

May 7, 1940.

D. G. CULLEN

2,199,742

ROLLER TOWEL CABINET CONSTRUCTION

Original Filed Aug. 12, 1935

2 Sheets-Sheet 1

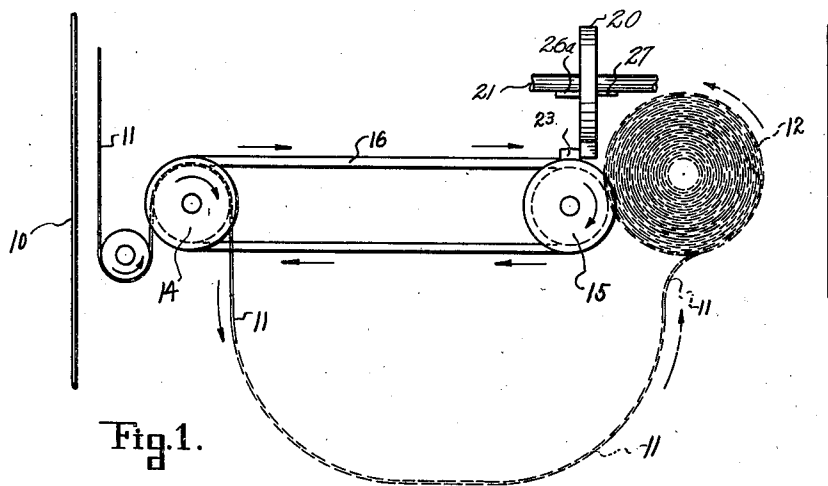


Fig. 1.

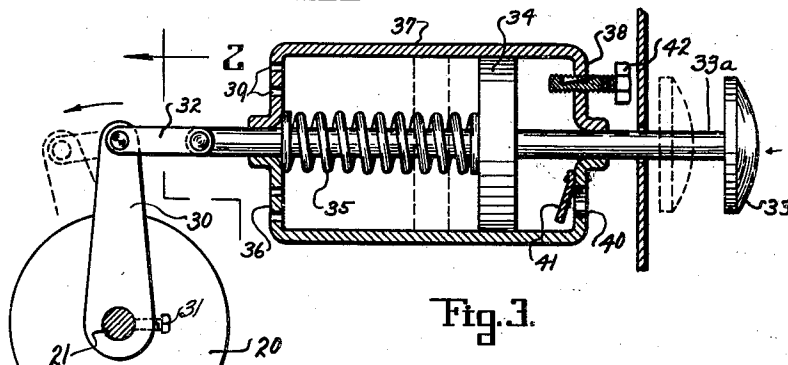


Fig. 3.

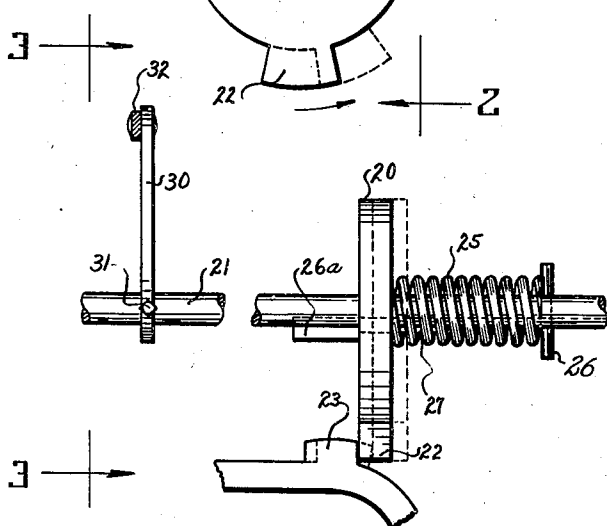


Fig. 2.

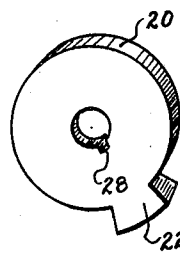


Fig. 4.

