Oct. 10, 1933. H. F. BLOOMSTRAN 1,929,968

DISPENSING CABINET

Filed Feb. 28, 1929 2 Sheets-Sheet 1

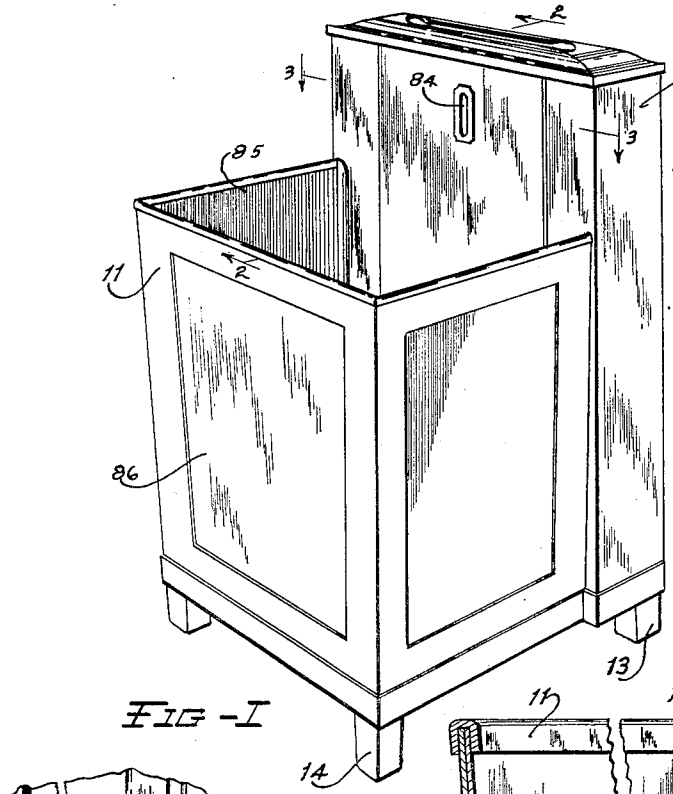


FIG-1

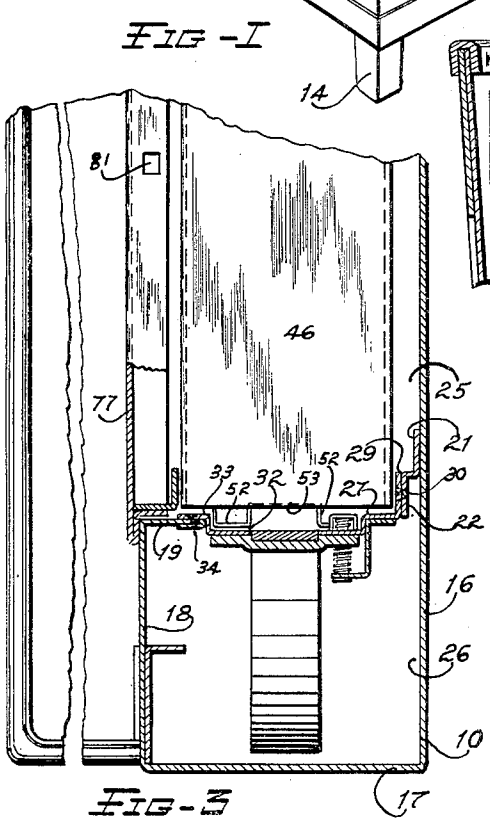


FIG-3

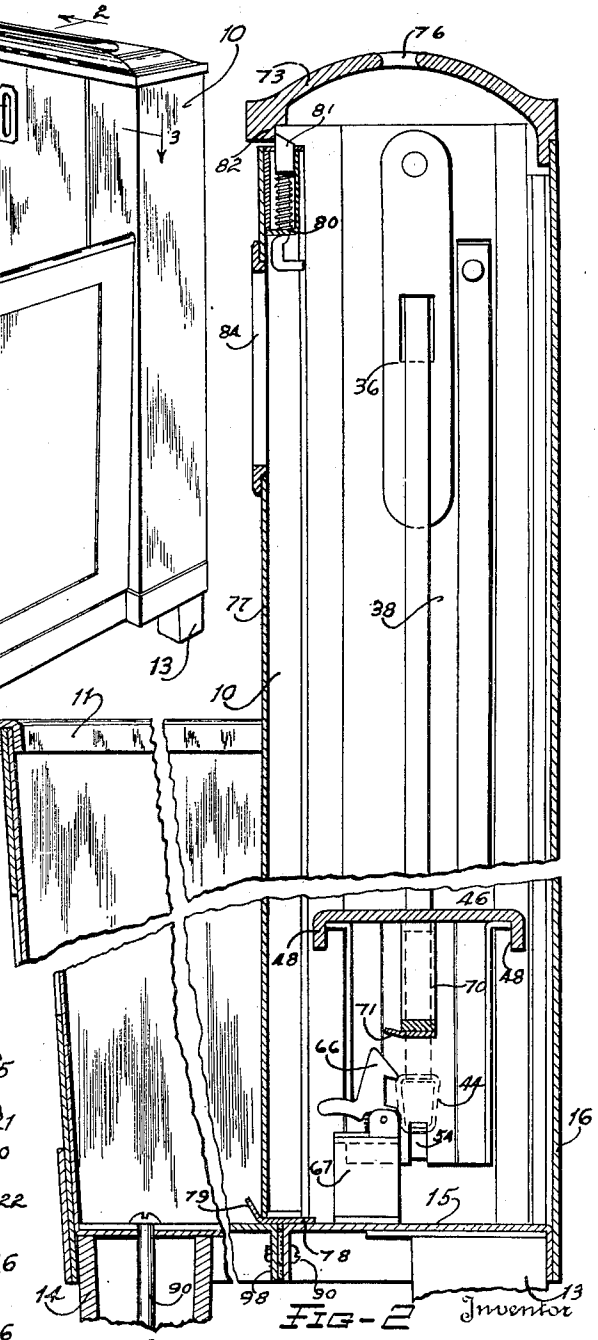


FIG-2

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DISPENSING CABINET

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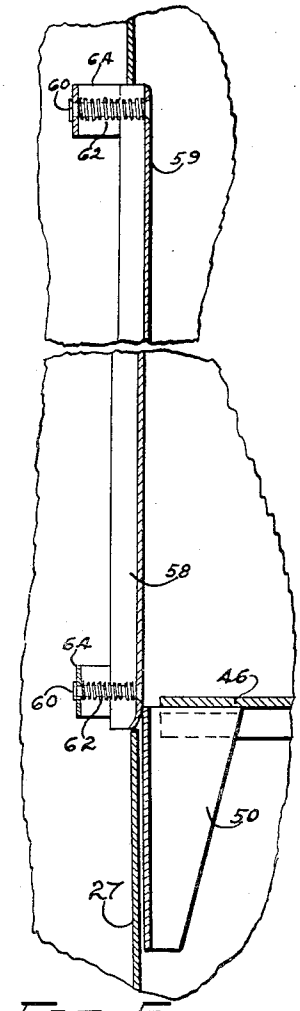


FIG-5

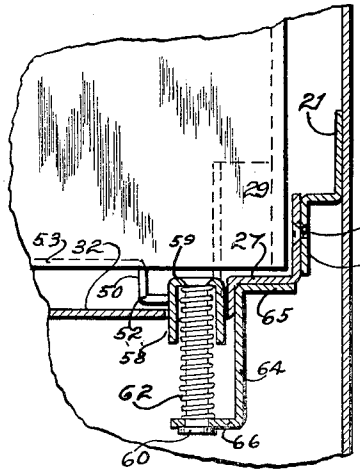


FIG-7

FIG-4

