Feb. 13, 1940. L. M. HARVEY 2,190,100

TOWEL CABINET

Original Filed June 9, 1936 3 Sheets-Sheet 1

Fig. 1.

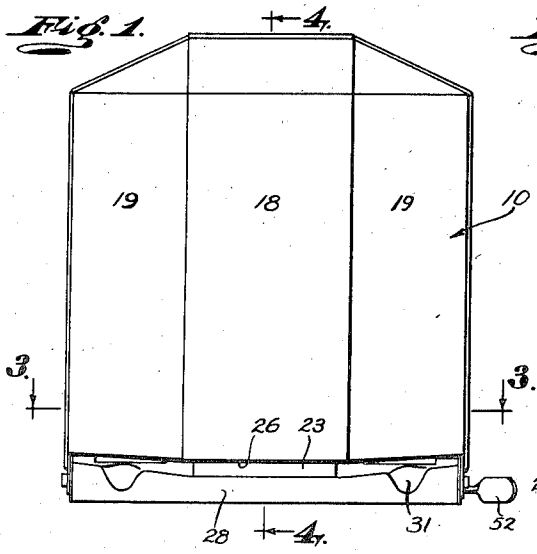


Fig. 2.

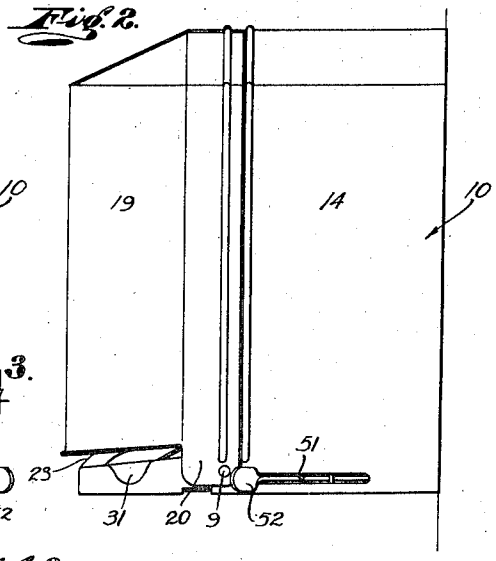
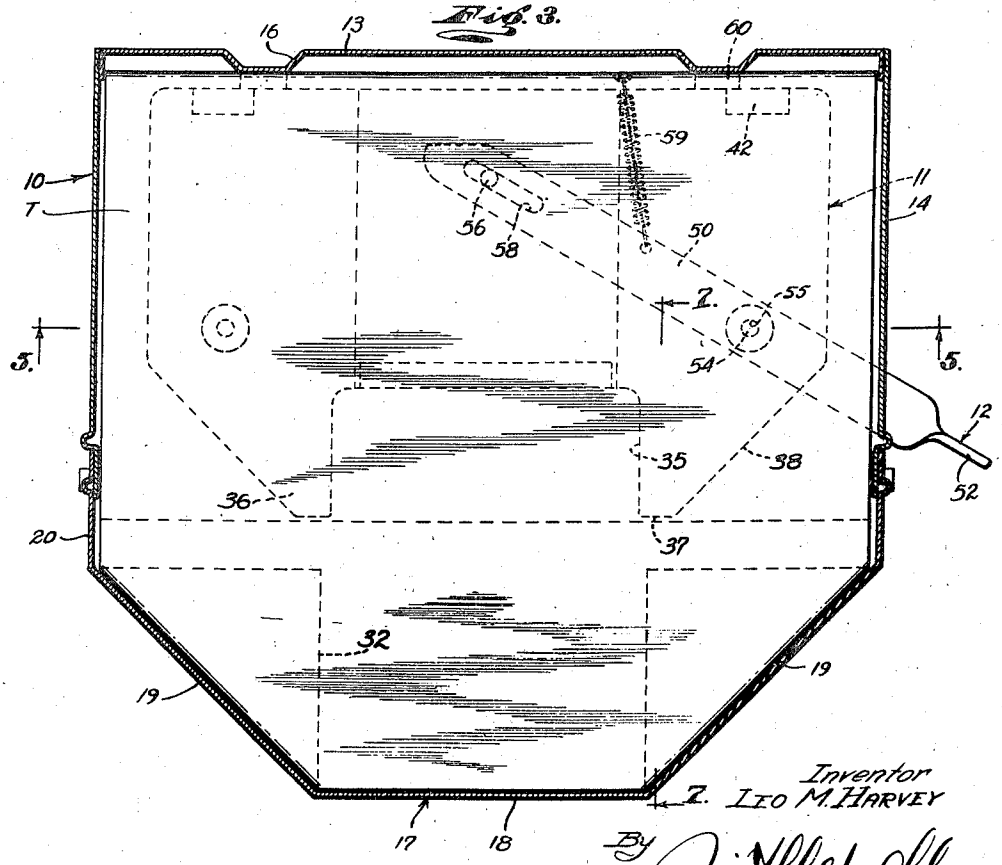


Fig. 3.