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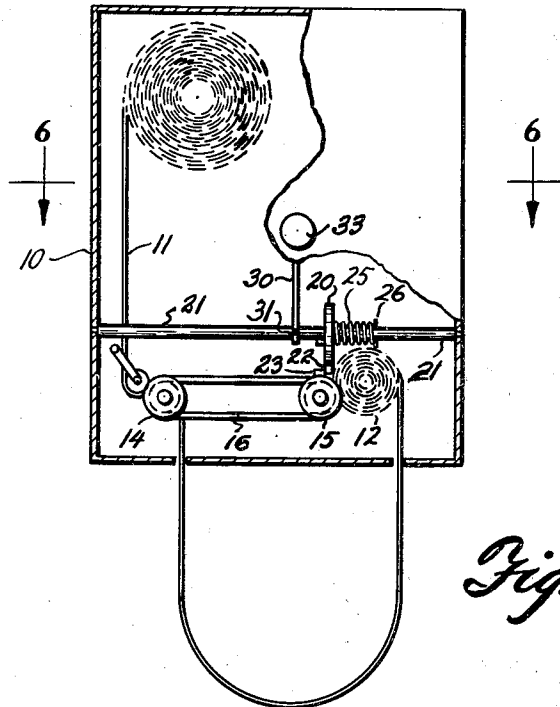


Fig. 5

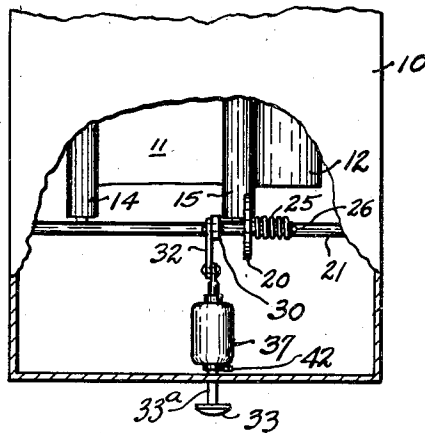


Fig. 6

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UNITED STATES PATENT OFFICE

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ROLLER TOWEL CABINET CONSTRUCTION

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Renewed October 26, 1938

15 Claims. (Cl. 312—38)

This application relates to roller towel cabinet constructions and more particularly to the towel feed control means of the same.

The principal object of the present invention is to provide, in a roller towel cabinet construction of the type containing towel feed preventing means which when released by personal operation allows feed of a predetermined length of toweling, delayed action reset means, operating automatically and completely independent of roller towel feed, for resetting the feed preventing means into feed preventing position.

A further object is to provide a feed preventing means of a resilient nature which, though preventing feed of a usable length of towel, does so resiliently and while permitting slight feed of towel, to the end that wear and tear on toweling will be reduced.

Other objects of the invention will readily be apparent from the following detailed description, an understanding of which may be facilitated upon reference to the appended drawings. In these drawings,

Fig. 1 is a diagrammatic view of a roller towel feeding arrangement employing a feed roll and a take up roll connected by a belt or chain, and illustrates a feed preventing means in connection with the same;

Fig. 2 is an enlarged detail view of the feed preventing mechanism shown in conjunction with a belt or chain connection between the feed and take up rolls, and is a view as if on line 2—2, Fig. 3;

Fig. 3 is a view as if on line 3—3 of Fig. 2 and shows a release and reset means for the feed preventing mechanism of Fig. 2;

Fig. 4 is a perspective view of a stop plate of the feed preventing mechanism;

Fig. 5 is a cut away side view of the device;

Fig. 6 is a partial plan view, on line 6—6 of Fig. 5.

In the roller towel cabinet herein illustrated, there is disposed behind the front 10 a rough surfaced feed roll over which the towel 11 passes in the direction indicated by the arrows on its way to the soiled towel spool 12 which is revolved for soiled towel take up by the rough surfaced take up roll. The feed and take up rolls are on shafts 14 and 15 which are operatively connected so as to rotate simultaneously with and by towel feed. The connection may be a belt or chain 16 (Fig. 1) or a disk or gear train (not shown). Inasmuch as Figs. 1 and 2 are merely diagrammatic views, no attempt is here made to distinguish between the towel engaging

rollers and the pulleys, sprockets, discs or gears coaxial with the same.