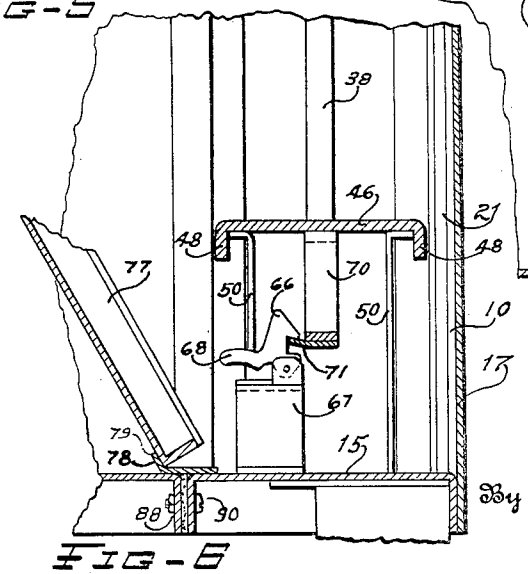


FIG-6

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UNITED STATES PATENT OFFICE

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DISPENSING CABINET

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Application February 28, 1929. Serial No. 343,300

11 Claims. (Cl. 312—61)

This invention relates to an improvement in an automatic towel dispensing cabinet and more particularly to the details of construction thereof by which said automatic dispensing is obtained.