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Fig. 4.

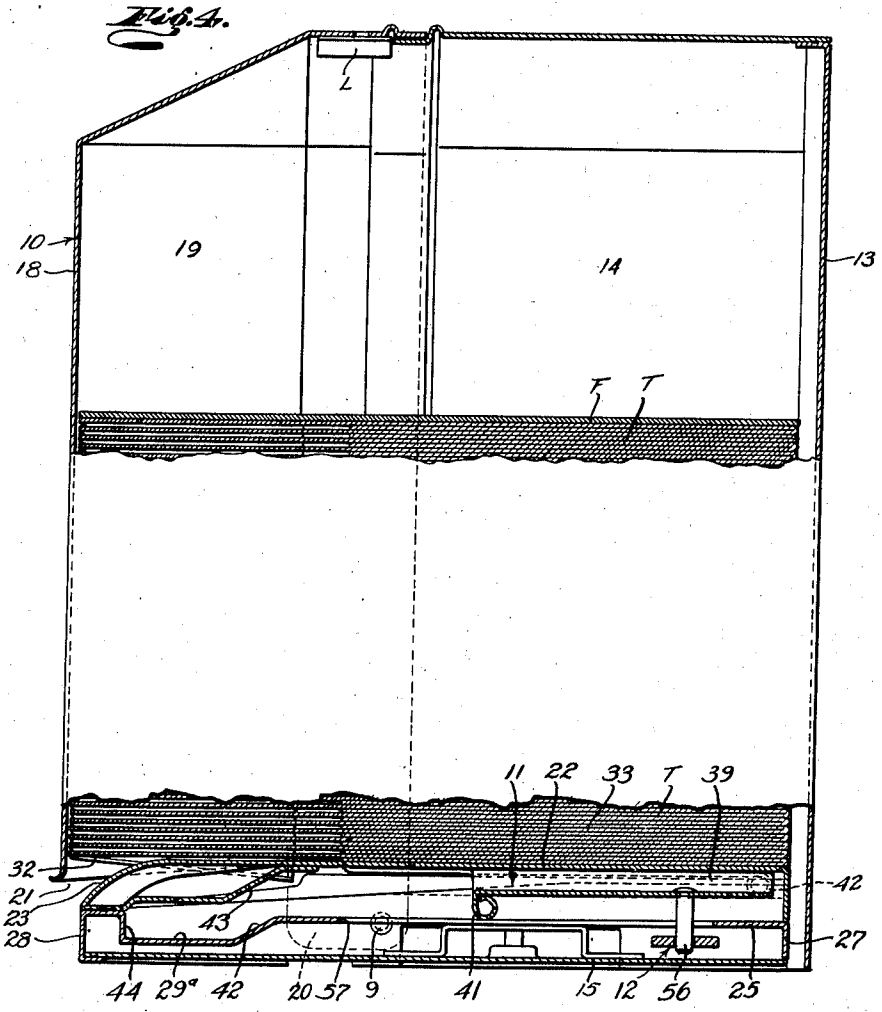
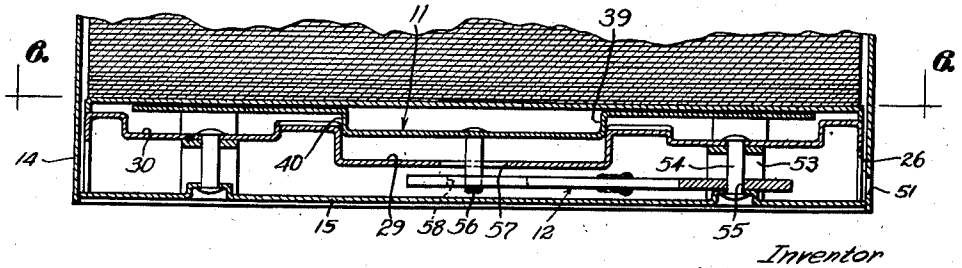


Fig. 5.



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Fig. 6.

