Dec. 9, 1941. I. SIMPSON 2,265,875

TOWEL CABINET

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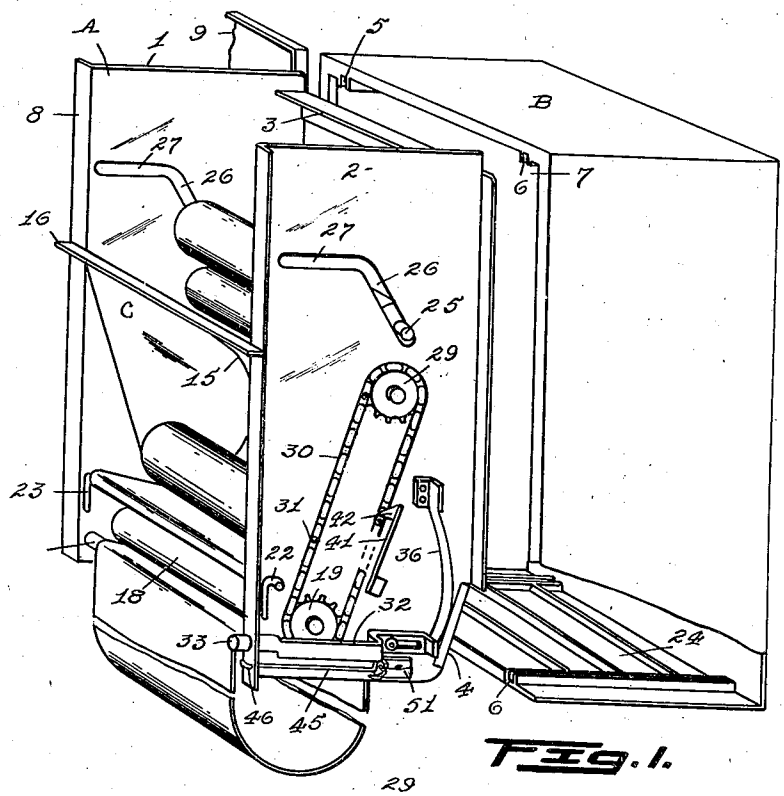


Fig. 1.

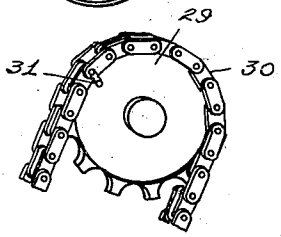
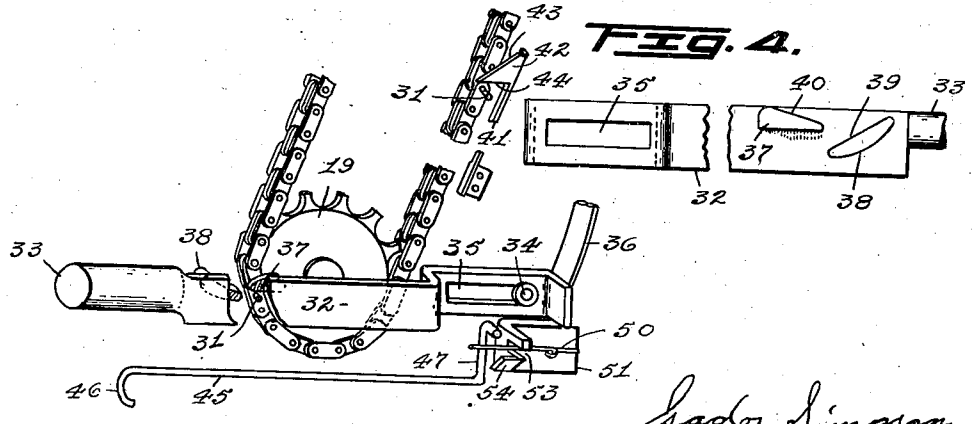


Fig. 3.

Fig. 4.



Isador Simpson

INVENTOR.

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Fig. 8.

