Sept. 11, 1928. 1,683,719

E. HARRALSON

MACHINE FOR DISPENSING PAPER TOWELS

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Fig. 1.

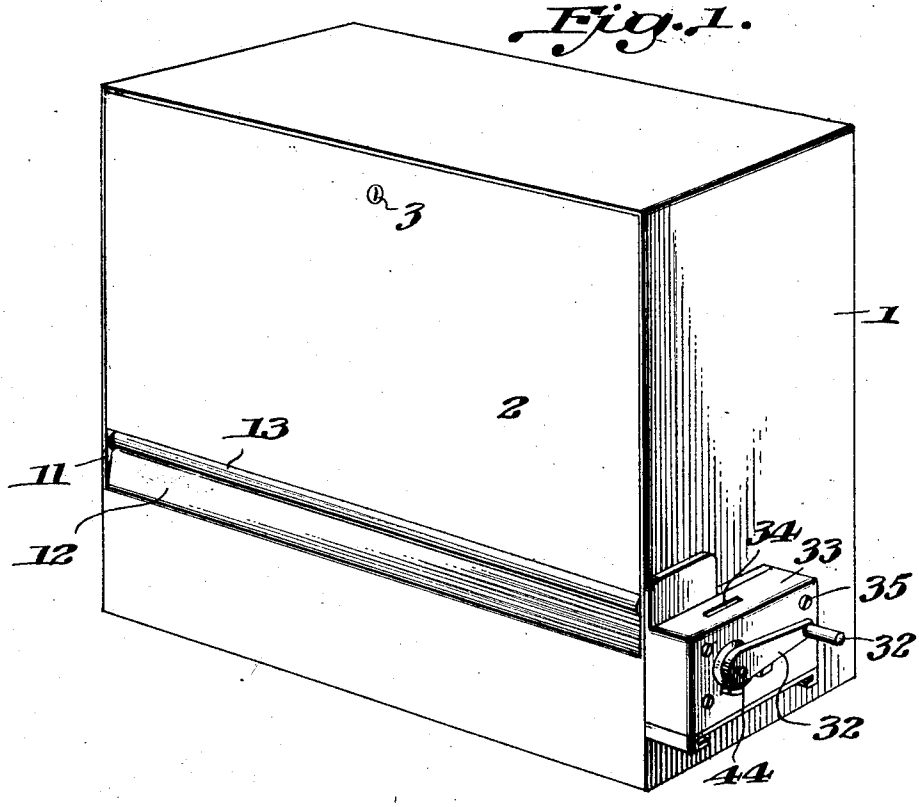
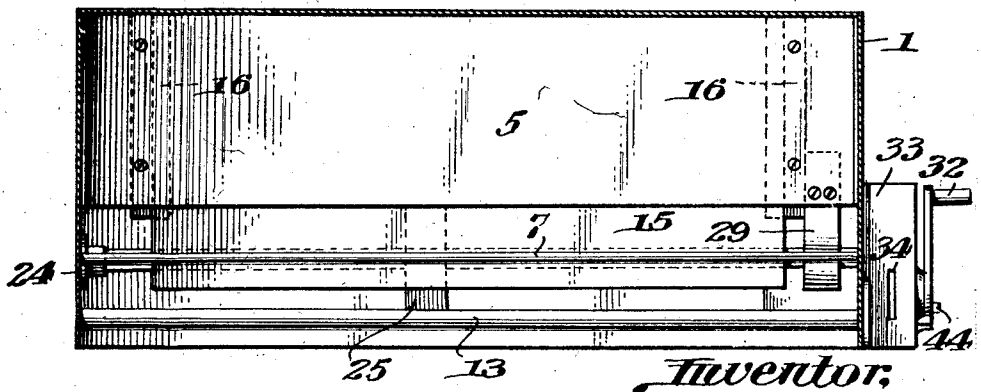


Fig. 2



Inventor:
Edward Harralson
By
Atty.

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Fig. 3.