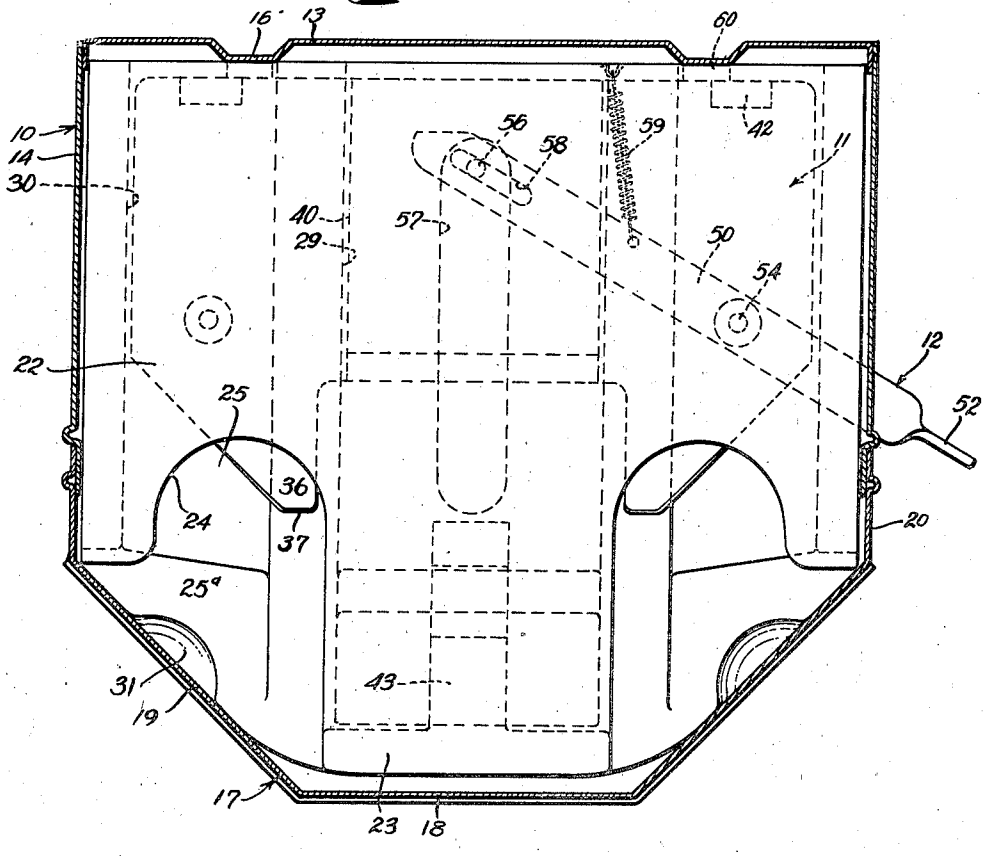
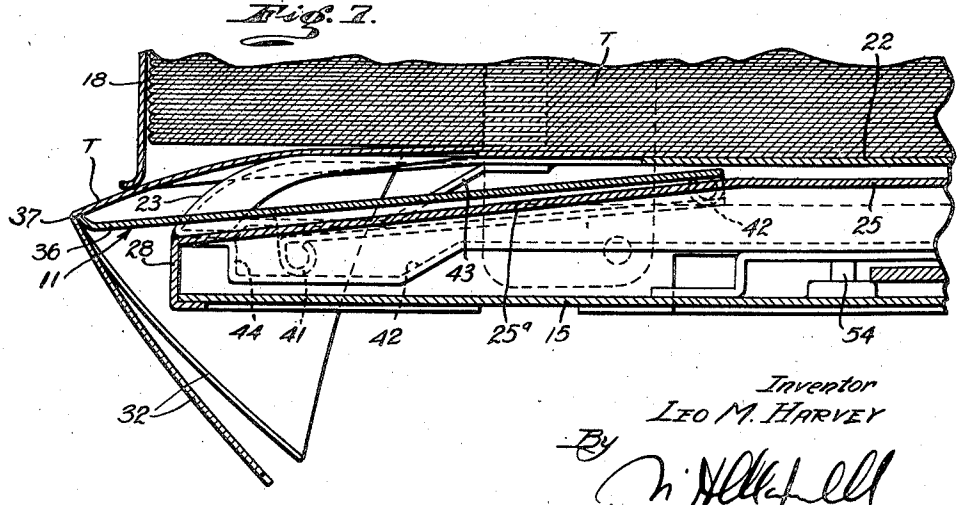


Fig. 7.



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Patented Feb. 13, 1940 2,190,100

UNITED STATES PATENT OFFICE

2,190,100

TOWEL CABINET

Leo M. Harvey, Los Angeles, Calif.

Application June 9, 1936, Serial No. 84,330
Renewed May 13, 1939

11 Claims. (Cl. 312—56)

This invention relates to a dispensing device and relates more particularly to a towel cabinet for dispensing towels. A general object of this invention is to provide a simple, practical and improved towel cabinet.

Another object of this invention is to provide a towel cabinet for handling or dispensing paper towels of the character described and claimed in my co-pending application entitled Paper toweling, Serial No. 84,040, filed June 8, 1936.

Another object of this invention is to provide a towel cabinet embodying a dispensing means or ejecting means for cooperating with folded portions of the towels to project the same from the cabinet or case for grasping by the user.

Another object of this invention is to provide a towel cabinet of the character mentioned in which the ejecting element acts only on the folded portion or portions of one towel at each operation of the device to unfold or straighten out the same to be grasped by the user and therefore does not disturb the other stacked towels in the case.

