

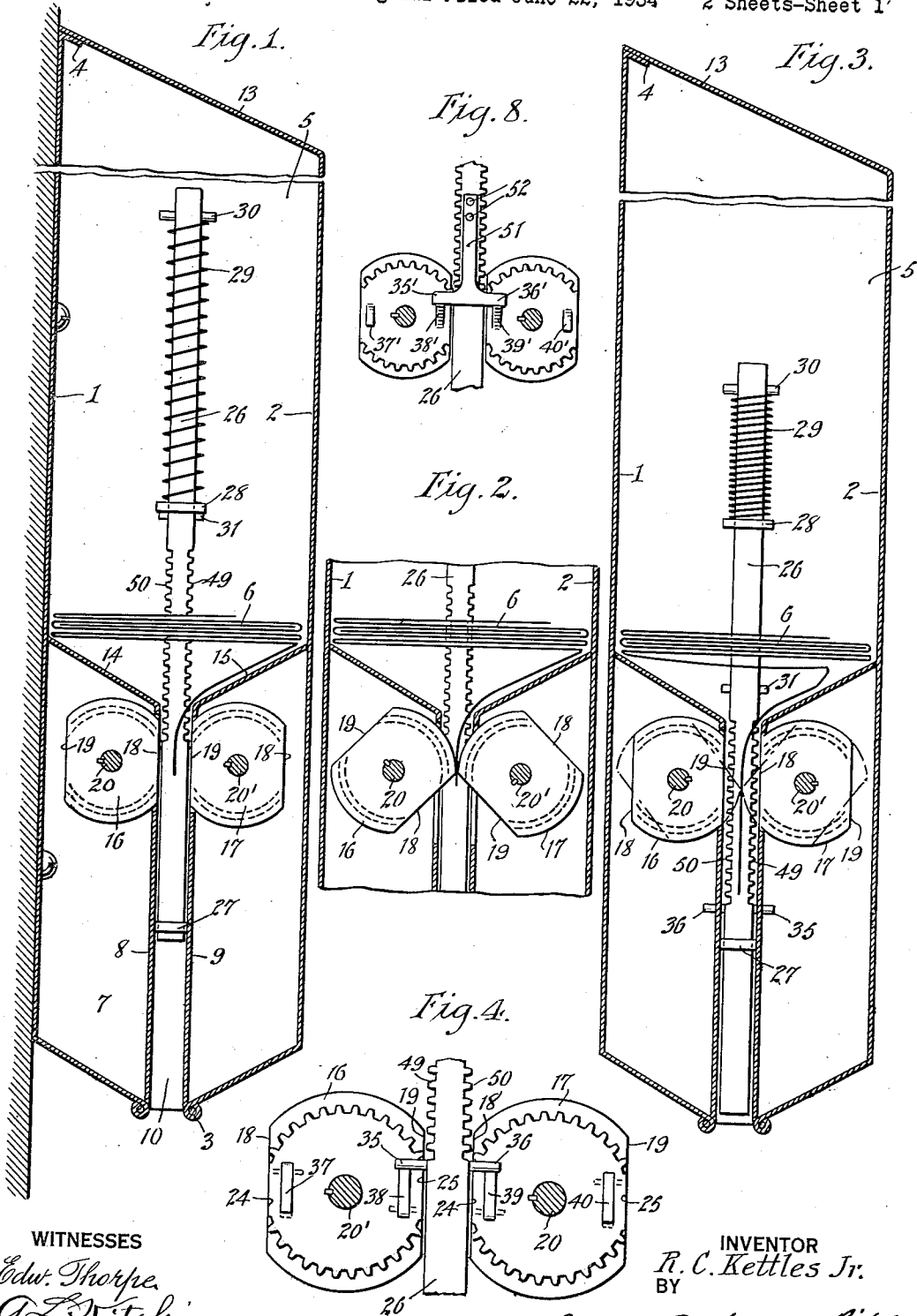
Sept. 7, 1937.

R. C. KETTLES, JR

2,092,166

DISPENSING DEVICE

Original Filed June 22, 1934 2 Sheets-Sheet 1



WITNESSES

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Fig. 5.