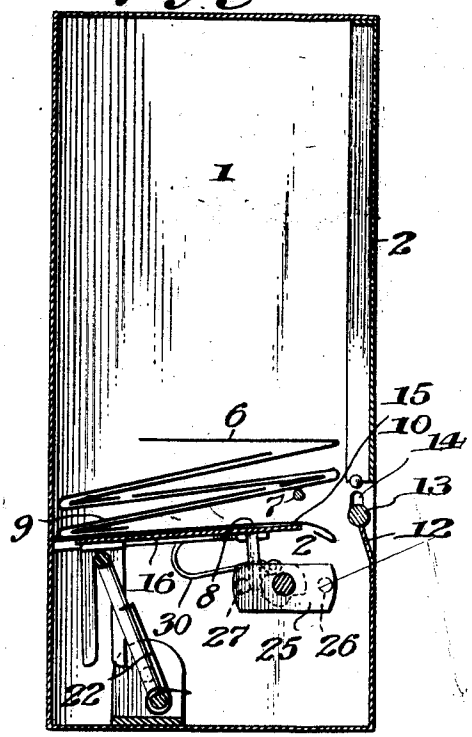
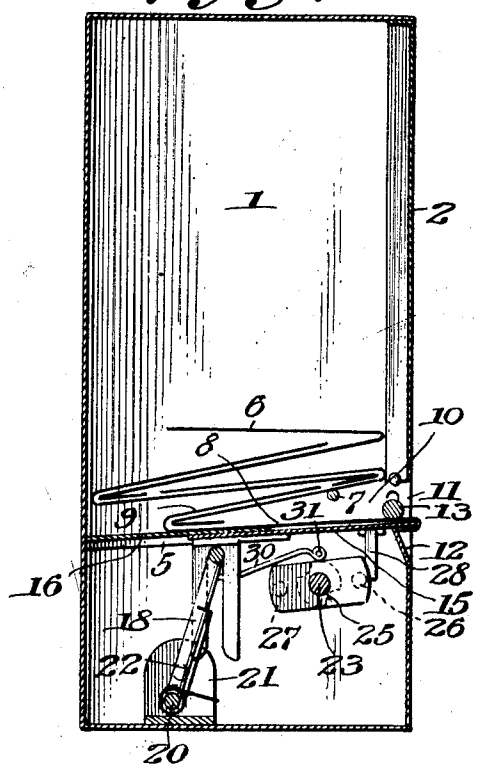


Fig. 4.



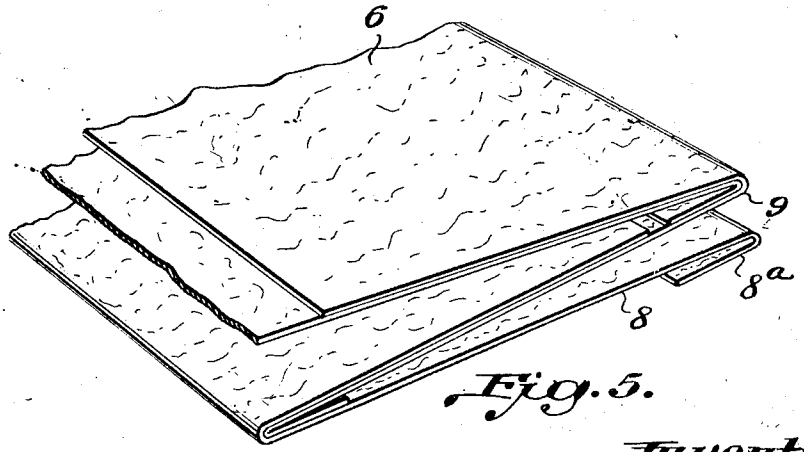


Fig. 5.

Inventor;
Edward Harralson
By
Atty.