Another object of this invention is to provide a towel cabinet of the character mentioned in which the towels cannot be engaged for surreptitious removal without actuating the dispensing mechanism making it substantially obligatory to operate the dispensing mechanism whereby there is a markedly less tendency to waste the towels by needlessly removing them from the case.

Another object of this invention is to provide a towel cabinet of the character mentioned embodying a novel ejecting or dispensing means operable to engage the folded portions of a towel to bend or fold them outwardly and downwardly through the discharge opening of the case thereby straightening the towel to its original shape and projecting said folded portions for convenient grasping by the user whereby he may withdraw the said towel through the opening.

Another object of this invention is to provide a towel cabinet embodying a case corresponding in horizontal cross sectional configuration to the plan configuration of the folded towels, of the character referred to above, whereby the folded portions of the towels engaged and straightened out by the ejecting mechanism are projected from the case to be readily grasped by the user without contacting the case.

Another object of this invention is to provide a towel dispensing device of the character mentioned that supports the towels above the discharge opening making it difficult to engage the forward edges of the contained towels.

Another object of this invention is to provide a towel dispensing device of the character mentioned in which the ejecting or dispensing mechanism may be very simple and may comprise only two moving parts.

Another object of this invention is to provide a towel dispenser or towel cabinet of the character mentioned in which a supply or stack of towels may be easily arranged in its proper position in the case.

The various objects and features of my invention will be fully understood from the following detailed description of a typical preferred form and application of the invention, throughout which description reference is made to the accompanying drawings, in which:

Fig. 1 is a front elevation of the towel cabinet provided by this invention. Fig. 2 is a side elevation of the device. Fig. 3 is an enlarged horizontal detailed sectional view taken as indicated by line 3—3 on Fig. 1. Fig. 4 is an enlarged vertical detailed sectional view taken as indicated by line 4—4 on Fig. 1. Fig. 5 is a fragmentary vertical detailed sectional view of the lower portion of the device being a view taken as indicated by line 5—5 on Fig. 3. Fig. 6 is a horizontal detailed sectional view taken as indicated by line 6—6 on Fig. 5, and Fig. 7 is an enlarged fragmentary vertical detailed sectional view taken as indicated by line 7—7 on Fig. 3 showing the ejecting element in the act of projecting a portion of a towel through the discharge opening.

The cabinet or dispensing device provided by the present invention is adapted to be constructed to handle paper towels, toilet paper, cleaning tissues and the like. In the following detailed disclosure I will describe a typical form of the invention intended primarily to dispense paper toweling of the character described in my co-pending application referred to above. It is to be understood that the invention is not to be construed as limited or restricted to the specific form illustrated or to the handling of the specific type of paper towels referred to.

The dispensing device or towel cabinet of the present invention includes, generally, a cabinet or case 10 for containing a supply of towels T, a shuttle or ejecting element 11 for acting on portions of the towels T to project them from the case 10 and means 12 for actuating the ejecting element 11.

The case 10 may be varied in construction and design to suit various circumstances and to handle paper products of various shapes. In the drawings I have illustrated a case 10 of typical

preferred construction for containing one form of paper towels of the character described in my above mentioned co-pending application. The case 10 may be formed of sheet metal or the like and is adapted to be arranged on a vertical support such as a wall. The particular case 10 illustrated in the drawings includes a vertical back 13, vertical parallel sides 14 suitably secured to the back 13 and a substantially horizontal bottom 15. The bottom 15 is suitably secured to the back 13 and the sides 14. The back 13 may be bent or shaped to have spaced inwardly projecting vertical ribs or guides 16 to engage the rear edges of the towels T, as will be hereinafter described.

In accordance with the invention the case 10 is preferably of a characteristic horizontal cross sectional configuration to correspond, generally, to the shape of the towels T to properly house the stacked towels. In the particular form of the invention illustrated the case 10 has the horizontal cross sectional configuration of a non-regular hexagon. The front 17 of the case 10 which is normally vertical is shaped to provide the case with three walls or sides. The case front 17 includes a central wall 18 lying in a plane substantially parallel with the back 13 and two angular walls 19 diverging laterally and rearwardly from the central wall 18. The diverging walls 19 are vertical and extend rearwardly and laterally to the vertical planes of the sides 14. Inwardly or rearwardly extending flanges 20 are provided on the walls 19 to overlap the forward edge portions of the sides 14. The forward edge of the case bottom 15 has substantially the same outline as the front 17, that is, its two corner portions are bevelled off to be substantially parallel with the walls 19. The lower edge of the front 17 is spaced above and forwardly of the forward edge of the bottom 15 to leave a discharge opening 21 which will be more fully described.