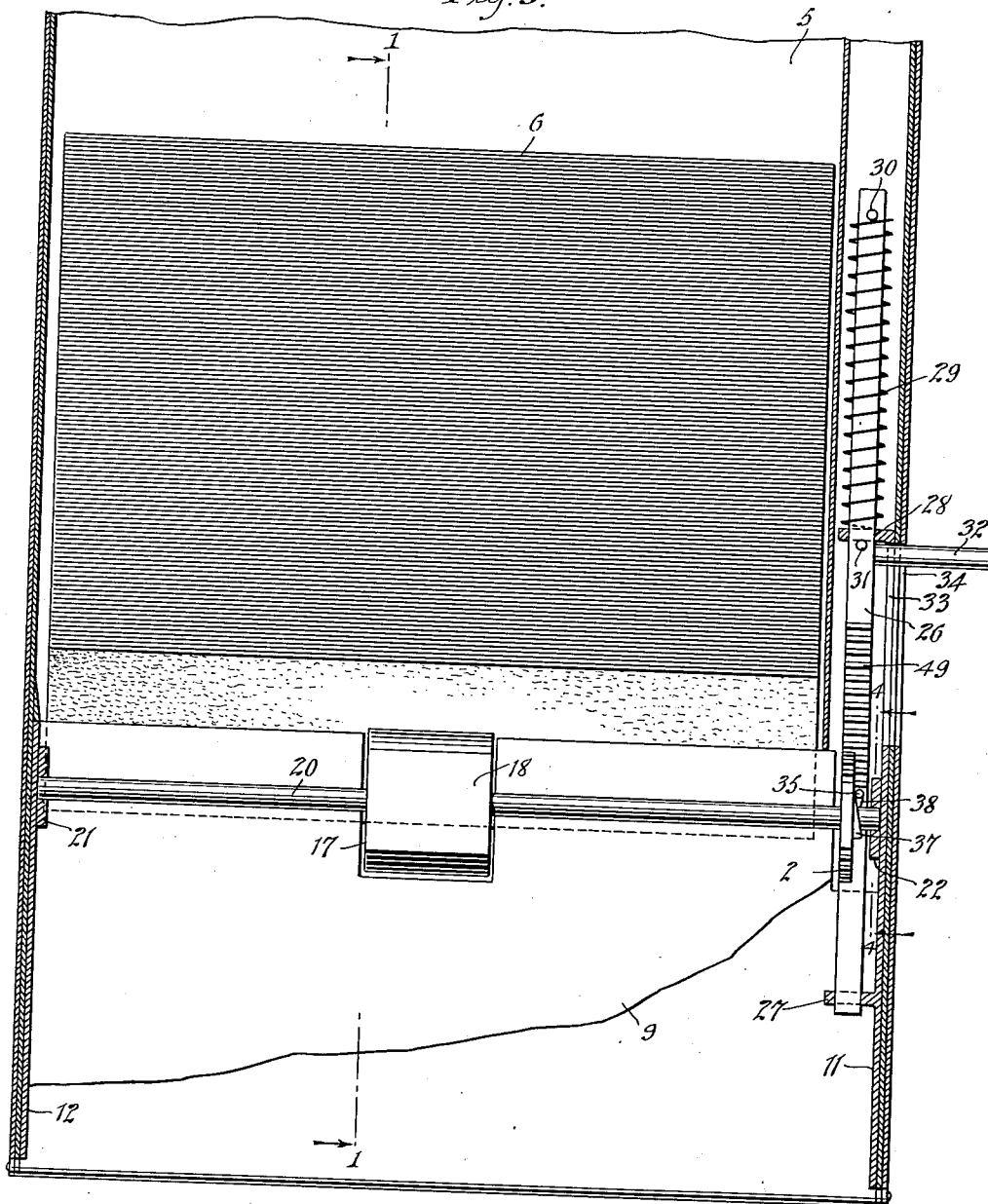


Fig. 6.

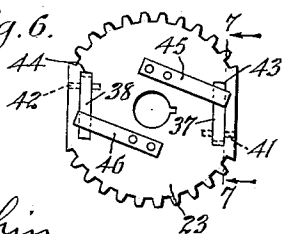
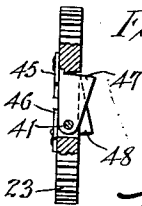


Fig. 7.



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DISPENSING DEVICE

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7 Claims. (Cl. 312—53)

This invention relates to dispensing devices, and has for an object to provide an improved construction which is extremely simple and inexpensive and which may be adjusted to dispense towels, toilet paper, or other articles freely or at spaced intervals.