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E. HARRALSON

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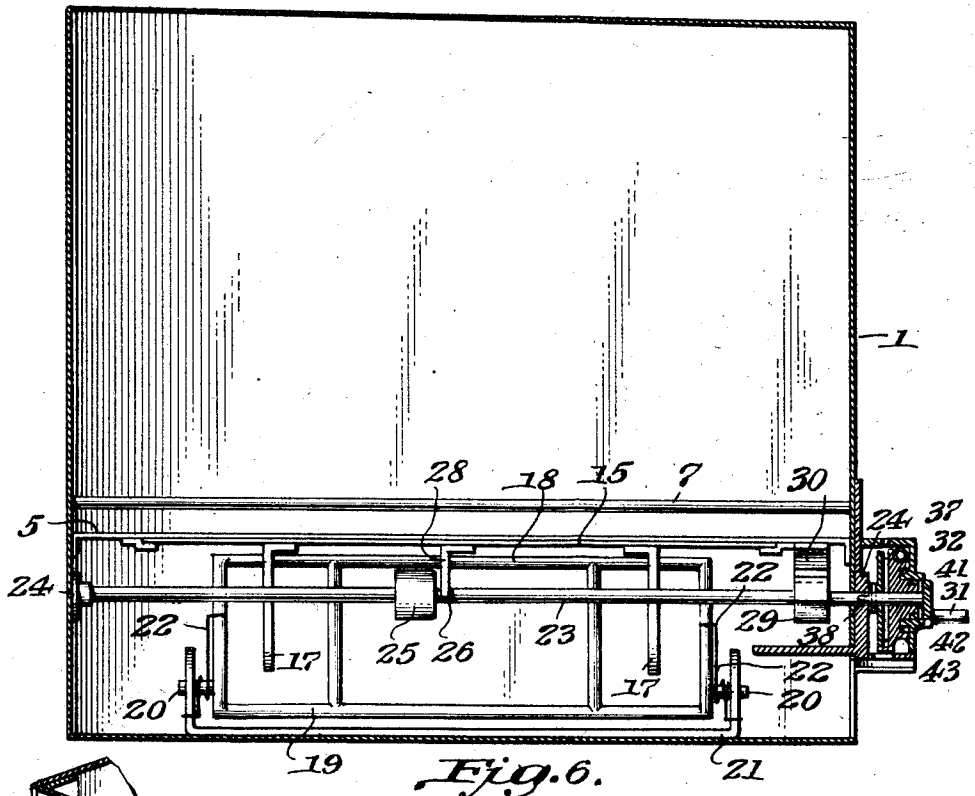


Fig. 6.

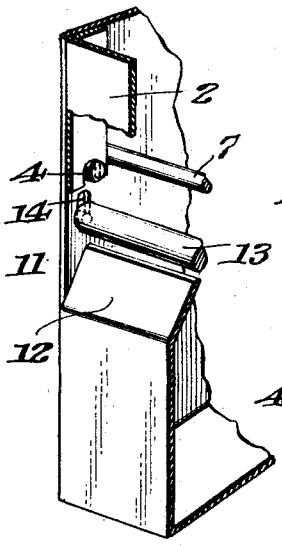


Fig. 7.

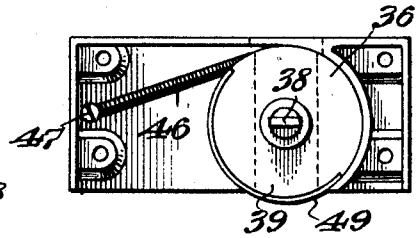


Fig. 8.

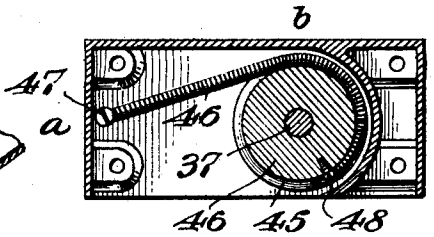


Fig. 9.

Inventor,
Edward Harralson
By [signature] Atty.

Patented Sept. 11, 1928. 1,683,719

UNITED STATES PATENT OFFICE.

EDWARD HARRALSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

MACHINE FOR DISPENSING PAPER TOWELS.

Application filed February 2, 1927. Serial No. 165 292.

This invention relates to that general class of dispensing apparatus designed to deliver folded paper articles, particularly under coin control, and it pertains, more particularly, to machines for dispensing paper towels.

It has been found in connection with the use of paper towel holders and apparatus in public lavatories and other places where there is need for a towel which can be thrown away after use to meet sanitary requirements, that a single towel by reason of its being made of paper, is not adequate for the drying of the hands of the user.

Therefore, particularly where paper towels in public lavatories and other places are only available at the expenditure of a coin, say one cent, it has been found necessary to make provision for the user having access to two paper towels in return for the coin with which he makes the purchase.

So far as I am aware, however, no satisfactory apparatus has been provided for simultaneously dispensing two paper towels on a single operation of a dispensing machine, whether the machine be coin-controlled or otherwise.

