May 15, 1951 F. G. STEINER ET AL 2,553,389

HOLDER FOR DISPENSING MATERIAL IN ROLL FORM

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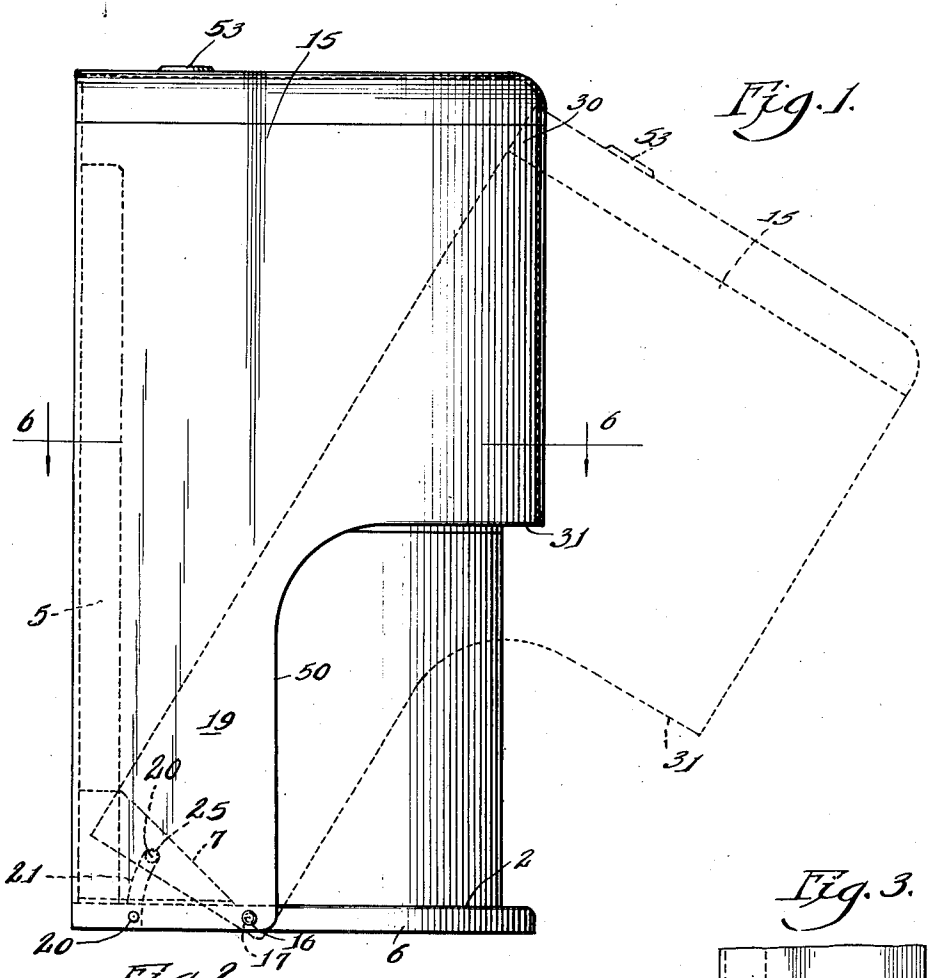


Fig. 1.

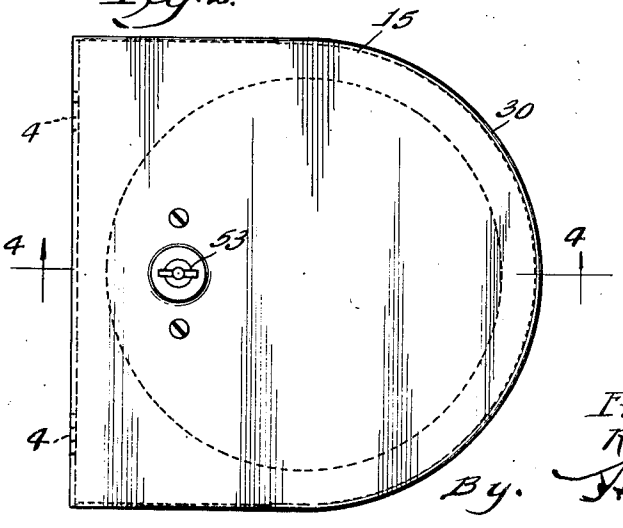


Fig. 2.

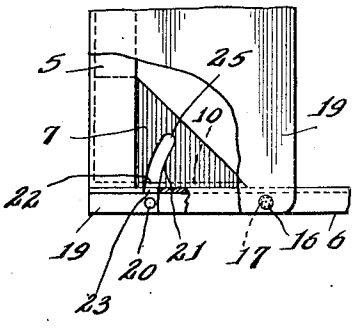


Fig. 3.