A feed control mechanism forms the principal subject matter of this invention, and such mechanisms are known in this art as "stop mechanisms." In towel cabinets, the feeding or dispensing means which is controlled by the stop mechanism generally includes a measuring roll which is rotated by the friction of the toweling or by a crank. Stop mechanisms are well known in this art to comprise stops which are adapted to arrest the motion of the dispensing mechanism. In prior devices timers are used and are automatically set as a result of dispensing, to thereafter act automatically to obtain release of at least one of the stops at the end of a time period. When the stop mechanism is timer-controlled it is called a "time-stop mechanism." The time-stop mechanism of this invention is manually, not automatically, set.

Insofar as I am aware, it is broadly new to manually set a timer; broadly new to have the manual setting of the timer move one of the stops of the stop mechanism; new to have timer-setting accomplished independently of the feeding operation; and new to have the timer operate one of the stops of the stop mechanism to move it into stopping position at the end of a time period.

For holding the rollers 14 and 15 against movement and thus to prevent towel feeding, there is provided a feed preventing mechanism including a stop plate 20 slidably mounted on a shaft 21 and having a stop lug 22 adapted to be positioned in the path of a controlling lug 23 carried by the belt or chain of Fig. 1 or by one of the gears of a gear train. The stop plate 20 is restrained against movement to the right of Fig. 2 by a heavy coiled spring 25 abutting a stop pin 26 secured to the shaft 21 and is restrained against movement to the left of Fig. 2 by the shoulder or enlargement 26a of the key whose small part 27 is disposed within the keyway 28 of the plate 20.

When the plate 20 is in the full line position of Fig. 2, with its lug 22 engaged by the lug 23, movement of the lug 23 in the desired direction for towel feeding is prohibited, and not until stop plate 20 is moved so that its lug 22 clears the path of the controlling lug 23 can towel feeding be accomplished.

It will be observed that pull upon the front loop of the toweling will be resiliently absorbed by reacting against the resilient backing provided by spring 25, with the attendant result of prolonging the life of the toweling in the cabinet.

The coiled spring 25 is so proportioned that when compressed to its maximum extent, as will be the case when its coils are in abutting contact, the locking plate 20 can move only as far as illustrated by the dotted line of Fig. 2, which movement, though sufficient to permit a slight movement of lug 23 and a slight movement of the towel, is not sufficient to permit sufficient movement of the lug 23 to feed a usable length of toweling.

For releasing the control lug 23 so that a usable length of toweling may be fed to the user, personally operable release means have been provided and the same will now be described.

The release means includes a crank 35 fixed at its lower end to the shaft 21, as by means of a set screw 31, and connected at its upper end to a connecting link 32 which is in this instance pivotally attached to a rod 33a which is arranged within a cylinder 37, the ends of which rod project through opposite ends of said cylinder. One of the ends also projects through the side wall of the cabinet and terminates in a push button 33. The rod 33a is a piston-rod, and is also part of a timer mechanism, and is provided with a piston 34, behind which is a coil compression spring 35 abutting the rear wall 36 of the cylinder 37 through which wall the rod 33a sealingly passes. An air chamber is thus formed between the piston 34 and said rear wall 36.

Means by which fresh sheet material is made accessible may be means other than a roll.

It is clear that the particular construction of the dispensing mechanism is not broadly important, except for its function of feeding or for making more material accessible, and for the fact that one of the stops is operated by it, and that it is to be controlled by a time-stop mechanism. It is equally clear that the invention need not be limited to a stop mechanism for towel dispensing, although the invention finds valuable use in this art.

It will be observed that a push upon the push button 33, reacting against the resilient backing provided by the spring 35, will rotate the crank 30, the shaft 21, and the stop plate 20 to move the lug 22 and clear the path of movement of the controlling lug 23.