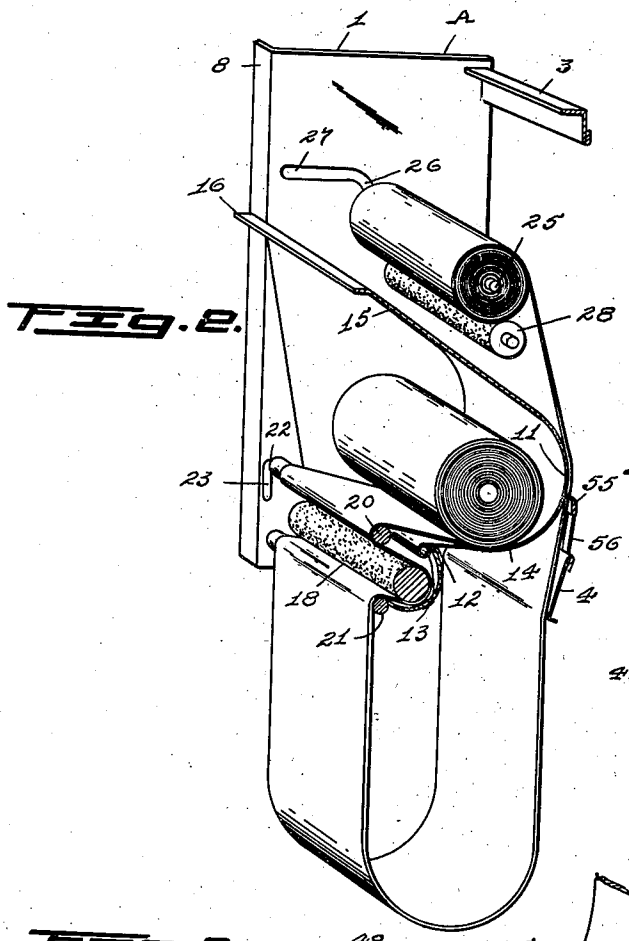


Fig. 9.

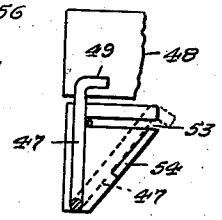


Fig. 7.

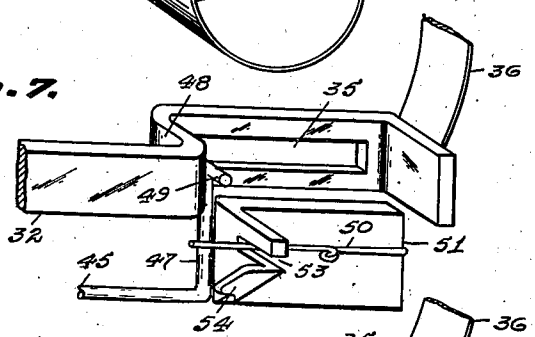
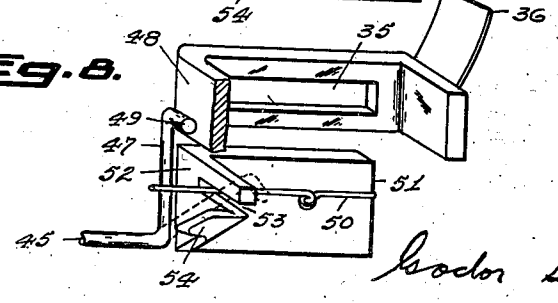


Fig. 8.



Isador Simpson
INVENTOR.

Dec. 9, 1941. I. SIMPSON 2,265,875

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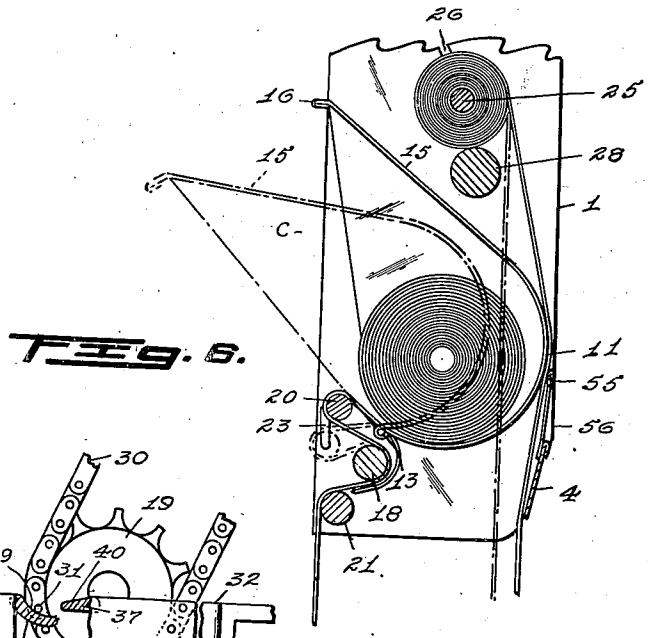


Fig. 6.