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Fig. 4.

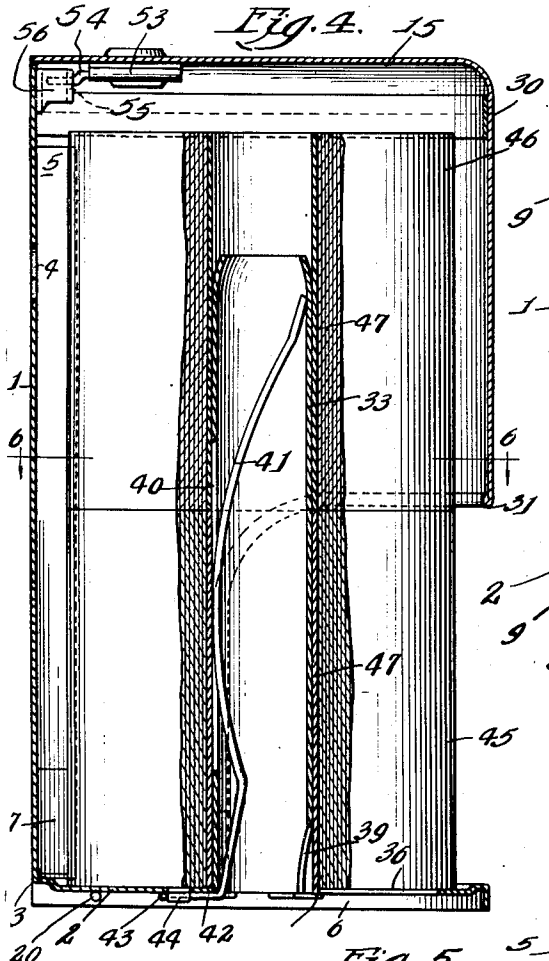


Fig. 6.

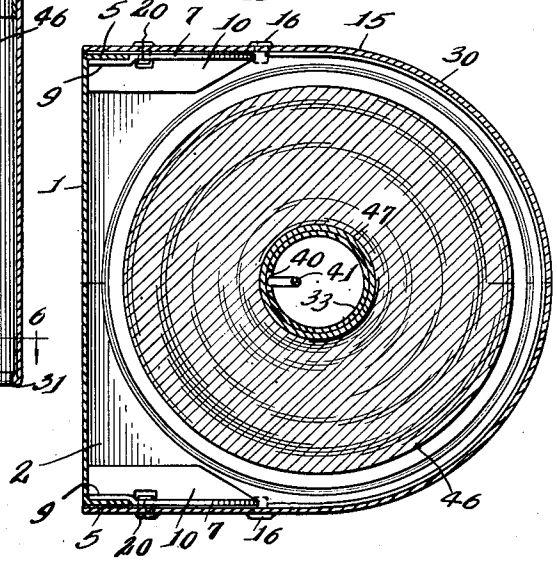


Fig. 7.

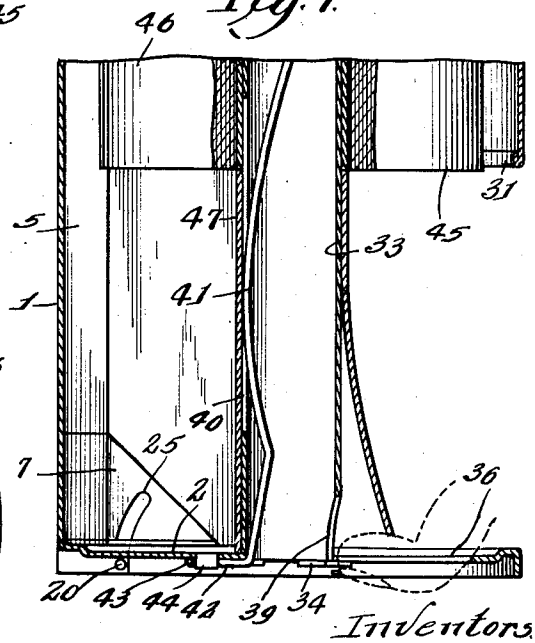
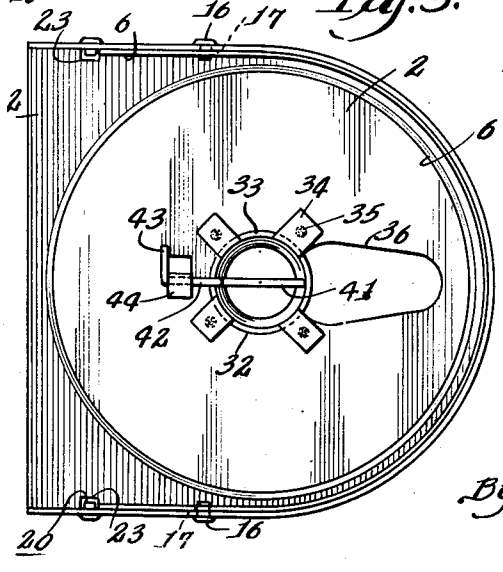


Fig. 5.