In order to permit the piston 34 to move freely on release movement, walls 36 and 38 of cylinder 37 are vented at 39-40, with vent 40 being controlled by a one way flap or check valve 41, the vent 40 remaining open on release movement of piston 34 but being closed by valve 41 on reverse movement of piston 34.

In the mechanism here disclosed, resetting is accomplished independently of towel feeding and automatically and with an adjustable time delay action, as will now be described.

When the push button 33 is released, the compressed spring 35 returns the piston 34 to its original position and does so only as fast as is permitted by the escape of air from the cylinder 37 through the adjustable vent 42, it being observed that on resetting movement of piston 34, valve 41 closes vent 40. Such return of the parts automatically returns lug 22 of the stop plate 20 to the path of movement of the controlling lug 23, which is the reset action that is desired. It will also be observed that the time of re-set may be controlled by adjustment of the vent 42.

It will also be observed that in the event stop lug 22 rotates toward the path of movement of the controlling lug 23 after the latter has started

to move but before it has moved completely past lug 22, that there will be no deleterious effect upon further movement of the controlling lug 23 and upon towel feed; lug 22 and the parts connected thereto will be held stationary for an instant or until the controlling lug 23 clears the returning path of the stop lug 22.

Now having described the feed control mechanism herein disclosed, reference will be had to the claims which follow for a determination of the monopoly sought herein.

I claim:

1. In a device for dispensing sheet material which has a dispensing means and a time-stop mechanism, means operated by the timer of said mechanism as the timer is set, to move the stop of said mechanism to one of its limit positions, said timer having setting means which is accessible to and which is operated by the user.

2. A device for dispensing sheet material comprising, first means operating when dispensing occurs, means by which dispensing operation of the first means is limited, including a first stop operated by said first means and a second stop adapted to be moved into and out of the path of the first, a timing mechanism, means accessible to the user for setting the mechanism for automatic timing action, and means operated by the timing mechanism as said means is set to move the second stop from stop position, and adapted thereafter to move the second stop into stopping position as a result of the timing action of the timer.

3. A device for dispensing sheet material comprising, first means operated when dispensing occurs, means by which dispensing operation of the first means is limited, including a first stop operated by said first means, a second stop adapted to be moved in and out of the path of the first stop, a timer adapted after setting to automatically perform a timing operation, manually operable means accessible to the user for setting the timer, and means operated by a part of the timer to move the second stop out of the stopping path of the first stop as the timer is set, and also operable by the timer to move said second stop into the path of the first stop as a result of the timing operation of the timer.

4. A device for dispensing sheet material comprising, first means operated when dispensing occurs, means by which dispensing operation of the first means is limited, including a first stop operated by said first means, a second stop adapted to be moved in and out of the path of the first stop, a timer adapted after setting to thereafter automatically perform a timing operation, including a plunger for setting the timer, part of said plunger being accessible to the user, and means operated by said timer to move the second stop out of stopping path of the first stop as the plunger moves in timer setting direction, means by which the plunger is moved by the piston of the timer during timing, said plunger operating means being adapted to move said second stop into the path of the first as a result of the timing operation of the timer.

5. In a device for dispensing sheet material, a movable element, the movement of which is to be intermittently stopped, including a first stop operated by said element, a second stop adapted to be moved in and out of the path of the first stop, a timer including, a barrel having a piston, said piston having a rod serving as means for moving the piston and being in turn moved by the piston during timing, a spring between the

barrel and the piston against the action of which said rod and piston are moved in one direction, said spring being adapted to move the rod and piston in the opposite direction, means for retarding the movement of the piston under action of said spring, and means by which the piston-rod is adapted to move the second stop into the stopping path of the first as said piston moves under the action of said spring.

6. In a dispensing cabinet for sheet material, a roller, means operatively connected to the roller and arranged to travel in a defined path, a movable stop adapted to be projected into or out of the path of said traveling means, stop biasing means constantly urging said stop into said path, a personally controllable means for moving said stop out of said path, and a time delay means for inhibiting the stop biasing means and thus slowing up the movement of the stop into said path, by said biasing means, following an actuation of said personally controllable means for moving the stop out of said path.