In accordance with the invention the front 17 forms a closure for the case 10 and is adapted to be hinged or swung to an open position to render the interior of the case accessible for the insertion of a supply of towels T. The above described flanges 20 extend downwardly beyond the lower edge of the front 17 and hinge pins 9 are arranged through openings in the projecting portions of the flanges 20 and the sides 14 to pivotally connect the front 17 with the sides. The front 17 is adapted to be swung or pivoted from the closed position illustrated in the drawings to an open position where it hangs from the lower end of the case 10. When the front 17 is in its open position the interior of the case 10 is entirely open at its forward side so that a stack of towels T may be readily arranged in the case. If desired, the upper portions of the front walls 18 and 19 may be inclined upwardly and rearwardly as illustrated in Figs. 1, 2 and 4 of the drawings.

The case 10 is provided with a support or shelf 22 to carry the supply of towels T. The shelf 22 is a horizontal member arranged within the case 10 some distance above its bottom 15. The shelf 22 is suitably supported in the case and may be welded, soldered or otherwise secured to the back 13 and the sides 14. The shelf 22 extends forwardly to adjacent or beyond the forward edges of the sides 14. A central integral extension or web 23 extends forwardly from the shelf 22 to the forward central portion of the front edge of the bottom 15. In accordance with the invention the forward portion of the web 23 is curved downwardly and forwardly as best illustrated in Figs. 4 and 7 of the drawings. Notches 24 are provided in the front edge of the shelf 22 at opposite sides of its web 23.

A generally horizontal guide member 25 is provided within the case and is spaced between the bottom 15 and the shelf 22. The member 25 may have suitable depending flanges 26 secured to the sides 14 and may have a depending flange 27 at its rear edge. The flanges 26 and 27 may engage or rest on the bottom 15. The member 25 projects forwardly from beyond the sides 14 and its forward edge has a substantially straight central part and rearwardly divergent corner parts substantially parallel with the walls 18 and 19 of the closed front 17. A depending lip 28 extends along the forward edge or side of the member 25 and projects downwardly to the case bottom 15. The lip 28 may be suitably secured to the bottom 15. The above described downwardly curved forward portion of the web 23 extends downwardly to the member 25. The lower end part of the web 23 may be secured to the member 25 by welding, soldering or the like. The downwardly and forwardly curved forward portion of the web 23 closes the central portion of the space or opening occurring between the shelf 22 and the member 25. The forward end of this space between the shelf 22 and the member 25 is open at the notches 24 to receive or pass the towel engaging parts of the element 11 as will be hereafter described. In accordance with the invention the forward end portions 25a of the member 25 at the opposite sides of the bridge or web 23 are inclined downwardly and forwardly. The member 25 is depressed or shaped to have a central track groove 29 extending from its rear edge to the lip 28. The member 25 is also provided with depressions or grooves 30 spaced from and extending parallel with the track groove 29. The grooves 30 are spaced from the opposite sides of the track groove 29 and die out at the inclined forward portion 25a of the member 25. Finger receiving pockets or recesses 31 may be provided at the angled off corner parts of the lip 28 for the purpose to be hereinafter described.

The towels T illustrated in the drawings are in the nature of separate or individual sheets of paper toweling of rectangular configuration. The forward corner portions 32 of the towels T are folded back upon the bodies of the towels. Thus the towels T are of non-regular hexagonal configuration. The angle of the lines of folding providing the portions 32 is substantially the same as that of the walls 19, the front 17 being formed to conform to and receive the forward portions of the towels T as above described. In order to permit the proper stacking of the towels T without danger of the stack falling and in order to render the towels T more compact the rear end portions 33 of the towels are folded upon the bodies of the towels. The towels T are stacked one upon another with their corner portions 32 at their lower sides. The stack of towels T may be arranged on the shelf 22 when the case front 17 is in its open or down position. The ribs 16 on the back 13 engage the rear edges of the towels T to properly locate the towels in the case. The forward folded corner portions 32 of the towels T are directly above the inclined portions 25a of the member 25 and, therefore, the corner portions 32 of the lowermost towel T are unsupported and free. The central forward web 23 of the shelf 22 supports the central forward portion of the stack of towels T. The shelf 22 sup-

ports the stack of towels T so that the lowermost towel T is some distance above fhe discharge opening 21. Owing to the presence of the lip 28, the web 23, and the inclined portions 25a it is difficult, if not impossible to reach through the opening 21 to grasp the central forward portions of the lowermost towels T. It is to be particularly noted that the lowermost towel T being supported above the discharge opening 21 and entirely within the case 10 is very difficult of access through the opening.