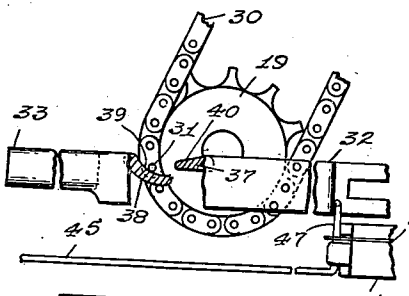


Fig. 10.

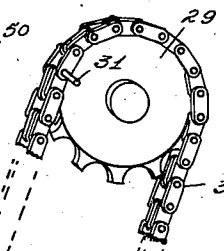
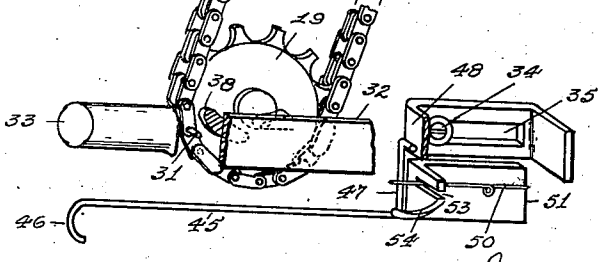


Fig. 5.



Isador Simpson

INVENTOR.

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2,265,875

UNITED STATES PATENT OFFICE

2,265,875

TOWEL CABINET

Isador Simpson, Toronto, Ontario, Canada

Application October 18, 1938, Serial No. 235,663
In Canada March 29, 1938

5 Claims. (Cl. 312—38)

The invention relates to improvements in towel cabinets as described in the present specification and shown in the accompanying drawings that form a part of the same.

The invention concerns particularly that type of towel cabinet in which means is provided for use for advancing the towel in progressive stages whereby but a predetermined length of clean towel will be delivered for use on each operation of the device.

Heretofore in cabinets of this type no satisfactory means has been shown for varying the amount of towel delivered on each operation, the adjustment in previous cases having usually been limited to the circumference of the feed roller, thus making it impractical to provide for the wide range which is desirable to meet different requirements.

The objects of the invention are to provide a towel cabinet incorporating simple and efficient towel releasing and locking mechanism whereby the towel may be advanced in progressive stages to bring into exposure clean portions of the towel in predetermined quantities and whereby the previously exposed portions of the towel are automatically taken up; to provide means whereby the amount of clean towel to be brought into exposure for use may be varied at will; to provide means for rendering the releasing and locking mechanism inoperative to permit free dispensing of the towel under certain conditions; and generally to provide a simple, attractive and sanitary towel cabinet which may be easily loaded and which may be produced at small cost.

The invention consists in the novel features of construction, combinations, and arrangements of parts described in the present specification and more particularly pointed out in the claims for novelty following.

In describing the invention reference will be made to the accompanying drawings in which:

Figure 1 is a perspective view of my improved towel cabinet with the inner structure removed from the outer shell, or casing.

Figure 2 is a vertical section in perspective through the inner roll supporting structure.

Figure 3 is an enlarged perspective assembly of the towel advancing mechanism in its locked position.

Figure 4 is an inner side view of the control bolt broken away centrally.

Figure 5 is an enlarged perspective assembly of the towel advancing mechanism in its unlocked condition.

Figure 6 is a vertical sectional view through the towel compartments, with the alternate position of the movable towel carrier shown in dotted lines.

Figure 7 is an enlarged detailed assembly in perspective of the towel control mechanism in one position.

Figure 8 is a view of the structure shown in Figure 7 with the towel control mechanism locked to permit free operation of the towel.

Figure 9 is an end view of the structure shown in Figure 8, with the alternate position of the locking lever shown in dotted lines.

Figure 10 is an enlarged side elevation of a portion of the chain and associated mechanisms for advancing same, a portion of the control bolt being shown in vertical section.