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HOLDER FOR DISPENSING MATERIAL IN ROLL FORM

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13 Claims. (Cl. 242—55.3)

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This invention relates to a method and to means for dispensing material successively from each of a plurality of supply rolls and has among its objects to so arrange a plurality of supply rolls that after the material of the lowermost roll of a stack has been removed by dispensing, the supply roll next above can move by gravity into dispensing position.

Another object is to provide a plurality of supply rolls of paper toweling or the like in a single receptacle, and to so arrange the supply rolls that a second roll can be made to come into dispensing position by gravity action as soon as one roll has been dispensed. This object of replenishment by gravity as a result of action by the user, is in one embodiment of the invention obtained by removing the core of a used supply roll, whereby on such removal another supply roll falls into position accessible for dispensing. Another object is to provide storage space for more than two supply rolls by having them stored in a vertical axially aligned position rather than in an axially horizontal position, so that when the bottommost roll of a stack of rolls has been used, the next roll above may fall by gravity into accessible position for dispensing.

In all of these devices known to us which provide for extra storage of rolls and which provide some means by which another replacement may be made without the intervention of the person employed for servicing the cabinet, the rolls are arranged to have their axes in a horizontal position. In such devices the cabinet width must be too great for practical purposes. In other words, the cabinets take up too much room horizontally. In the present device the vertical dimension of the cabinet is increased but its horizontal width is not very much greater than the diameter of the supply roll.

Another object of the invention is to arrange the supply rolls for rotation about a vertical element in superposed axially aligned end-to-end, contacting relation, so that frictional effects due to weight are utilized for yieldably resisting withdrawal of the paper of the lower supply roll through a dispensing opening.

Another feature of this invention relates to the manner of connecting the cover to the inner section and to the arrangement by which said cover can be tipped forwardly to permit paper supply rolls to be dropped in an axial direction downwardly over an upright tubular element so that they are axially aligned and capable of rotation and capable of downward motion by gravity. This cabinet structure feature can be used for

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a single roll as well as for storage of a plurality of rolls.

Another feature of the invention relates to the relation of the top of the uppermost supply roll when the cabinet is loaded, whereby the core of the used lower roll can easily be torn by an upward stroke of a tool or by a finger of the hand and then removed to allow the next supply roll above to fall into dispensing position. During upward tearing operation the core is held from undue upward motion by the engagement of the uppermost supply roll with the top wall of the cover. Thus, this upward core-tearing force can be effective.

Objects, features and advantages of the invention will appear in the description of the drawings forming a part of this specification, and in said drawings—

Fig. 1 is a side elevation of the closed cabinet loaded and ready for dispensing, and showing in dotted lines the position of the cover during loading of the cabinet;

Fig. 2 is a top plan of the cabinet of Fig. 1;

Fig. 3 is a side elevation of the lower part of Fig. 1 broken away to show the relations of the pivoting and stop means for the cover, to a stiffening bracket;

Fig. 4 is a vertical section taken approximately on line 4—4 of Fig. 2 showing the cabinet loaded and ready for dispensing;

Fig. 5 is a bottom view of the cabinet;

Fig. 6 is a plan section taken approximately on line 6—6 of Fig. 4; and

Fig. 7 is a section like Fig. 4 illustrating how the upper supply roll is held by the core of the lower supply roll after the paper has been dispensed from the lower roll, and illustrating how the lower core can be removed to permit the upper roll to fall into dispensing position.

Referring first to Fig. 4. The numeral 1 designates the back, formed in one piece with the bottom 2 by bending the sheet metal at 3. This structure constitutes the inner section. The back has key-hole openings 4, by which the cabinet can be hung on a wall. The back has vertical lateral stiffening flanges 5, one at each side as best shown in Fig. 6. The bottom is provided with a downwardly extending peripheral stiffening and finishing flange 6, the shape of which is best shown in Fig. 5. It will be noted that the forward part of this flange is semicircular to conform to the configuration of the forward part of the bottom.