The shuttle or ejecting element 11 is operable to engage and act on the folded corner portions 32 of the lowermost towel T to bend and fold them downwardly and outwardly so that they are projected through the opening 21 for grasping by the user. The ejecting element 11 is arranged between the shelf 22 and the guide member 25. In accordance with the invention the ejecting element 11 may be a simple flat plate-like part. The element 11 is proportioned for free horizontal movement in the case 10. A rectangular notch 35 is provided in the forward edge of the element 11 and is of substantial width to leave two forwardly projecting fingers 36 on the forward end of the element at each side of its central longitudinal axis. The fingers 36 each have a forward edge 37 substantially parallel with the back 13 and a rearwardly and laterally extending edge 38 extending from the edge 37 to the adjacent side edge of the element 11. The foremost edges 37 of the fingers 36 may be rolled or curled upwardly to better contact the folded portions 32 of the towels T. The fingers 36 are adapted to engage and unfold the folded portions 32 of the lowermost towel T when the element 11 is moved forwardly by the means 12.

In accordance with the invention the ejecting element 11 is supported and guided for horizontal movement forwardly and rearwardly in the case 10. The element 11 has a depression 39 extending centrally through it from its rear edge to its notch 35. The depression 39 provides surfaces 40 on the underside of the element 11 which are adapted to cooperate with the side walls of the track groove 29 to guide the element 11. The forward edge portion of the element 11 is rolled at the rear end of the notch 35 to form a skid 41. The skid 41 engages or rides along the bottom of the track groove 29 to assist in supporting the element 11 for movement. Similar rolled skids 42 are provided on the rear end portion of the element 11 and are adapted to operate in the grooves 30 to shiftably support the inner or rear end of the element 11. The cooperation of the surfaces 40 and the skid 41 with the groove 29 and the cooperation of the skids 42 with the grooves 30 effectively support the element 11 for horizontal movement and guide the element for proper movement in the case. The skids 41 and 42 normally support the element 11 where its upper side is adjacent the shelf 22. When the element 11 is in the normal or unactuated position the forward ends of its fingers 36 are at the notches 24 and are spaced inwardly or rearwardly from the folded corner portions 32 of the lowermost towel T.

The element 11 is guided for inclined movement as well as horizontal movement. The forward end portion 29a of the track groove 29 is lower than the major rear portion of the groove. A downwardly and forwardly inclined wall 42 connects the bottom of the forward portion 29a of the groove with the bottom of the rear portion of the groove 29. Upon forward movement of the element 11 the skid 41 moves along the bottom of the groove 29, then moves downwardly and forwardly on the wall 42 to the lower forward portion 29a of the groove. The parts are proportioned and related so that this downward and forward movement of the element 11 occurs when its fingers 36 are moving above the inclined portions 25a of the member 25. An upper cam wall 43 may be provided to assure the proper downward and forward movement of the ejecting element 11. The wall 43 is located above and substantially parallel with the wall 42 leaving an inclined channel through which the skid 41 and the forward portion of the element may move. The wall 43 may be an integral portion of the web 23 as illustrated in the drawings. The forward end wall 44 of the groove 29 may be engageable by the forward end of the element 11 to limit the forward movement of the element. The member 25 is spaced a sufficient distance below the shelf 22 to allow the element 11 to assume the inclined position illustrated in Fig. 7 of the drawings when actuated to its forward ejecting position. As will be more fully described hereafter, the downward and forward movement of the fingers 36 of the ejector 11 occurs when the fingers are in unfolding and pushing engagement with the folded portions 32 of the lowermost towel T to effect downward and outward projection of the folded parts 32 through the opening 21.

The means 12 is operable to shift or move the ejecting element 11 to effect the projection of the folded portions 32 of the lowermost towel T from the case 10. The operating means 12 is in the form of a simple manually operable lever means. The actuating means 12 may include a manually engageable lever 50 extending through an elongate opening 51 in a side 14 of the case 10. A suitable handle portion 52 is provided on the projecting end part of the lever 50. The lever 50 is pivotally supported between its ends within the case 10. In the structure illustrated an angle iron or brace 53 is arranged between the bottom 15 and the partition member 25 to assist in supporting the member. A vertical rivet or pivot pin 54 extends through vertical openings in the member 25, the brace 53 and the bottom 15. A transverse opening 55 is provided in the lever 50 and receives the pivot pin 54 whereby the lever is pivotable on the pin. The brace 53 and the pin 54 are spaced from one side of the groove 29 and a similar brace 53 and pin 54 may be provided at the other side of the groove 29 to permit the optional mounting of the operating lever 50 for operation at either side of the case.