In its preferred embodiment this invention comprises a towel supply container in which the towels are fed upwardly through the upper portion of the cabinet by mechanical means.

Prior to this invention it has been the practice to produce towel dispensing cabinets operable from the base thereof. The weight of the towels within the container and the manual withdrawal of the lowermost towel from the cabinet bringing into position the next succeeding towel. Other paper towel dispensing cabinets also of the gravity feed type are provided with a lever adjacent the slot in the base of the cabinet by which to extend one end of the towel from the cabinet for manual withdrawal. Both of these structures readily become out of order and therefore necessitate constant attention. Applicant, on the other hand, has produced a towel dispensing cabinet, practically incapable of becoming out of order, and one from which towels are withdrawn from the top thereof. A waste receptacle is attached to and forms a part of the towel cabinet and tends to deter the usual indiscriminate scattering of used towels.

The principal object of this invention is to provide a paper towel dispensing cabinet, the towels of which are obtainable from the upper portion of said cabinet.

Another object of this invention is to provide a device of this class in which the towels to be dispensed are fed upwardly through an opening provided therefor through the use of a spring actuated mechanism.

A further object of this invention is the provision of a device of this class which is substantially proof against becoming out of order and in which the refilling operation is greatly simplified.

Other and further objects of this invention are embodied in the following specification and will appear from a consideration thereof when taken in connection with the accompanying drawings; and in which

Fig. 1 is a perspective view of one modification of this invention;

Fig. 2 is an enlarged vertical sectional view taken substantially on the line 2—2 of Figure 1;

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Figure 1 and shows the location of the towel shelf spring lifting mechanism;

Fig. 4 is a vertical sectional view taken vertically and longitudinally of the cabinet and discloses the location of the towel shelf as well as the shelf actuating mechanism;

Fig. 5 is a fragmentary view showing the brake mechanism which acts upon the towel shelf to maintain uniform upward pressure of the towels toward the dispensing opening regardless of the quantity of towels and their consequent weight upon the shelf;

Fig. 6 is a fragmentary vertical sectional view showing the means by which the shelf is retained in its lowermost position under tension of the spring mechanism during the refilling operation; and

Fig. 7 is an enlarged fragmentary sectional view of the shelf braking mechanism.

Referring to the drawings and particularly to Figures 1 and 2 thereof, this invention comprises a towel dispensing cabinet indicated generally by the reference numeral 10 and a waste receptacle 11 suitably joined thereto. The cabinet 10 is provided along the base wall 15 thereof with legs 13 and corresponding legs 14 are secured at the outer corners of the waste container 11. The rear wall 16, end walls 17 and flanges 18 of the container 10 are formed from a single sheet of metal, the flanges 18 being provided with inwardly extending portions 19 which determine the width of the opening through which the device is filled for operation. Secured to the inner face of the rear wall 16, in any suitable manner as by welding, and extending vertically thereof, are angle strips 21. The strips 21 are substantially in alignment with the portions 19 of the walls 18. The portion 22 of each strip 21 is slightly removed from the wall 16 to facilitate securing other parts of the device in place.

The cabinet 10 is divided into three vertical compartments, the center compartment 25 containing the towels and towel supporting structure and the end compartments 26, the towel lifting and brake devices, a description of which will subsequently be set forth. The walls 27 which separate and define the compartments 25 and 26 are each provided with a vertical inwardly extending flange 29 secured, by screws 30 or other suitable means, to the flange 22 of the strip 21. Vertical recesses or depressions 32 are formed centrally of said walls and constitutes the guiding means for the vertical reciprocation of the towel shelf. The outer vertical edges of the walls 27 terminate in flanges 33 which lie against and are secured, in any suitable manner as by screws 34, to the inwardly extending portions 19 of the cabinet walls. Adjacent the upper ends of the walls 27, centrally located vertical slots are cut, the pur-

pose of which is to provide accommodation for the spring actuated tape mechanism 36. The mechanism 36 is constructed substantially in accordance with the usual spring actuated sash balance and therefore no particular claim is made to this structure other than its application for use in this invention.