The black 1 and the bottom 2 are rigidly connected by a pair of stiffening brackets desig-

nated 7, see Figs. 3 and 6. The rear end 9 of each bracket 7 is welded to the inner side of a corresponding flange 5. Each bracket has a foot flange 10 which is welded to the top surface of the bottom 2. These brackets perform the double functions of braces and of stops for limiting opening movement of the cover.

A feature of the invention is the arrangement of the cover, and means for limiting its forward motion at a position permitting loading of the cabinet from the top. The cover is generally indicated by the numeral 15 and each side of the cover carries a pivot 16 which engages in a corresponding opening 17 of the flange 6 of the bottom 2. A feature of the invention is that the pivot 16, as well as a stop pin 20 for the cover, can be applied to the bottom 2 by springing the relatively narrow side portions 19 of the cover outwardly, registering the pin 16 and the stop pin 20 with the openings 17 and slots 21, and then allowing the portions 19 to spring inwardly. Each springable portion 19 of the cover also carries the stop pin 20, and these pins ride in the slots 21 (see Figs. 1, 3 and 6) of the stiffening plates 7. When the cover is closed the pins 20 lie as shown near the rear ends of the flange 6 of the bottom, and below the horizontal wall of the bottom, which wall supports the supply roll, to be dispensed. To reach this position the pins 20 pass through openings 22, 23 (see Fig. 3) provided respectively in the flanges 10 and in the bottom 2. When the pins 20 engage the top 25 of the slot 21 as shown in Fig. 1 the cover is so positioned that the cabinet can be loaded from the top. A feature of the invention is the use of the stiffening plates 7, the slots 21 in said plates and their relation to the openings 17 in the flange 6 of the bottom 2.

The main features of this invention are the method and means by which an upper supply roll rests by gravity upon a lower supply roll so that when the paper of the lower roll has been dispensed, the upper roll drops by gravity to a position for dispensing.

Referring now to Figs. 1, 4 and 5. The upper part of the cover 15 has a semicylindrical front portion 30 which extends, in the case of a two-roll cabinet, downwardly from the top to a point about midway of the height of the cabinet. The bottom of this semicylindrical portion is indicated at 31. This lower margin 31 is spaced upwardly from the bottom 2 a distance slightly greater than the axial length of the supply roll of paper which is to be dispensed, so that the paper can be pulled forwardly and outwardly and torn off.

In order to hold the paper for rotation and to provide means to yieldably resist rotation of the lower roll, the following means is provided: In the bottom 2 there is provided an opening (see Fig. 5) indicated at 32 upwardly through which is passed a tubular element 33. The bottom of this tubular member has bent-over lugs 34 which are attached as by spot welding at 35 to the bottom 2 to secure the tubular member 33 in upright position. The vertical axis of this tube 33 coincides with the center of curvature of the outer side of the bottom and of the cylindrical portion of the cover. The opening 32 is extended forwardly as at 36 to provide an opening into which a tool or the finger of the hand can be introduced for the purpose of tearing off the core of a used roll by an upward movement, in a manner to be described. The position of the finger for tearing action is shown

in Fig. 7 and to facilitate this action the tubular member 33 is cut away as at 39 from its bottom upwardly as shown. This opening allows the tool or finger to engage the inner surface of the paper core.

This tubular member 33 is also provided at a point diametrically opposite the cut-out portion 39 with a vertical slot 40. Associated with this slot is a spring which normally lies at a point outside of the tube when the cabinet is unloaded, and which is adapted to frictionally engage the inner surface of the core 47 of the supply roll to yieldably resist rotation of the roll. This spring is generally designated 41 and its lower end 42 is bent horizontally and engages the under surface of the bottom 2, and has a laterally bent portion 43 which is clamped in position by a struck-out lug 44 of the bottom. This structure is a feature of the invention, and it is to be noted that the tube and spring are adapted to be separately assembled. As thus associated with the tubular element 33, the spring constitutes broadly means by which frictional drag on the supply roll during dispensing may be obtained.

The lower supply roll is indicated by numeral 45 and the upper supply roll by numeral 46. More than two supply rolls may be superposed and housed. The cores 47 of the supply rolls are usually provided as means upon which to wind the paper, the cores being removable from the winding machine after winding. While it is preferable to use cored rolls, rolls without cores may sometimes be used. The dispensing opening (see Fig. 1) is defined by the forward edges 59 of the lower parts 19 of the cover 15 and by the lower edges 31 of the upper cylindrical portion of the cover and by the bottom 2. The dispensing opening thus defined is preferably made as shown but may be made smaller if desired by widening the elements 19 and thus bringing the vertical forward edges of these elements 59 nearer the front of the cabinet.