A pin 56 is secured to the element 11 and extends downwardly through an opening 57 in the bottom wall of the groove 29. The pin 56 does not necessarily cooperate with the opening 57. A longitudinal slot 58 is provided in the inner portion of the lever 50 and the pin 56 projects through and cooperates with the slot. It will be apparent how rearward movement of the handle portion 52 of the lever 50 effects forward movement of the inner arm of the lever 50 and the element 11. The handle portion 52 and the lever 50 are readily engageable at the side of the case 10 to effect the forward movement of the element 11 for the purpose of projecting the corner portions 32 of the lowermost towel T through the opening 21. Means is preferably provided to automatically return the element 11 and the lever 50 to their original or unactuated posi-

tions. A spring 59 is connected to the element 11 and the back 13 of the case 10. The spring 59 is an extensible spring and is stretched or extended when the element 11 is moved forwardly. When the forward pressure is removed from the handle portion 52 of the lever, the spring 59 automatically returns the lever 50 and the element 11 to their normal positions. Suitable stops 60 may be provided to limit the return movement of the element 11.

It is believed that the operation of the dispensing device will be readily understood from the foregoing detailed description. To operate the device the user merely moves the projecting portion of the lever 50 rearwardly. This rearward movement of the outer arm of the lever 50 effects forward movement of the element 11 within the case 10. As the element 11 moves forwardly its fingers 36 engage under the relatively free folded portions 32 of the lowermost towel T, that is, the fingers 36 pass between the portions 32 and the body of the towel T. As the element 11 moves forwardly its forward portion carrying the skid 41 moves downwardly between the inclined walls 42 and 43. The skid 41 operating downwardly on the wall 42 carries or guides the element 11 for downwardly and forward inclined movement. During this downward and forward movement of the element 11 its fingers 36 are acting on the fold portions 32 of the lowermost towel T to bend and project them downwardly and outwardly. As the forward movement of the element 11 continues the fingers 36 straighten the fold portions 32 and project them through the opening 21 adjacent or below the walls 19. This projection of the folded portions 32 through the opening 21 may be effected without bodily shifting of the lowermost towel T. It will be observed that the straightening or unfolding of the corner portions 32 of the lowermost towel T to return the towel to its original general configuration effects the projection of the portions 32 from the case 10. The portions 32 projected from the case 10 as just described may be readily grasped by the user for the purpose of withdrawing the lowermost towel T through the opening 21. The curved web 23 guides the central portion of the towel downwardly for passage through the opening 21. The user may engage the projected portions 32 without contacting the case 10. When the user removes the forward pressure from the projecting end of the lever 50 the spring 51 automatically returns the lever and the element 11 to their original positions.

It is to be noted that the towels T are supported entirely within the case 10 to have the lowermost towel spaced above the plane of the discharge opening 11 rendering it practically impossible to surreptitiously engage or disturb the stacked towels. The novel manner of guiding the element 11 downwardly and forwardly during its ejecting movement causes the fingers 36 to bend and unfold the corner portions 32 of the towel T through the opening 21 below the body of the towel. The means for ejecting or projecting the corner portions 32 of the towels T is extremely simple and comprises only two moving parts, namely, the lever 50 and the element 11. The case 10 is constructed so that it substantially conforms to the towels T. Accordingly, it is impossible to improperly arrange the towels T in the case 10 provided the towels are arranged with their folded portions 32 at their under sides. The case front 10 may be swung to the down or open position to leave the entire front of the case 10 open for the insertion of a supply stack of towels T.

Having described only a typical preferred form and application of my invention, I do not wish to be limited or restricted to the specific details herein set forth, but wish to reserve to myself any variations or modifications that may appear to those skilled in the art or fall within the scope of the following claims:

Having described my invention, I claim:

1. A device for dispensing substantially rectangular paper sheets having folded corner portions on their under sides whereby they are no longer rectangular, said device including a generally rectangular case having angular corner walls whereby it is shaped to receive a stack of said sheets as folded, said case having a discharge opening in its front wall and extending into said angular corner portions, a support in the case for supporting said stack of sheets with the folded portions of the lowermost sheet entirely unsupported and with their forward edges above and slightly at the rear of said opening, a translatable member, means guiding the member toward the opening to unfold the folded portions of the sheets to project them through the opening at said angular corner portions of the case for grasping by the user, and means for operating the member.

2. A device for dispensing substantially rectangular paper sheets having folded portions on their under sides whereby they are no longer rectangular, said device including a case shaped to receive a stack of said sheets as folded, said case having a discharge opening, a support in the case above said opening for supporting said stack of sheets so that the folded portions are entirely unsupported, a translatable member, a guide for guiding the member to unfold the folded portions of the sheets and thus return the sheets to their original rectangular form, the case being shaped so that said unfolded portions are projected through the opening for grasping by the user, and means for operating the member.

3. A device for dispensing paper sheets which have been folded to have folded corner portions on their under sides and a shape other than their original shape, said device including, a case shaped to receive the folded sheets and having a discharge opening, a support in the case above the opening for supporting a stack of the sheets so that their folded portions are entirely unsupported and carrying the stack with the folded portion of the lowermost sheet above the opening, a translatable ejector in the case, means for directing the ejector downwardly and outwardly toward said opening to unfold the folded portions of the sheets and move them downwardly through said opening for grasping, and means for operating the ejector.