Another object of the invention is to provide a dispensing device for towels and the like wherein certain difficulties are presented to the dispensing operation so that only those towels really needed will be dispensed to a person operating the device.

An additional object is to provide a dispensing device for towels and similar articles wherein the parts may be adjusted so that by a single operation a towel may be dispensed, or may be otherwise adjusted to require more than one operation to dispense a single towel.

A still further object, more specifically, is to provide a dispensing device for dispensing paper towels wherein a reciprocating handle is presented, the structure being such that the handle operates certain mechanism for causing a towel to be moved so that it may be grasped and pulled out of the device.

In the accompanying drawings—

Figure 1 is a longitudinal vertical sectional view through a dispensing device disclosing an embodiment of the invention, the section being taken approximately on the line 1—1 of Figure 5;

Figure 2 is a view similar to the central part of Fig. 1, but showing the gripping members in their first gripping position;

Figure 3 is a view similar to Fig. 1 but showing the gripping members at the completion of the first operation of the device;

Figure 4 is a sectional view through Fig. 5 approximately on the line 4—4, illustrating how the reciprocating member shown in Figs. 1 and 3 functions to rotate the gripping members;

Figure 5 is a front view of the structure shown in Fig. 1 but with the front plate broken away and parts of the casing and frame shown in section;

Figure 6 is a detailed elevation of one of the gear wheels shown in Fig. 4;

Figure 7 is a sectional view through Fig. 6 on the line 7—7; and

Figure 8 is a fragmentary view similar to Fig. 4 but showing a slightly modified construction.

In the vending of paper towels and similar articles it has been customary heretofore to provide either means whereby the towels may be quickly and successively pulled from the device, or means whereby a towel may be released by

the pressure of a button. In either of these devices, or other devices now on the market, a person may quickly secure one or two or more towels from the device. Where towels are supplied free, persons carelessly and without consideration to the owner of the device, will remove four or five towels when drying the hands where probably half that number would be sufficient. This is a waste of towels and consequently a considerable expense to the owner. In the present invention means have been provided for dispensing as many towels as are desired, the structure being such that it may be adjusted to require considerable effort to secure more than one towel. Consequently, careless or thoughtless persons who would ordinarily remove four or five towels must make this additional effort in order to secure this number of towels. The arrangement affords a check or retarding action against such persons and, consequently, the person seeking to remove towels from the device will usually remove only as many towels as he actually needs, causing much less waste.

As shown in the accompanying drawings, Figure 1 illustrates an embodiment of the invention wherein there is provided a casing 1 which is divided into two parts, the outer part being pivotally mounted on the pin 3 and overlapping the flange 4 at the top. A suitable lock may be provided adjacent flange 4 to prevent accidental opening of section 2. The opening of this section is desirable for the purpose of examination or to replenish the stock of towels from time to time. As shown in Figure 1, the space 5 may be termed a towel chamber for the reception of a number of towels 6. Arranged below this chamber is the mechanism used for feeding the towels out of the device. It will be understood that all the towels may be fed out of the device in successive order without stopping the machine, if this is so desired. However, the parts have been so adjusted that it will require some little time and effort to secure any appreciable number of towels. This arrangement acts as means for preventing waste, though it does not in any way prevent the desired use of the towels.

Arranged in the casing 1 at the lower part and, in a certain sense, filling the lower part of the casing is a frame 7 which may be secured to the casing by any desired means, for instance, by soldering, rivets or the like. The frame 7 is provided with guiding plates 8 and 9 whereby a discharge chute 10 is presented. These plates are secured to the end plates 11 and 12 (Fig. 5), which end plates are connected by soldering or other-