Like numerals of reference indicate corresponding parts in the various figures.

Referring to the drawings A is a frame structure adapted to support the towelling and the various operating parts, which structure comprises a pair of vertical end walls 1 and 2 connected together near their top ends at the rear of the structure by a cross member 3 and near their lower ends by a cross member 4.

B is a shell, or casing, adapted to enclose the frame A, said shell being somewhat greater in width than the interior frame and having arranged in the top and bottom walls thereof at points equi-distant from the ends, vertically aligned grooves 5 and 6 extending from the front to the rear of the casing and adapted to slidably receive the top and bottom edges of the respective end walls 1 and 2 of the said frame A, so that the latter may be removably held to a position in the transverse centre of the casing and thereby provide a space 7 at each end of the casing between each end wall of the casing and the corresponding end wall of the frame A.

The end walls 1 and 2 of the frame A are preferably of greater depth than the interior of the outer casing B with the surplus at the front of the frame and such surplus is turned outwardly at right angles to provide flanges 8, each of the required width to extend across the space, or compartment, 7 at the corresponding end of the cabinet and to overlie the edge of the end wall of the casing.

The front of the casing B, through which the frame A is adapted to be inserted and removed is provided with a suitable door 9 which may be locked in any desired manner to prevent unauthorized access to the interior of the casing.

C is a substantially U-shaped device extending between the end walls 1 and 2 of the frame

A and adapted to normally assume a semi-inverted position within the cabinet with the closed portion 11 at the rear of the cabinet, the lower arm 12 being positioned near the lower end of the frame and being swingingly mounted therein by means of pivot members 13 extending from opposite ends thereof journaled in bearings in the end walls 1 and 2, whereby the whole device may be swung downwardly and forwardly, as shown in dotted lines in Figure 6.

The lower arm 12 is preferably curved slightly in end elevation to provide a cradle for the web of clean toweling, as shown at 14.

The upper arm 15 of the U-shaped device C extends forwardly within the frame A at an upward angle and projects beyond the front of the said frame at a point slightly above the vertical centre of said frame and constitutes a movable partition whereby to separate the web of clean towel from the soiled towel, which latter is adapted to be contained in the space above said partition. The portion of the arm, or wall, 15 which extends from the frame A is provided with extensions 16 from opposite ends respectively, adapted, when the device is in position within the frame, to bear against the end walls of said frame and thereby limit the inward movement of the device.

18 is a feed roller positioned slightly below the pivot point of the member C and being journalled at opposite ends in opposed bearings in the end walls 1 and 2 of the frame A, the journal of said roller at one end extending completely through and beyond the wall 2 and carrying a sprocket wheel 19 operating within the space between the end wall 2 of the frame A and the corresponding end wall of the outer casing B. The roller 18 is preferably coated with an abrasive substance or is otherwise prepared, to cause the towel from the clean web, which is carried by the member C, to be gripped and the delivering thereof greatly facilitated.

20 is an idle roller normally positioned slightly above the pivot point of the clean web carrying member C and in advance thereof and being journalled at its ends in the end walls of the frame A.

21 is an idle roller positioned below the feed roller 18 and slightly in advance thereof.

The toweling from the web is adapted to be extended forwardly around the front of the roller 20, thence rearwardly and downwardly around the rear of the feed roller 18 and then forwardly around the front of the roller 21 and downwardly below the cabinet where it is exposed for use.

The idle roller 20 during operation of the device is preferably positioned slightly above the pivot point of the arm 12 of the member C in order that the direction of pull on the web will correspond substantially to the arc of the arm 12 in which said web is carried, but it is apparent that in this position of the roller 20 adjacent the mouth of the web carrying member C insertion of the web of clean toweling would be difficult and to overcome this difficulty the said roller is journalled in the inner ends of horizontal slots 22 which at their forward ends are offset downwardly, as at 23, whereby the said roller may be lowered at will.

The toweling which depends from the roller 21 is extended sufficiently far below the cabinet to leave a reasonable amount exposed for use and is then turned upwardly and passed through a slot 24 provided in the bottom of the casing B and is drawn upwardly behind the member C and wound on a take-up roller 25 which is positioned in the space above said member C, which latter constitutes a partition to effectually separate the soiled portion of the toweling from the clean portion.