4. A device for dispensing paper sheets having folded corner portions, including a case shaped and proportioned to receive a stack of said sheets and having a discharge opening in its front adjacent its bottom, means supporting said stack in the case with its lower end above said opening and with said corner portions entirely unsupported, and means for unfolding said corner portions and projecting them downwardly and outwardly through said opening to be accessible for the purpose of withdrawing the sheets, said means including a translatable ejector in the case, and a track supporting the ejector and having an upper substantially horizontal ejector supporting portion for guiding the ejector in a substantially

horizontal direction during the initial portion of its movement and having a lower inclined and substantially horizontal ejector supporting portion for guiding the forward portion of the ejector so that the ejector is guided in a forward and downwardly inclined position during the latter portion of its movement, and means for operating the ejector.

5. A device for dispensing paper sheets having folded corner portions, including a case shaped and proportioned to receive a stack of said sheets and having a discharge opening, means supporting said stack in the case with its lower end above said opening and with said folded corner portions free and unsupported, and means for unfolding said corner portions and projecting them downwardly and outwardly through said opening to be accessible for the purpose of withdrawing the sheets, the last mentioned means including a translatable member movable in the case, means supporting the member for movement in a direction to unfold the said corner portions, means guiding the member downwardly and toward said opening during its movement, and a pivoted manual lever operatively associated with the member to move the same.

6. A device for dispensing paper sheets having folded corner portions, including a case shaped and proportioned to receive a stack of said sheets and having a discharge opening, means supporting said stack in the case with its lower end above said opening and with said folded corner portions free and unsupported, and means for unfolding said corner portions and projecting them downwardly and outwardly through said opening to be accessible for the purpose of withdrawing the sheets, the last mentioned means including a member movable in the case, means supporting the member for movement toward the opening spaced fingers on the forward end of the member to unfold the said corner portions, cam means in the case for acting on the portion of the member between the fingers to guide the member downwardly during such movement, and means for moving the member.

7. A device for dispensing paper sheets, each sheet having folded corner portions, the device including a case shaped and proportioned to receive a stack of said sheets and having a discharge opening, means supporting said stack in the case with its lower end above said opening and with said folded corner portions free and unsupported, and means for unfolding said corner portions and projecting them downwardly and outwardly through said opening to be accessible for the purpose of withdrawing the sheets, the last mentioned means including a translatable member in the case movable toward said opening, guide means supporting the member for such movement, a finger on the member for unfolding the folded corner portions of the lowermost sheet during movement of the member, and means directing the member downwardly during its movement whereby the finger moves the said folded portions outwardly through the opening.

8. A device for dispensing paper sheets having folded corner portions, including a case shaped and proportioned to receive a stack of said sheets and having a discharge opening, a shelf in the case supporting said stack with its lower end above the opening and with said folded corner portions free and unsupported, a guide below the shelf, a member guided by the guide for movement toward the opening, spaced fingers on the member to unfold the corner portions of the lowermost sheet, cam means on the guide for acting on the portion of the member between the fingers to direct the member downwardly whereby the fingers project said corner portions through the opening, and means for operating the member.

9. A device for dispensing paper sheets, each sheet having portions folded back upon its lower side, the device comprising a case having a discharge opening, means supporting a stack of said sheets in the case with the folded portions of the lowermost sheet unsupported and adjacent and above the discharge opening, a translatable ejector in the case, means guiding the ejector for substantially horizontal movement, means guiding the ejector downwardly and toward said opening following said substantially horizontal movement to unfold the folded portions of the lowermost sheet and thus project said portions through the discharge opening, and means for operating the ejector.

10. A device for dispensing paper sheets, each sheet having corner portions folded back upon its lower side, the device comprising a case having a discharge opening, means supporting a stack of said sheets in the case with the folded portions of the lowermost sheet unsupported and adjacent and above the discharge opening, a translatable ejector in the case, means supporting the ejector for movement toward the opening, means for directing the ejector downwardly and toward said opening during the final phase of its movement to unfold the folded portions of the lowermost sheet and thus project said portions through said opening for engagement by the user, means for actuating the ejector, and means for restoring the ejector after actuation.

11. A device for dispensing paper sheets having adjacent corner portions folded back upon their lower sides comprising, a case including a front having rearwardly divergent corner parts, there being a discharge opening in the front extending across said divergent corner parts, means supporting a stack of said sheets in the case with the said corner portions of the lowermost sheet unsupported and in a plane above the discharge opening, a translatable ejector in the case, means supporting the ejector for forward movement followed by movement downwardly and forwardly to the discharge opening to unfold the said corner portions of the lowermost sheet and thus project them through the opening for grasping at the said corner parts of the case front, and means for moving the ejector.

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