wise to the side of the casing but are not connected to the outer wall 2 as this wall (2) is swung on the pin 3 when it is desired to reload the device. It will readily be seen that the casing 1 including the front wall 2 is of substantially the normal shape of casings for dispensing towels now on the market. The top 13 is made slanting so that articles cannot be readily laid thereon, while the bottom is open, as shown in Figure 1. Regardless of whether the casing is a new or old type the interior mechanism forming the present invention will function, including the plates 8 and 9 forming parallel and guiding walls so that the passageway 10 is presented through which the various towels 6 are forced. The walls 8 and 9 are integral with or rigidly secured to the end plates 11 and 12 and at their upper ends are flared at 14 and 15 so as to readily guide the towels as they are fed by the feeding rollers 16 and 17. As shown in the accompanying drawings, there are only one pair of feed rollers but, if desired, more pairs could be used without departing from the spirit of the invention. Each of these rollers is provided with flat portions 18 and 19 so that when the various flat portions of both rollers are in parallelism, the adjacent flat portions will be spaced apart approximately the distance equal to the width of the discharge chute or passageway 10. Roller 16 is rigidly secured to shaft 20, while roller 17 is rigidly secured to shaft 20'. These shafts are journaled in suitable journal blocks 21 and 22, as shown in Fig. 5. It will be noted that the shafts 20 and 20' carrying the rollers 16 and 17 are journaled in identically shaped blocks 21 and 22 soldered or otherwise rigidly secured to the end plates 17 and 18. Gear wheels 23 and 24 are rigidly secured to the shafts 20 and 20' and naturally operate in unison therewith. These gear wheels are each provided with flattened sections 24 and 25, the flattened portions of the gear wheels being always in the same plane as the flattened portions on rollers 16 and 17. A sliding rack bar 26 coacts with the gear wheels 23 and 24, said sliding rack bar being carried by the brackets 27 and 28 formed integral with or rigidly secured to the plate 11, as shown in Fig. 5. Suitable apertures are provided in these brackets through which the bar slides.

A spring 29 surrounds the bar 26 at the upper part and continually presses against the pin 30 and bracket 28 to urge the bar to remain in its upper position and to return to this position when released. A pin 31 acting as a stop is carried by the bracket 28 and normally rests against the under surface of bracket 28. A handle 32 is rigidly secured to the bar 26, extends through the aperture 33 in plate 11 and also through aperture 34 in the side of casing 1, so that the handle may be readily grasped when the device is in use and may be forced downwardly as often as desired. After the handle has been forced downwardly it is released and the spring 29 quickly raises the same so that it may be lowered a second time or as often as desired. Upon each downward movement of the handle the rollers 16 and 17 will move from the position shown in Fig. 1 to that shown in Fig. 2, then to the dotted position shown in Fig. 3, and finally to the full line position (Fig. 3). When the bar 26 reaches the full line position it is released from the gear wheels 23 and 24 and the spring 29 will quickly move the bar to its upper position.

As illustrated in Figs. 4, 6 and 7, it will be noted that the bar 26 is provided with pins 35 and 36 so as to strike the respective cams 37, 38, 39 and

40. Cams 37 and 38 are carried by gear wheels 33, while similar cams are carried by the gear wheels 34. As shown in Figs. 6 and 7 the cams 37 and 38 are pivotally mounted on pins 41 and 42 in suitable apertures 43 and 44 formed in the wheel 23. The flat springs 45 and 46 are positioned so as to urge the cams 37 and 38 to the position shown in Fig. 7, so that the respective surfaces 47 and 48 will always be in a position to be engaged by the pins 35. The gear wheels 24 and associated parts are made identical to that shown in Figs. 6 and 7 and the same description and numerals will apply thereto. When the parts are in the position shown in Fig. 4 they will also be in the position shown in Figs. 1 and 5. By moving the handle 32 downwardly the bar 26 will be moved downwardly from the position shown in Figs. 1 and 4 until it eventually reaches the position shown in Fig. 3. The first movement of the bar causes the pins 36 and 37 to swing the gear wheels 23 and 24 around so that the teeth thereof will mesh with the respective teeth 49 and 50 of the bar 26. By the time bar 26 reaches its extreme lowest position as shown in Fig. 3, the gear wheels will be turned to such an extent that the flat portions 24 and 25 of the wheels 23 and 24 will be brought opposite the rack teeth 49 and 50, thus freeing the bar 26 from the gear wheels and permitting the spring 29 to function as soon as handle 32 is released. When the rack bar 26 moves upwardly to its extreme upward position the pins 35 and 36 will ride over the inclined surfaces of the cams 37 and 40 so that they may operate on the faces 48 upon the next downward movement of the bar. By this construction and arrangement it will be seen that the gear wheels, shafts 20 and 20' and associated parts may be given a partial revolution upon each downward movement of the handle 32, and this action may take place as often as desired. In carrying out the spirit of the invention it is desired that as a rule more than one movement is necessary to feed a towel from the container, though the parts could be arranged so that one downward movement of the handle will feed one towel.