The take-up roller 25 is journalled at its opposite ends in vertical slots 26 in the respective end walls of the frame A and said slots at the top ends thereof are offset forwardly to provide horizontal portions 27.

28 is a driven roller positioned beneath the take up roller 25 and supporting same with its load whereby on being rotated it will cause the rotation of said take-up roller and wind the soiled toweling therearound, the vertical slots in which the take-up roller is mounted permitting of the vertical adjustment of said take-up roller as its load increases.

The roller 28 is mounted in suitable bearings in the ends of the frame A and one end thereof projects into the space between the end 2 of the frame and the end of the casing B and carries a sprocket 29 fixed thereto.

30 is a chain which operates over the sprocket wheels 19 and 29 to provide for simultaneous operation of the feed roller 18 and the roller 28 which drives the take-up roller 25.

It is apparent that a downward pull exerted on the portion of the towel depending from the front of the cabinet will cause a quantity of towel to be unwound from the web of clean toweling, and that the engagement of the moving towel with the feed roller 18 will rotate said roller and the sprocket 19 carried thereby, which latter will advance the chain 30 and rotate the sprocket 29 and its roller 28, which in turn, through its engagement with the toweling on the roller 25, will rotate the latter and wind the soiled towel therearound.

It therefore is clear that for every given quantity of towel unwound from the web and brought into exposure for use a like quantity of exposed towel will be drawn into the cabinet and wound around the roller 25.

The chain 30 is provided with one, two, or more, lateral projections, or pins, 31 spaced apart a distance corresponding to the predetermined amount of towel to be unwound and brought into exposure on each operation of the device, as will be explained in detail hereinafter. Any alteration in the spacing of said pins will accordingly alter the amount of towel delivered for use.

32 is a horizontally positioned bolt operating across the face of the sprocket wheel 19 and having its outer end 33 slidably projecting through the flange 8 of the frame A and the door 9 for operation by the user, said bolt being supported at its inner end by means of a pin 34 from the end wall 2 extending through a slot 35 cut longitudinally of said bolt whereby to admit of the bolt being reciprocated across the face of the sprocket. A spring 36 exerting pressure on the inner end of the bolt tends to hold same to its outermost position.

The bolt 32 is offset centrally to extend around the sprocket 19 and such offset portion is provided on its inner face with a stop flange 37 adapted in the normal, or outwardly extended, position of the bolt to rest in the path of the pins 31 carried by the chain 30, whereby to prevent movement of the chain and consequently of the sprocket 19 until the bolt is caused to recede, by inward pressure applied to the outer end thereof, to an extent to move the stop flange out of the path of the pin.

The bolt 32 is also provided on its inner face with a cam 38 positioned between the stop flange 37 and the outer end of the bolt, said cam having an inwardly and downwardly inclined face 39 extending from substantially the top edge of the bolt to a point slightly below the stop flange and spaced therefrom a distance to permit of the passage of a pin 31 therebetween, said cam being adapted on inward movement of the bolt to engage the under side of the pin, as shown in Figure 10, and raise same by means of the inclined face 39 above the level of the stop flange, at the same time rotating the sprockets 19 and 29 and consequently the feed roller 18 and the take-up roll. Immediately upon release of inward pressure on the outer end of the bolt the spring 36 forces the bolt to its normal position with the stop flange 37 positioned to the rear of the pin last acted on by the cam 38 but in the path of the next approaching pin.

The stop flange 37 is preferably of substantially wedge-shape with the apex thereof opposed to the cam 38 whereby on the return of the bolt to its normal position the inclined top face 40 of the stop flange will bear against the pin and thus advance the pin clear of the bolt.

It is apparent that when the pin is in the position to which it has been moved by the cam the feed roller 18 is free to rotate until the chain 30, which is operated thereby, has moved a sufficient distance to bring the next pin 31 into position against the stop flange 37.

It is now clear that upon the release of the pin a downward pull on the exposed portion of the towel at the front of the cabinet will result in a length of toweling equal to the length of chain between adjacent pins being brought into position for use and that this downward pull on the towel will cause the rotation of the feed roller 18 and the sprocket 19 and thus operate the chain to bring the next pin 31 into position against the stop flange and prevent further withdrawal of the towel.