Briefly the mechanism 36 comprises a casing 37 in which is located a spring (not shown). Secured to the spring is a steel tape 38. As the tape 38 is withdrawn from the casing 37, the spring is brought under tension and upon releasing said tape the action of the spring causes its return to position within said casing. It is contemplated the spring mechanism 36 may, after continued use, become weakened and require replacement. In order to facilitate replacement thereof, the housing 37, by means of the flanges 39, is removably held against the rim of the opening provided therefor by straps 40 and 41. The strap 40 extends horizontally of and is secured to the wall 27, in any suitable manner as by welding, being provided with a recess in which the upper flange 39 of the casing is located. The strap 41 extends upwardly and over the lower flange 39 of the casing 37, being removably secured to the wall 27 by the screw 43. The tape 38 terminates in a loop 44 by which it is secured to the shelf 46.

The shelf 46 is comprised of a towel supporting surface 47 terminating along its front and rear edges in depending flanges 48. Adjacent each end and secured to the under side of the surface 47, are guides 50. These guides, two of which are located at each end of the shelf, are secured in any suitable manner, as by welding to said shelf and are formed with outwardly extending elements 52 adaptable for vertical reciprocation within the depressions 32 of the walls 27. The guides 50 extend considerably below the edge of the shelf 46 to insure vertical reciprocation of said shelf by preventing binding thereof against either of the walls 27. Between the elements 52 of each pair of guides 50 and in the base wall of the recess 53 formed thereby, a downwardly extending clip 54 is located. The spring actuated tape 38, by means of the loop 44, is secured to and supports or suspends the shelf 46 by engagement with the clips 54. It is to be noted that the shelf 46, having substantial guides to prevent binding thereof, will be readily movable towards the top of the compartment 25 due to the upward pull of the spring actuated tape 38. The lifting power of the spring actuated tapes 38, is contemplated to more than equal the entire weight of a complete supply of towels upon the shelf 46. In other words, it is not desired that the tapes should merely balance but that they should at all times create an upward pull upon the fully loaded shelf 46. As the supply of towels diminishes, the weight likewise is lessened and as a result thereof the lifting power of the tapes 38 is increased. This rate of increase is substantially in proportion to the weight of decrease in quantity and weight of towels. When the towel shelf 46 has moved upwardly substantially half the height of the compartment 25, the upward pull of the tape upon said shelf will be increased to such an extent as to seriously hamper the proper removal of towels from the top of the device. In order to overcome this increased upward pull of the tapes as the weight of the towels decrease and the shelf moves upwardly, a yieldable brake mechanism is provided which exerts an increased pressure upon the ends of the shelf as said shelf moves upwardly.

The brake mechanism comprises channel elements 58 having pins 60 mounted in the base wall 59 of each of said elements, the outer ends of which are supported in brackets 64. The pins 60 are encircled by compression springs 62. The end of each pin is peened over to prevent disengagement of the pin and bracket due to expansion of the spring 62. Each bracket 64 is flanged at 65 and welded or otherwise secured to the rear face of the wall 27 directly adjacent the depression 32, (see Fig. 7). The flange 66, of the bracket 64, through which the pin is supported, extends in the opposite direction from the flange 65 thereby aligning said pin with the depression 32. Attention is directed to the fact that the lower end of the channel element 58 extends only a small fraction of an inch into the compartment 25 beyond the wall 27, whereas, the upper end of said element extends a considerably greater distance into said compartment through said wall. The slight inclination of the channel element 58 is produced by a slight difference in length and tension between the upper and lower springs 62, the upper spring being slightly longer and of greater strength than the lower spring. Attention is directed to Figure 5 of the drawings in which a portion of the shelf 46 is shown in initial contact with the channel element 58. The shelf 46 at this point of its upward travel has been relieved of approximately half the supply of towels. As a result of this decrease in weight, the upward pull of the tape 38 has increased and in order to overcome this added upward pull, the guides 50 contact with the wall 59 of the element 58. As the shelf 46 moves upwardly, the lower ends of the elements 58 will be forced into the wall 27 against the tension of the lower springs 62 and upon continued upward movement of said shelf, the upper portions of the elements 58 which, as above pointed out, offer greater resistance to movement, will be forced into the space provided therefor in said wall. It is contemplated that when the shelf 46 has almost reached a position in line with the upper ends of the elements 58, that the pressure of said elements, due to the upper springs 62, will be sufficient to not only reduce but almost nullify the upward pull of the tapes 38. While it is not necessary to set forth in detail the upward pound pull of the tapes 38 or the pound braking effect of the elements 58, it is to be understood that these mechanisms are so arranged that the reduction in the upward pull of the tape 38 is in direct proportion to the rate of decrease in the number and weight of towels upon the shelf 46.