While it has been proposed heretofore to provide a stack of interleaved paper towels, so far as I know, there has been provided no machine which, on a single operation, or in return for a single coin, will dispense two, and only two, of the interleaved towels from a stack of that character. All machines of which I have knowledge that are intended to dispense paper towels from a stack such as I have described, are either irregular in their operation, or enable the user, in return for a single coin, or on a single operation of the machine, to pull from the stack an indeterminate number of towels, instead of only a single towel, thus obtaining a greater return for the expenditure than is warranted, or an insufficient delivery.

To overcome difficulties inhering in machines of this character and to provide means whereby two paper towels may always be obtained in return for the coin deposited, or, on a single operation of the machine, and to prevent the user from pulling out of the machine more than the two towels to which he is entitled, and to prevent any "juggling" of the apparatus, as well as to prevent the user from touching any other towels of the stack than those to which he is entitled and otherwise to secure satisfactory and efficient operation, I have provided improvements hereinafter described and set forth in the accompanying drawings.

My improved machine embodies a feeder, whether coin-controlled or otherwise, combined with a guard in a novel manner by which the loose, folded end of the lowermost towel of the stack of interleaved towels is caused to be engaged by the feeder, when the machine is operated, to the end that the towel cannot slip during the dispensing operation and the towel is presented so that it may be grasped by the fingers of the user and pulled out of the machine, bringing with it the towel immediately thereabove due to the interleaved arrangement of the towels, thus enabling the user to obtain two towels and yet preventing him from touching the remaining towels of the stack or disarranging them in any manner.

The invention also comprehends the provision of means for supporting the front part of the towels in an improved manner so that the weight of the stack will be almost entirely removed from the two lowermost towels and a space will be provided which will enable the feeder to perform its dispensing operation when called upon to do so, without dis-arranging the stack of towels.

In connection with the dispensing mechanism of the present machine, I have shown and described a coin-controlled device to illustrate how the machine may be placed under coin control but it will be understood that the coin control device in question need not be used with the machine nor does the machine require the use of any coin-control mechanism as it may be operated by any suitable manipulating means.

In the accompanying drawings:

Figure 1, is a perspective view of the complete machine;

Fig. 2, is a horizontal section taken above the support for the stack of towels;

Figs. 3 and 4, are vertical sections, respectively showing the parts in normal position and in partially operated position;

Fig. 5, is an enlarged detail view of a stack of paper towels, showing the interleaving;

Fig. 6, is a longitudinal vertical section;

Fig. 7, is a detail section perspective view, broken away, showing certain parts;

Fig. 8, is a detail view of the coin-controlled mechanism; and

Fig. 9, is a sectional view thereof, showing the parts as they appear when operated.

The apparatus, except the coin-control mechanism, if the latter be used, is contained within a shell or casing 1 which has a door 2 provided with a suitable lock 3 and mounted on a detachable hinge connection 4 which enables the entire door to be taken out when the lock 3 is unlocked by an authorized person so that access can be had to the interior. If preferred, the door 2 may be permanently hinged to the casing 1.

Supported in any suitable manner within the shell or casing 1 is the support or bottom 5 on which the stack of interleaved paper towels 6 rests, as shown in Figs. 3 and 4.

Extending across the box or shell 1 is a rod, shelf, roller, or other support 7 on which the front part of the stack of towels 6 rests, the rear part of the stack resting on the shelf or support 5. This manner of supporting the stack of paper towels relieves the two lowermost towels 8 and 9 of nearly all of the weight of the stack and provides a free space 10 below the stack which permits the withdrawal of the lowermost towels 8 and 9 without disturbing the towels thereabove, as will be understood from Fig. 4.

The front of the box or shell 1 is provided with an opening or slot 11 through which the lowermost paper towel is dispensed, as shown in Fig. 4. The front wall of the box is provided with an inwardly inclined part or lip 12 forming the lower part of the slot 11, to facilitate the clearance, by the lowermost towel, of the front of the box when the towel is being dispensed, as shown in Fig. 4, and to enable the user to easily grasp the folded or doubled edge of the lower towel 8 when the latter is being dispensed.

For the purpose of guarding the opening or slot 11 to prevent unauthorized introduction of the fingers of a person desiring to obtain access to the towels and also to insure the engagement of the dispensing means with the folded part 8^a, as will presently appear, I provide a vertically movable guard and pressure device 13. This guard may assume the form of a roller although it is not essential that it be adapted to revolve. A slide or a rod could be substituted for the roller which is illustrated at 13. The ends of the roller are mounted in vertical slots 14 to enable the roller to rise and fall. Normally, the roller is in the position shown in Fig. 3, that is, in contact with the upper edge of the lip 12 or located very close to it.