41 is a spring member secured at one end to the outer face of the end wall 2 and extending parallel with the chain 30 in a direction opposed to that in which the said chain travels, said spring carrying at its free end a stop member 42 extending laterally therefrom across said chain in the path of the pins 31, the endmost face 43 of said stop member being tapered inwardly whereby no obstruction will be offered by the stop member to the pins in the movement of the chain in the proper direction, and the inner face 44 being cut at right angles to the chain and providing an obstruction for the pins and thus prevent movement of the chain in the wrong direction.

45 is a rod positioned below and extending parallel with the bolt 32, said rod at its outer end being projected through the flange 8 of the frame A and being bent to provide a handle 46, adapted to lie between the flange 8 and the door of the cabinet, whereby the rod may be turned. The rod 45 is bent upwardly at right angles to provide a stop arm 47 adapted in one position of the rod to extend into the path of the lateral wall 48 of the bolt 32, and thus preventing the inward movement of the bolt farther than is necessary to permit of the cam 38 advancing the pin 31 past the stop flange 37. The stop arm 47 preferably has its end bent outwardly, as at 49.

When the rod 45 is rotated in one direction the stop arm 47 is swung outwardly and downwardly out of the path of the lateral wall 48 of the bolt whereby said bolt may be forced inwardly to the extent that the pin 31 on the chain will operate around the rear of the cam 38 without limitation. The bolt may be locked in this position whereby no limit is placed on the movement of the chain, by simply returning the stop arm to its upright position which, due to the inward movement of the bolt, will now be on the opposite side of the wall 48 and will thus act as a stop to prevent outward movement of the bolt so long as free delivery of the towel is desired.

The stop arm is spring-held to its upright position by means of a spring 50 secured at one end to a plate 51 and having its free end exerting pressure on said stop arm.

The plate, or bracket, 51 preferably has a lateral extension 52, provided with a horizontal guide slot 53 through which the spring 50 extends. The lateral extension 52 preferably has a portion thereof turned backwardly to provide a stop flange 54 adapted to limit the downward movement of the stop arm 47.

55 is a strap extending across the back of the frame A between the ends thereof and cooperating with the closed end 11 of the member C to smooth out the soiled towel in its progress to the take-up roller, the said strap preferably being supported by spring arms 56 extending upwardly from the cross member 4.

The device is operated in the following manner:

Assuming that the portion of the towel depending from the cabinet has already been used and it is desired to bring a clean portion into position for use it is simply necessary to push inwardly on the exposed end 33 of the bolt 32 thereby forcing the stop flange 37 inwardly past the pin 31 and at the same time bringing the inclined face 39 of the cam 38 into engagement with the under side of said pin, which has the effect during the continued inward movement of the bolt of advancing the pin to a point beyond the apex of the wedge-shaped stop flange 37. Immediately upon the bolt reaching its innermost position the user releases pressure thereon and may then grasp the exposed portion of the towel and draw it downwardly to bring a length of clean towel into position for use. The downward pull on the towel causes the rotation of the feed roller 18 and this in turn, through the operation of the sprocket wheel 19 carried by said roller, causes the chain to be advanced until it has reached the position where the next succeeding pin 31 has moved into position against the under face of the stop flange, which latter, due to the action of the spring 36 has been returned to its normal locking position. No further amount of clean towel can be brought into use until the bolt has again been forced inwardly by pressure on the outer end 33 thereof. As the sprockets 19 and 29 operate simultaneously the roller 28 will be rotated coincidently with the feed roller 18 and will therefore cause an amount of soiled towel equal to the amount of clean towel withdrawn from the cabinet to be rolled around the take-up roller 25. Eventually the whole amount of towel previously positioned in the cradle formed by the member C will be wound around the take-up roller, from which it can be removed by simply opening the door 9 and swinging the combined clean towel web-holder and partition C outwardly and disengaging the roller from its bearing in the frame. A web of clean towel can then be placed in the member C which is then swung backwardly into position within the cabinet and after the towel has been fed around the feed roller 18 and the

adjacent idle rollers and the end drawn upwardly around the take-up roller the device is again ready for use.