In the proportions shown in the accompanying drawings it will take about four downward movements of the bar to feed each towel from the device. It will be observed that the rollers 26 and 27 grip the towel very much as if a person's hands were inserted, the fingers pressed against the bottom of the towel and then pulled downwardly. This action is repeated until the towel is extending below the casing 1. The towel then may be grasped and quickly pulled from the device. As just mentioned, the proportions are such that it will require four downward movements of the handle 32 to cause one towel to project below the casing. If one towel is sufficient for the person's needs, no further actuation of the device will be required. If another towel is desired it will be necessary to move the handle 32 downwardly four more times before a second towel is dispensed. This in a certain sense retards and discourages the unnecessary use of towels, thus preventing waste of the towels, but does not prevent a person from receiving as many towels as he desires if he needs them sufficiently to operate the device the necessary number of times. There are on the market many types of towels one of which is quite sufficient to dry the hands thoroughly. Some people require a second towel to complete the drying operation, and by the use of the device disclosed a second towel may be secured by the downward movement of the handle four times.

When the device is to be adjusted to require a more or less number of operations of the handle 32 to dispense a towel, the only change that is necessary is to remove the rollers 16 and 17 and substitute new rollers which will be smaller in case more movements of the handle are desired, and larger in case less movements are desired. Where this takes place the plates 21 and 22 must be shifted to a new position. Ordinarily the adjustment takes place at the factory, and the person desiring a dispensing device of this kind will specify whether one, two, three or four downward movements of the handle are desired for the dispensing of a single towel. The factory will then install the proper size of rollers and ship the complete device to its destination. After the device has been in use for some time, should it be necessary to change the size of the rollers, this work may be performed at the place of business, but preferably the entire device is sent back to the factory and the change made there.

In Fig. 8 will be seen a slightly modified construction wherein the same principle is utilized, but instead of using the swinging cams and associated parts, there are provided stationary cams 37', 38', 39' and 40'. Instead of having pins 35 and 36, as shown in Fig. 4, there is provided a spring 51 which is riveted or otherwise rigidly secured at 52 to the bar 26, said spring having laterally extending arms 35' and 36' which act in place of the pins 35 and 36. When the bar 36 moves upwardly these arms, by reason of the resiliency of spring 51, will slide over the cams and snap into position above the cams, and move the cams and gear wheels on the downward movement.

I claim:

1. A dispensing device for dispensing towels and the like, comprising a casing provided with an upper and lower compartment, said upper compartment being provided to carry a supply of towels to be dispensed, said lower compartment being adapted to receive mechanism for forcing one towel at a time from the upper compartment to a discharge point, said mechanism including a pair of towel gripping and feeding members, and means for actuating the gripping and feeding members, said actuating means including a pair of mutilated gears connected with said feeding members, a bar having oppositely facing teeth forming a rack, said rack being positioned to engage both of said gears simultaneously for actuating said gears, and a spring actuated stop carried by each of said gears, and pins carried by said rack and positioned to engage said stops at the beginning of each cycle of operation of the rack for throwing the gears into mesh with the rack upon each complete cycle of reciprocation of the rack, whereby said feeding means will be actuated once on each forward movement of the rack.

2. A device of the character described, including a casing for the reception of towels, and means for feeding the towels from the casing, said means including a pair of rollers, each roller having the surface mutilated so as to present a pair of parallel flat portions on the periphery, a gear wheel connected with each of said rollers, each of said gear wheels having a periphery mutilated to present a pair of flat portions, the flat portions on the rollers being in alignment with the flat portions on the gear wheels, a rack for actuating said gear wheels, said rack rotating said gear wheels substantially one-half a revolution upon each movement in one direction and moving between

the flattened portions of the gear wheels on the return movement, means for actuating said rack, and means partly carried by the gear wheels and partly by the rack for turning the gear wheels sufficiently to mesh with the rack upon each movement of the rack in one direction.

3. A dispensing device for dispensing paper towels and the like, comprising a casing formed with a chamber for receiving a supply of towels, a pair of feeding rollers positioned to operate at the same point in the path of the towels fed from said chamber, said rollers rotating in opposite directions simultaneously and in the same phase, said rollers gripping and feeding said towels to a discharge point, each of said rollers having a pair of flat portions, each flat portion occupying approximately one-quarter of the peripheral surface of the roller whereby when said rollers are rotated the towel will be intermittently gripped and pulled forwardly by the surfaces of the rollers not flattened upon each half revolution of the respective rollers, a shaft rigidly secured to each of said rollers for rotating the same, a gear wheel rigidly secured to each of said shafts, a double toothed rack for simultaneously engaging and rotating said gear wheels in opposite directions, and a manually actuated member for causing said rack to function.