In order to retain the shelf 46 in its lowermost position, as shown in Fig. 6 of the drawings, during filling of the cabinet, a latch mechanism is provided. The latch 66 is pivotally mounted upon a bracket 67 secured, in any suitable manner as by welding, to the bottom wall 15 of the container. The handle portion 68 of the latch extends outwardly to a position within reach of the person filling the container. A strap 70 is secured to the under side of the surface 47, in any suitable manner as by welding, and is provided with a projecting tongue 71 tipped slightly upwardly. Depressing the shelf 46 to its lowermost position causes the tongue 71 to momentarily move the latch 66 out of position to be engaged by the tongue, thus retaining said shelf in filling position. When a sufficient quantity of towels have been placed upon the surface 47 of the shelf 46, the handle 68 of the latch 66 is depressed and the shelf moves upwardly through the action of the

spring actuated tapes 38 to the point where the uppermost towel is adjacent the head or cover 73 of the cabinet.

The head 73, although shown as a casting having flanges 74 by which to engage the walls of the cabinet, may be formed in any suitable manner as by stamping from sheet metal, etc. Centrally of the head 73 and extending substantially the full width of the compartment 25, is an opening 76. This opening or perforation in the top 73 is only of a sufficient size to permit the free passage of a towel therethrough.

The opening in the face of the cabinet, defined by the head 73, flanges 19 and base wall 15, is closed by a door 77. The door 77 is mounted, adjacent the base of the cabinet, upon a plate 78 having an upwardly tilted flange 79. The door is provided with a latch structure 80 at its upper end, said latch being of the conventional spring type, the engaging portion 81 of which contacting with the forward flange 82 of the head 73. An opening 84, directly beneath the latch 80 is for the purpose of operating said latch, it being deemed preferable to provide a special key with which to actuate the latch 80 and gain access to the interior of the cabinet. Since the door 77 opens outwardly into the receptacle 11, it is preferred that said door be completely removable from the cabinet in order to better facilitate the placing of towels upon the shelf 46. When the latch 80 is released and the upper portion of the door 77 swung outwardly, said door may be lifted from off the plate 78 and set aside until the cabinet is filled. When replacing the door 77 in the cabinet, the bottom wall thereof is placed upon the plate 78 to the rear of the upwardly extending flange 79. The upper portion of the door 77 is then swung inwardly until the latch 80, through the portion 81, engages the head 73.

The waste container 11 forms an integral part of the towel dispensing cabinet. This obviously is for the reason that in the use of devices of this kind, it is known that when a separate waste container is provided little use is made thereof, the soiled towels being scattered promiscuously. However, with the waste container directly in front of a towel dispensing cabinet, it will be used for the purpose intended thus eliminating the untidiness and another undesirable feature of the usual towel cabinets. The container 11 is preferably formed, from a continuous metal sheet, into side walls 85 and front wall 86. The bottom wall of the container is perforated for sanitary reasons and along its rearmost edge terminates in a flange 88 which is joined in any suitable manner to a forward depending flange in the base wall 15 of the cabinet. The legs 13 and 14, upon which the cabinet and waste container are mounted, are removably secured by means of bolts 90. However, as the legs form no part of this invention, a detailed description thereof is unnecessary.

While applicant has disclosed but one modification of this invention, it is obvious to those skilled in the art that other modifications or adaptations may be made without departing from the spirit and scope of this invention as set forth in the following claims.

Having thus set forth my invention what I claim is new and for which I desire protection by Letters Patent is:

1. A pressure fed towel dispensing device comprising a walled container having vertically reciprocal towel supporting means mounted therein, a perforated cover mounted upon said container, lifting means engaging said towel supporting means and brake means frictionally engaging said towel supporting means, said brake means being adapted to diminish the lifting power of said lifting means upon and by contact with said towel supporting means in proportion to the rate of decrease of towels within said container.

