount of toweling from the internal bight by raising the roller 33 to the top of its slot. This action operates the feed rollers to wind up the under side of the toweling coming from the roller 33, by the roller 22, which is being forcibly rotated through the medium of the chain 43 by the unrolling of the fresh towel supply roller.

It will thus be seen that the supply of toweling for use cannot be wholly withdrawn from the internal bight by pulling up the roller **33** in its groove, since this is prevented by the dog **51**. The roller **33** is only released for movement when the tension on the stretch of clean toweling on the roller **32** corresponds to that which is required for operating the mechanism. It is thus impossible to put the fingers into the bight and pull out the soiled toweling reeving the toweling over the fingers. The toweling can only be removed when it is subjected to a tension which requires a firm grasp of the cloth and thus it is insured that each withdrawal of the towel will be accompanied by a re-wind of a portion of soiled toweling and an unwind of clean toweling.

The parts may be so proportioned as to feed different quantities of toweling, but in general it is not necessary that all of the toweling which is withdrawn from the machine shall be re-wound upon the used towel roller. The user will soil only the central portion of the exposed toweling and if the entire free bight of the towel were immediately fed under the take-up roll, it would unnecessarily include a large portion of the towel surface which had not been used. It is preferable, therefore, to adjust the feed to an amount substantially equal to the actual quantity of toweling which is to be soiled. It is possible, therefore, to utilize the first portion of the bight for one using as the used portion of the bight for the subsequent using and still not present to any user the soiled toweling for use.

With the above construction, it will be observed that the mechanism provides fresh toweling for each user and definitely prevents the toweling being fed to present soiled toweling, and at the same time it is economical of the toweling, moreover, the mechanism is simple and reliable to operate.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

One of the important features of this device is that it affords a practical cabinet in which the toweling is readily available at any time desired, but which has no toweling either clean or soiled visible at any time, except during use. This is a practical feature of importance, which, so far as applicant is aware, has never been in use.

It will also be noted that the operation of the mechanism is such as to prevent the re-use of the same towel since the soiled toweling is automatically fed back into the machine as soon as released, and when new toweling is taken for use, the surface portion of it must necesarily be clean towel. This prevents any person, even one unable to read instructions, from becoming infected by the use of soiled toweling.

Where a portion of the towel is permanently exposed for use, subject to replacement when desired, many persons wiping their hands hurriedly, use the protruding portion without taking the trouble to feed new towel through the machine. Under such circumstances, the user himself uses the soiled towel and leaves the doubly soiled towel for the next comer to use. The possibility of such action is entirely eliminated by this machine by reason of the fact that this machine causes the total disappearance of all the towel portion previously exposed, whether used or unused, into a separate and distinct compartment of the locked towel case and it definitely releases on each using an amount of toweling sufficient completely to replace the portion of the towel which has been used.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A towel cabinet comprising a casing having an opening for the withdrawal therethrough of a bight of clean towel, a clean towel feed roll and a soiled towel feed roll geared together for operation in unison, a pull-in device for pulling into the casing an exposed bight of towel to form an internal bight within the casing, means for locking said pull-in device to prevent withdrawal of said internal bight, a member positioned to engage the towel between the clean towel supply and the external bight and movable by tension thereon and a connection operable by said movement to release said locking means to permit withdrawal of towel from said internal bight while towel is being drawn from the clean towel supply, whereby said internal bight is in part fed to the soiled towel supply and is in part released to form a portion of a new exposed bight.

2. A towel cabinet comprising a casing having an opening for the withdrawal therethrough of a bight of clean towel, a supply of clean towel and a feed roll controlling the feed of toweling from said supply, a soiled towel supply and a feed roll for controlling the feeding of soiled toweling to said soiled towel supply, means operatively connecting said rolls causing them to operate in unison, said clean towel supply being adapted to be operated by the withdrawal of a bight of toweling through said opening, means for pulling said bight of toweling into the casing after use to form an internal bight and means for locking said pull-in device and means responsive to the tension on the clean towel feed for releasing said locking means during the feeding of clean towel.

3. A towel cabinet comprising a casing having an opening for the withdrawal therethrough of a length of clean towel, a feed roll engaging the clean towel, a take-up roll engaging the soiled towel, means operatively connecting said rolls for effecting their operation in unison, a gravity acting pull-in device, in the form of a roll, loosely engaging the towel intermediate the feed and take-up rolls and operable to be raised to active position by the towel upon the withdrawal of the latter from the casing and to thereafter drop and pull the soiled towel into the casing upon the release thereof by the user without re-rolling the same, and retarding means, in the form of a pair of pivotally mounted arms engaging the opposite ends of the pull-in device, operative to exert a temporary pressure against said pull-in device, a spring held latch to lock said arms and releasing means operable to release said latch under the pull of the engaged towel upon the withdrawal from the casing of the succeeding length of clean towel.