4. A dispensing device for dispensing paper towels and the like, comprising a casing having a compartment for the reception of the paper towels, and means for forcing the towels from the casing, said means including a pair of gripping and feeding rollers positioned to grip and then move the towels toward the discharge point upon each actuation of the rollers, a shaft for each of the rollers for rotatably supporting the same, a gear wheel rigidly secured to each of said shafts, each of said gear wheels having a pair of flat portions of the periphery, said flat portions being parallel, a pair of spring pressed abutments carried by each of said gear wheels, said abutments being adjacent the flat portions of the gear wheels, a bar formed as a rack having two rows of teeth, there being one row of teeth on each side of the bar with the respective rows facing in opposite directions, a pair of pins carried by said bar and positioned to engage said spring pressed abutments on each movement of the bar, said abutments being adapted to cause said gear wheels to turn to a driving engagement with the teeth on the bar when pressed by said pins in one direction, and adapted to yield when pressed by said pins in the opposite direction for preventing engagement of the rack and gear wheels during the return movement of said rack, and a hand operated member for causing said rack to function.

5. A dispensing device for towels, said device including a casing for the reception of towels, means for feeding said towels from the casing, said means including means forming a passageway of a given length, said passageway having openings at opposite sides near one end, a pair of feeding rollers adapted to rotate in opposite directions, each of said feeding rollers having a pair of parallel flat portions on the periphery, the portions of the rollers not flattened being of a size to move through the said openings and to move a towel extending into said passageway along the passageway a distance equal to the peripheral surface of the unflattened part of the rollers, a gear wheel connected with each roller, each of said gear wheels having a pair of mutilated portions, said mutilated portions present-

ing flat surfaces on the periphery and arranged in parallelism, the toothed portions and the flat portions of said gear wheels being in exact alignment with corresponding portions of said rollers, there being one gear wheel for each roller and a double rack engaging said gear wheels for actuating the same, said flat portions on the flattened sides of the gear wheels after each actuation of the gear wheels coming into parallel relation so that the double rack may move between the gear wheels without engaging the same on the return movement, and means on the rack and the gear wheels coacting for causing the teeth on the double rack to engage the teeth on the gear wheels on the other movement of the double rack as it reciprocates, the teeth on the double rack facing in opposite directions and causing simultaneous movement of the gear wheels; said rollers, the length of said passageway and the length of the towels being so proportioned that it will require more than one actuation of said rollers to move a towel through said passageway.

6. A closed dispensing cabinet for dispensing a stack of interfolded paper towels in sequence, comprising a casing, said casing having a pair of downwardly sloping bottom portions for supporting a stack of towels, said bottom portions being spaced apart at their lower edges to form a discharge passage which extends across the casing at the bottom thereof and into which the leading edge of a towel is drawn by the withdrawal of a preceding towel, multi-step mechanism operative only after a plurality of repeated operations thereof to render the leading edge of one towel accessible at said discharge passage,

and a freely reciprocating manually manipulable member for imparting motion to said multi-step mechanism to render the same effective to give access to a towel only after a plurality of repeated and discontinuous manual reciprocations thereof, said manually manipulable member including a portion accessible at the exterior of said cabinet.

7. A closed dispensing cabinet for dispensing a stack of inter-folded paper towels in sequence, comprising a casing, said casing having a pair of downwardly sloping bottom portions for supporting a stack of towels, said bottom portions at their lower edges being spaced apart and being extended in spaced substantially parallel relation to form an elongated discharge passage which extends transversely across the casing at the bottom thereof and into which the leading edge of a towel is drawn by the withdrawal of a preceding towel, multi-step mechanism operative only after a plurality of repeated operations thereof to render the leading edge of one towel accessible at the outer end of said discharge passage, and a freely reciprocable manually manipulable member for imparting motion to said multi-step mechanism to render the same effective to give access to a towel only after a plurality of repeated and discontinuous manual reciprocations thereof, said manually manipulable member including a portion accessible at the exterior of said cabinet and means for returning the same to its normal position after each actuation thereof.

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