The means for dispensing the lowermost pair of towels 8, 9, comprises a laterally movable slide 15 which is located underneath the support or shelf 5 and is slidably mounted in guides 16, best shown in Figs. 2 and 6. The dispensing slide 15 is positioned so that when it moves outward it will engage the overhanging part 8^a of the lowermost towel 8 and push this part under the guard and pressure device 13 and between it and the lip 12. The lip 12 and the guard and pressure device 13 then act to hold the lip or bent part 8^a snugly against the forward edge of the dispensing slide 15 so that the bent part 8^a can not open out.

As the slide continues its movement to the right and beyond the position shown in Fig. 4, not only will the lower paper towel be projected but the next towel 9 will be drawn forwardly and hence when the user grasps the forward part of the lower towel 8, the towel 9 will be drawn out and the user will then obtain two towels. When the slide 15 returns to normal position shown in Fig. 3, the then lowermost towel of the stack 6 has assumed the position previously occupied by the lowermost towel 8 and repetition of the operation may be obtained.

The slide 15 may be mounted and operated in various ways. As shown, the slide is provided with depending slotted brackets 17 which receive the cross bar 18 of a yoke or frame 19 which has pivots 20 mounted in a bracket 21 secured to the bottom of the casing 1.

Springs 22 which are coiled around the pivots 20 and are engaged with the bracket 21 and with the yoke 19, are adapted to restore the slide 15 to the normal position shown in Fig. 3 after the pair of towels has been dispensed.

The operating shaft 23 which is mounted in bearings 24 carried by the box 1, is provided with a wiper 25 which is in the form of a block rigidly secured to said shaft and provided with two pins 26 and 27 which are adapted to wipe against a bracket or lug 28 secured to and depending from the bottom of the dispensing slide 15 as shown in Figs. 3, 4, and 6.

Carried by the shaft 23 is a double cam 29 whose outline appears in dotted lines in Figs. 3 and 4. This cam has oppositely disposed depressions and oppositely disposed high spots and is of the general outline of the figure 8.

A leaf spring 30 which is secured to the shell 5, has a rounded end 31, or a roller, which rides on the cam. The leaf spring 30 has its contact end 31 arranged to enter one of the notches or low points of the cam when the dispensing slide 15 is in normal position, that is, retracted, as shown in Fig. 3, thus retaining the dispensing slide in that position. Similarly, when the dispensing slide is in its full projected position, the end

31 of the spring will enter one of the notches of the cam.

The cam is so formed, and the tension of the spring 30 is such that the end 31 of the spring snaps from the high point of the cam into the notch, in each instance and insures a final sharp or quick action of the dispensing slide 15 for purposes of retraction or projection of said slide.

The stack, pack, or packet of interleaved, folded towels shown in Figs. 3, 4, and 5 has been on the market for sometime and I lay no claim thereto. However, so far as I am aware, I am the first to provide an apparatus or machine for automatically simultaneously dispensing two paper towels from a pack, stack or packet of this character.

The shaft 23 may be directly operated by any suitable knob or handle. A handle for that purpose is shown at 32. A handle of that character may be directly attached to the shaft 23, or provided with any intermediate connection.

An apparatus such as I have invented is, however, usually subject to coin-controlled-means and while I do not limit my improvements, heretofore described, to the use of a coin-controlled mechanism, nor to the coin-controlled mechanism which appears in Figs. 1, 2, 6, 8, and 9, nevertheless, as such mechanism is well adapted for use in connection with the dispensing mechanism, illustration thereof is given.

The coin-controlled mechanism has a case or shell 33 provided with a coin slot 34 and suitably secured to the box 1 by fastenings 35.

A coin receiving disc 36 is carried by a short shaft 37 which is provided with a flattened end 38 which is received in a slot in the end of the shaft 23. The disc 36 has a coin slot 39 arranged diametrically thereof. This slot is normally in alinement with the coin-receiving slot 34, ready to receive a coin. Instead of a diametrically arranged slot, slots may be provided at quadrant distances apart, or otherwise.