4. A towel cabinet as described in claim 3, wherein said arms are provided at their free ends with by-pass members extending across the path of the pull-in device, said members being mount-

ed to permit of the free movement of the pull-in device past the same in one direction and to temporarily resist the movement of said device in the opposite direction.

5. A towel cabinet comprising a clean towel roll and a soiled towel roll, a feed device associated with the clean towel roll and a feed device associated with the soiled towel roll, said feed devices being connected to be operated in unison, means for supporting a bight of towel in position to extend out of said cabinet, a pull-in roller adapted to withdraw said bight to the interior of said cabinet comprising a vertically movable roll, means for obstructing the raising of said roll and locking means for said obstructing means, a guide rod movably mounted within said cabinet over which the clean towel supply is carried, spring means for moving said rod in opposition to the tension of the towel and adapted to yield when the towel is pulled and means actuated by the yielding of said rod to unlock the said locking means.

6. A towel cabinet having a support for a roll of clean towel, means for re-rolling the soiled towel, a pull-in device for pulling into the cabinet and releasing, as required, a usable length of towel between the supply and the re-rolling device and means for co-ordinating the pull-in device with the fresh towel feed mechanism to lock the pull-in device against withdrawal to prevent the release of toweling from the pull-in device, and means operable by the feeding of fresh towel to release said locking means when toweling is being taken from the fresh towel supply.

7. A towel cabinet having a support for a roll of clean towel, means for re-rolling the soiled towel, a pull-in device for pulling into the cabinet and releasing, as required, a usable length of towel between the supply and the re-rolling device, and means for locking the pull-in device, and means operated by the feeding of towel from the fresh towel supply to release said locking means.

8. A towel cabinet comprising in combination a fresh towel supply and a used towel roll, a take-up device for withdrawing into the machine a bight of toweling after use comprising a roller movable in a slide, a dog movable into the pathway of said slide to prevent the movement of said roller therein, locking mechanism to prevent the release of said dog, a means associated with a supply of clean towel for releasing said dog when tension is applied on a clean towel.

9. A towel cabinet comprising in combination a fresh towel supply and a used towel roll, a take-up device for withdrawing into the machine a bight of toweling after use comprising a roller movable in a slide, a dog movable into the pathway of said slide to prevent the movement of said roller therein, locking mechanism to prevent the release of said dog, a rod over which clean toweling is carried and spring means for moving said rod against the normal tension of the towel, and lever mechanism connecting said rod with said locking means whereby when said rod is moved against the tension of its spring by the towel, the locking means is released.

10. A towel cabinet comprising in combination a pair of brackets, a trough carried by said brackets to receive a supply of clean towel, journals upon said brackets to receive a roll for used towel, a feed roll for fresh towel and a feed roll for used towel, said last mentioned feed roll being journaled to bear resiliently upon the surface of the roll of used towel, gearing connecting said feed rolls causing them to operate in unison, rollers for supporting said towel between the towel supply and the roll of used towel including surface rods to support a bight of towel for use outside the cabinet, a roller sliding in guides in said brackets for withdrawing said bight of toweling into the interior of the cabinet, a dog for obstructing the movement of said roll to prevent the re-delivery of the same portion of the towel repeatedly for use, an arm to which said dog is pivoted, said dog being freely movable in one direction but not in the other, and means for locking said arm releasable by tension upon the clean towel.

11. A towel cabinet comprising in combination a pair of brackets, a trough carried by said brackets to receive a supply of clean towel, journals upon said brackets to receive a roll for used towel, a feed roll for fresh towel and a feed roll for used towel, said last mentioned feed roll being journaled to bear resiliently upon the surface of the roll of used towel, gearing connecting said feed rolls causing them to operate in unison, rollers for supporting said towel between the towel supply and the roll of used towel including surface rods to support a bight of towel for use outside the cabinet, a roller sliding in guides in said brackets for withdrawing said bight of toweling into the interior of the cabinet, a dog for obstructing the movement of said roll to prevent the re-delivery of the same portion of the towel repeatedly for use, an arm to which said dog is pivoted, said dog being freely movable in one direction but not in the other, and means for locking said arm, a rod over which the clean towel is carried spring pressed against the tension of the towel and lever mechanism connecting said arm with said locking means whereby on the movement of said arms against the spring tension thereof, said locking means is released.

WM. L. SYLVESTER.