2. A towel dispensing device comprising a walled container having walls forming a compartment therein, a towel supporting shelf within said compartment and in vertically reciprocal engagement with the walls thereof, a perforated cover mounted upon said container, spring actuated tape mounted exteriorly of said compartment and engaging said shelf, brake means mounted in the walls of said compartment adapted, by contact with said shelf to diminish the lifting power of the spring actuated tape upon said towel shelf at a rate in proportion to the rate of decrease of towels within said container, said spring actuated tape being adapted to exert a continuous upward pull upon said shelf whereby towels placed thereon are automatically fed through said perforated cover for manual withdrawal from said device.

3. A towel dispensing device comprising a container, a plurality of walls defining a compartment within said container, a towel supporting shelf mounted within said compartment, said shelf being in vertically reciprocal engagement with said compartment walls, a perforated cover mounted upon said container, automatic lifting means mounted in said device adjacent said compartment and engaging said shelf, and braking means mounted in the walls defining said compartment, said brake means being adapted to diminish the lifting power of said lifting means upon said towel shelf at a rate in proportion to the rate of decrease in number of towels within said container whereby the upward lift of said towels is substantially constant regardless of the quantity of towels upon said shelf.

4. In a pressure fed towel dispensing device, a towel supply compartment defined by vertical walls, a towel supporting shelf within said compartment and in vertically reciprocable engagement with the walls thereof, automatic lifting means engaging said shelf and exerting a continuous upward pull thereupon and brake means mounted within the walls of said compartment adapted to diminish the lifting power of said lifting means upon said towel shelf at a rate of decrease in proportion to the decrease in the number of towels remaining within said container.

5. In a pressure fed dispensing device, a container, a vertically movable supporting shelf suspended within said container, a spring actuated tape supporting said shelf, and a brake mounted within said container, said brake comprising a channel element, springs engaging said channel element, said springs being adapted to cause pressure engagement of said channel element with said shelf whereby to produce a resisting force thereon which is substantially inversely proportional to the total weight of articles on said shelf.

6. In a pressure fed dispensing device, a container, a vertically movable supporting shelf suspended within said container, a perforated cover mounted on said container, a spring actuated tape supporting said shelf, a brake mounted in said container, said brake comprising a chan-

nel element, springs engaging both ends of said element, said spring being adapted to cause frictional engagement of said element with said shelf whereby to produce a resisting force on said shelf which is substantially inversely proportional to the weight of articles on said shelf.

7. In a pressure fed dispensing device, a container, a vertically movable shelf suspended in said container, a spring actuated tape supporting said shelf, guide brackets mounted on said shelf, brakes mounted in said container, said brakes comprising spaced reversely disposed channel elements located adjacent the ends of said shelf, springs engaging both ends of each of said elements, said springs being adapted to cause pressure engagement of said elements with said guides whereby to produce a resisting force on said shelf which is substantially inversely proportional to the weight of articles on said shelf.

8. In a pressure fed dispensing device, a container, a perforated cover on the top of said container, a supporting shelf suspended in said container and a spring actuated tape supporting said shelf, brakes mounted in said container, said brakes comprising a pair of spaced vertically arranged channel elements adjacent the ends of said shelf, and springs yieldably engaging the ends of said elements, said springs being adapted to cause pressure engagement of said elements on said guides whereby to produce a resisting force on said shelf, the magnitude of which varies directly with the distance of said shelf from the bottom of said container.

9. In a pressure fed dispensing device, a container, a perforated cover mounted on the top of said container, a vertically movable shelf, a spring actuated tape mounted in said container and supporting said shelf, vertically extending guides on the ends of said shelf, a brake comprising a pair of horizontally spaced vertically arranged channel elements, springs engaging the ends of said elements, said springs being adapted to cause pressure engagement of said elements with said guides whereby to produce a resisting force on said shelf which varies in direct proportion with the distance between said shelf and the bottom of said container.

10. In a pressure fed dispensing device including a container, a merchandise supporting shelf in said container, automatic lifting means suspending said shelf in said container, and brake means in said device, said brake means having variable pressure contact with said shelf, said pressure contact being inversely proportional to the amount, by weight, of merchandise on said shelf whereby to effectively diminish the force of said automatic lifting means.

11. In a pressure fed dispensing device including a container, a reciprocal merchandise supporting shelf in said container, a spring actuated tape joined to and suspending said shelf in said container, said tape being adapted to exert a substantially uniform lifting force on said shelf throughout the range of travel thereof, and brake means in said device, said means having variable pressure contact with said shelf, the extent of said pressure contact being governed by the location of said shelf in said container, whereby to diminish said tape lifting force at the rate proportional to the rate at which said merchandise on said shelf is diminished.

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