Another disc 40 which has a bore receiving the shaft 37, is provided with a hub 41 which is encircled by the hub 42 of the handle 32. A pin 43 carried by the hub 42 is received in a notch in the hub 41. The handle 32 is secured by a screw 44 to the hub 41. The disc 40 is provided with a peripheral groove 45. A spring 46 is secured at 47 to the case 33 and at 48 to the disc 40. Normally, the spring is not under tension as shown in Fig. 8 but when a coin has been inserted and the handle 32 is operated, the spring lies in the groove 45 as shown in Fig. 9 and the spring then exerts tension to restore the parts to normal position when the coin has dropped out after the handle has been operated and the dispensing operation has been completed.

The disc 40 is provided with a substantially semi-circular guard flange 49 which encircles one-half of the periphery of the disc 36.

Inasmuch as the handle 32 is connected to the disc 40 and the discs 40 and 36 ordinarily have no operative connection, if the handle is turned, it will simply stroke idly without turning the shaft 23.

If a coin be inserted in the slot 34, it will enter the channel or slot 39 in the disc 36. If the handle 32 then be turned, the end of the guard flange 49 will come into engagement with the coin and the discs 40 and 36 will be clutched together for a one-half revolution, during which the dispensing slide 15 will dispense a pair of the paper towels. The turning of the disc 40 winds up the spring 46 as shown in Fig. 9. Consequently, when the coin comes to its lowermost position and falls out into a receptacle provided for the purpose and which may be attached to the bottom of the shell or casing 33, the tension to which the spring 46 has been put, will cause it to rotate the disc 40 backwardly to normal position. While the discs 40 and 36 are being turned by the handle, when a coin is in position, the flange 49 serves as a closure for the slot 34, thus preventing insertion of another coin until the first coin has dropped out.

What I claim is:

1. In a machine having a container for holding a packet of interleaved paper towels, the combination with an abutment for one end of said packet, of means including a reciprocatory feeder operating adjacent and in spaced relation to said abutment which is adapted to engage and move the end towel of the packet, thereby starting the disengagement of the adjacent towel from the packet and enabling the user to remove the two said towels when the machine is operated.

2. In a machine for dispensing articles from a packet, the combination with a container for holding said packet, of an abutment therein for one end of the packet aforesaid, a supplemental support for holding the said end part of the packet in spread condition to facilitate the removal of the article at that end of the packet, a dispensing slide adapted to remove the end article of the packet through the space thus provided without disarranging the packet, said container having a dispensing opening through which the slides dispenses the article, and a combined guard and pressure device located at the slot and adapted to engage the article being dispensed.

3. In a dispensing machine of the ejector type provided with a container adapted for holding a packet of articles, means for retaining the forward end of the packet in elevated position above the ejector to provide a free dispensing space beyond the end of said packet, and means for dispensing the

end article of the packet from said container through the clear space thus provided.

4. In a dispensing machine of the ejector type provided with a container adapted for holding a packet of articles, means for retaining the forward end of the packet in elevated position above the ejector to provide a free dispensing space beyond the end of said packet, and dispensing means constituting the bottom of the aforesaid clear space and adapted for dispensing the end article of the packet from said container through the free space thus provided.

5. In a dispensing machine of the ejector type provided with a container adapted for holding a packet of articles and having an opening in its side through which the lowermost article of the packet may be dispensed, of means for supporting the lower part of the packet in elevated position above the ejector at that side of the packet adjacent the aforesaid opening, to maintain such packet in elevated position and providing a free space through which the lowermost article of the packet may be shifted for dispensing through the opening in the container, and dispensing means operating in said free space.

6. In a dispensing machine of the ejector type provided with a container adapted for holding a packet of articles, a horizontal member for supporting the packet in elevated position above the ejector at that side of the packet from which an article may be dispensed from the bottom part of the packet, thereby providing a free space below the packet through which the lowermost article of the packet may be shifted when being dispensed, and dispensing means operating in said free space.

7. In a cabinet for containing a packet of interleaved towels, the combination with an ejector, of means for supporting the said packet in spaced relation to said ejector, said cabinet having means including the ejector for ejecting a portion of one of said towels and rendering available for use another towel when the ejected towel is completely withdrawn.

In testimony whereof I affix my signature.

EDWARD HARRALSON.