Should it be desired to vary the amount of clean towel to be delivered for use on each operation of the bolt **32** it is simply necessary to alter the spacing of the pins **31** in relation to each other to conform to the length of towel required for delivery. This alteration is effected by simply substituting pins **31** at the desired points along the chain for the relatively short pins employed to hingedly connect the sections of the chain.

If desired one pin only may be used, in which case the amount of towel delivered on each operation of the device would equal the full length of the chain, which latter may of course be of any length within the limits of the cabinet.

In the event that free use of the towel is desired the door **9** may be opened to give access to the operating end **46** of the rod **45** whereby said rod may be rotated to remove the offset stop member **47** from the path of the lateral wall **48** of the bolt **32**. The bolt is then moved inwardly so that the wall **48** will move past the stop member **47** and the latter is then allowed to resume its upright position by the aid of the spring **50** and thus prevent outward movement of the bolt. In this position of the bolt the chain will be free to operate at the rear of the cam and the pins **31** will be free of interference by the stop flange **37**, or the cam.

While I have illustrated and described the preferred form of construction for carrying out my invention, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

What I claim to be my invention is:

1. In a towel cabinet, a casing, a towel web, a feed roller adapted to be engaged by the towel in withdrawal from said web, a take-up roller, an endless sprocket chain connecting said feed and take-up rollers, a stop pin carried by said chain, a manually operated bolt extending across said chain, and having lateral cams opposed to said stop pin, one of said cams having a face normally positioned in the path of said pin and the other of said cams adapted, on the movement of said bolt in a direction to move the first mentioned cam out of the path of the pin, to advance said pin into position for engagement by the other face of the said first mentioned cam on return movement of the latter whereby further advancement of the pin and consequently of the said chain is effected.

2. In a towel cabinet, a casing, a towel web, a feed roller engaged by the towel in withdrawal from said web, a take-up roller, an endless sprocket chain connecting said feed and take-up rollers, a stop pin carried by said chain, a manually operated bolt having spaced cam projections opposed to said stop pin and cooperating therewith to alternately lock release and advance said chain, one of said cams having a plane surface normally positioned in the path of said pin, said cam also having an inclined surface opposed to said plane surface, the other of said cams adapted on the inward movement of said bolt to advance said pin into the path of the inclined surface of the first mentioned cam on the outward movement of the bolt whereby to temporarily free said pin and allow limited withdrawal of towelling from said web, and means returning the bolt to a position with the first mentioned cam in the path of said pin.

3. In a towel cabinet, a casing, a towel web, a feed roller, a take-up roller, an endless sprocket chain connecting said feed and take-up rollers, a stop pin projecting outwardly from said chain, a manually operated bolt slidable across said chain, said bolt having lateral cam projections, one of which projections constitutes a stop normally positioned in the path of said pin and also has an inclined pin advancing surface, and the other of which operates on the inward movement of said bolt to advance said pin into position for further advancement by the inclined surface of the first mentioned cam on the outward movement of said bolt, means for limiting the longitudinal movement of said bolt said means being manually operated whereby said cams may be held when moved out of the path of said pin to permit unrestricted withdrawal of the towel from said web.

4. A towel cabinet according to claim 3 in which said means comprises a member normally positioned in the inward path of said bolt, and manually controlled means for removing said member from the path of said bolt whereby the latter may be moved to permit free movement of the chain.

5. In a towel cabinet, a towel web, a feed roller, a sprocket wheel fixed to said feed roller, a second sprocket wheel spaced from the first mentioned sprocket wheel, a chain operating over said sprocket wheels, a plurality of pins extending laterally from said chain in spaced relation to each other, a bolt slidably mounted transversely of said chain and adapted for actuation by the user, said bolt being offset intermediate its ends to bridge said chain and providing a lateral wall, said bolt having a cam normally positioned in the path of said pins and on the operation of said bolt moving inwardly out of the path of said pins, said cam having one of its surfaces inclined, a second cam carried by said bolt and on the inward movement of said bolt advancing the adjacent pin into the path of the inclined surface of the first mentioned cam, a stop arm normally positioned in the inward path of said lateral wall and limiting the inward movement of said bolt to the distance necessary to allow said cams to function, and manually actuated means for moving said stop arm out of the inward path of said lateral wall whereby said bolt may be moved inwardly to move said cams out of the path of said pins.

ISADOR SIMPSON.