7. In a dispensing cabinet for sheet material, a roller, means operatively connected to the roller and arranged to travel in a defined path, a movable stop adapted to be projected into or out of the path of said traveling means, stop biasing means constantly urging said stop into said path, a personally controllable means for moving said stop out of said path, the stop having a positive but resilient backing whereby it may give slightly but not sufficiently to release the roller for free movement, when it is engaged by the traveling means.

8. In a dispensing cabinet for sheet material, a roller, stopping means comprising a first part operatively connected to the roller and arranged to travel in a defined path, a second part separate from and independent of the roller and arranged to cooperate with the first part when in proper juxtaposition for engaging said first part and thus stopping the roller, means constantly and automatically urging the second part into the path of the first part, a personally controllable means for moving the second part out of the stopping path of the first part, and a time delay device for inhibiting the action of the means for urging the second part into engagement and thus slowing up the return of the moved stopping means second part following an actuation of said personally controllable means for moving said second part relative to the first part of the stopping means for release of the roller.

9. A dispensing mechanism for sheet material including means by which dispensing of the material is controlled, and a timer adapted to be set for automatic timing before dispensing can occur, and having means which as a result of the setting operation releases said dispensing means.

10. A dispensing cabinet for sheet material having a measuring roll and a soiled towel take-up roll, means for driving the rolls in unison, said means having a movable first stop, a rotatable shaft having a second stop loosely splined for sliding movement thereon, and normally in the path of the first stop, and movable laterally out of said path, and cushioning means at one side of the stop adapted to cushion the shock

of engagement of the stops, a timer comprising a cylinder having a piston having a piston rod projecting through opposite ends of the cylinder, a spring which is conditioned for power action when the piston is manually moved by the rod, and a portion of said rod being accessible to the user for this purpose, means by which the rod moves the second stop out of the path of the first as the timer is set by conditioning for power action, said timer acting by means of the spring to restore the second stop to stop position, and means for adjustably retarding piston motion under the power action of said spring.

11. A dispensing cabinet having therein means for dispensing sheet material, said dispensing means having a stop mechanism including two independently movable stops, normally set to prevent dispensing, a timer and means by which it moves one of the stops, said timer having a part outside of the cabinet adapted to be moved by the user to set the timer and simultaneously move said stop to permit dispensing.

12. A dispensing cabinet having therein means for dispensing sheet material, said dispensing means having a stop mechanism including two independently movable first and second stops, the first adapted to move to either of two limit positions respectively into and out of the path of the second stop, a timer and means by which when the timer is set said first stop is moved to one of its limit positions, said timer having a part outside of the cabinet adapted to be moved by the user to set the timer and simultaneously move said first stop to one of its limit positions.

13. A device for dispensing sheet material having dispensing means, having a stop mechanism, including two independently movable stops initially in a position to limit dispensing, a timer and means by which it controls one of the stops to move the same to non-limiting position when the timer is set, said timer having setting means accessible to and adapted to be operated by a user, and said timer during timing action serving to return said stop to limiting position.

14. A device for dispensing sheet material having dispensing means, having a stop mechanism, including independently movable first and second stops, the first adapted to move to either of two limit positions respectively into and out of the path of the second stop, a timer comprising a cylinder and piston therein, means by which the piston moves the first stop, means by which the piston can be moved directly by the hand of the user in one direction to set the timer and move the first stop to one of its limit positions, means for forcibly moving the piston in the opposite direction to move the first stop to the other limit position, and means for regulating the speed of the piston in said opposite direction.

15. A device for dispensing sheet material having dispensing means having a second stop, a first stop movable into or out of the path of the second stop, a timer having a setting element accessible to and adapted to be moved by the hand of the user, and means by which the timer moves said first stop to permit dispensing, said first stop being so moved as the timer is set.

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