The cover is provided with a lock generally indicated at 53 which has a latch arm 54 engageable with the lateral keeper extension 55, of bracket 56 which is attached to the back of the cabinet 1. When the latch arm 54 is moved away from the keeper 55, the cover can be swung to the position shown in dotted lines in Fig. 1, at which forward position it is limited by the pins 20 engaging the tops of slots 21 of the reenforcing brackets 7. It is noted that when the cover is in the dotted-line position, the supply rolls can be dropped downwardly over the tubular element 33.

It will be noted that the upper roll 46 is so supported on the tubular member 33 that as soon as the core 47 of the lower roll has been removed the upper roll will fall by gravity to dispensing position. Although the paper is ordinarily wound on a core for convenience in winding, yet the present invention is applicable to rolls which do not have cores and in such a case, the upper roll, resting as it does by gravity on the top of the lower roll, will automatically move by gravity to dispensing position just as soon as the paper of the lower roll had all been dispensed. The same action can be had with or without cored rolls, when more than two rolls are superposed in axially aligned relation. Therefore, while the method use of the cored rolls is claimed herein per se, it is considered that the invention is broader than the use of cored rolls, notwithstanding that the use of cored

rolls seems at present to be preferable. In both cases, of course, the rolls are supported for rotation in axially aligned relation with sufficient play between the tubular element and the opening of the rolls to allow all rolls to fall by gravity to their respective positions, the upper roll falling to dispensing position after the paper or the core of the lower roll has been removed.

In this device the supply rolls are supported in end-to-end relation to rotate about a common upright axis, with the end of the lowermost roll flatly frictionally engaging the flat bottom wall or surface of the cabinet and with the lower end of the upper roll in flat frictional engagement with the flat upper end of the bottom roll. Where cored rolls are used, the core of an upper roll engages the core of a lower roll.

The engaged end surfaces of two or more supply rolls of paper provide a friction resistance to rotation of the lower roll due to the combined weight of the two or more rolls in forcing the bottom surface of the lower roll against the flat bottom surface of the cabinet.

Thus, a stack of rolls thus superposed and gravity-engaged provide a device by which the lowermost roll of the stack is yieldably yet relatively strongly held against rotation due to pulling action on the paper. In the present embodiment this friction action is supplemented by spring 41.

What we claim is:

1. A dispensing cabinet having therein an upright spindle adapted to receive and rotatably support a plurality of gravity-superposed supply rolls, the cabinet having a dispensing opening only permitting dispensing of the material of the lowermost roll, said cabinet having a cover which when open permits filling of the cabinet by dropping the supply rolls downwardly over said spindle.

2. A dispensing cabinet having an inner section having, a bottom, an upright member attached to the bottom and free at its upper end and adapted to receive and support for rotation thereabout a plurality of superposed supply rolls, a cover for the inner section attached thereto to be movable in a manner to permit introduction of supply rolls downwardly into rotative relation with the upright member, said cover having a dispensing opening extending upwardly from the bottom of the inner section to a height only sufficient to permit dispensing of paper therethrough from the lowermost roll of the superposed rolls.

3. A dispensing cabinet having a bottom, a dispensing opening extending upwardly from said bottom to a height substantially equal to or slightly greater than the axial length of the supply roll from which paper is to be dispensed, an upright element extending upwardly from the bottom wall of the cabinet and adapted to hold for rotation thereon at least two superposed supply rolls of paper, each of which has a winding core, and means in the bottom of the cabinet facilitating access to the core for tearing the core of the lowermost roll to remove it after the paper has been removed therefrom, whereby to allow the upper roll to move into dispensing position.

4. A dispensing cabinet having a bottom, a dispensing opening extending upwardly from said bottom to a height substantially equal to or slightly greater than the axial length of a supply roll from which paper is to be dispensed, an upright element extending upwardly from the bottom wall of the cabinet and adapted to hold for rotation thereon at least two superposed supply rolls of paper, and means associated with said upright element and adapted to yieldably resist rotation of the lowermost roll during dispensing.

5. A dispensing cabinet having a bottom, a dispensing opening extending upwardly from said bottom to a height substantially equal to or slightly greater than the axial length of a supply roll from which paper is to be dispensed, an upright element extending upwardly from the bottom wall of the cabinet and adapted to hold for rotation thereon at least two superposed supply rolls of paper, and means associated with said upright element and adapted to yieldably resist rotation of the lowermost roll during dispensing, said means adapted to be moved by the lowermost roll to condition it for the aforesaid action as said roll assumes dispensing position.

6. A dispensing cabinet having an inner section including a bottom, an upright member attached to the bottom and free at its upper end and adapted to receive and support for rotation thereabout a supply roll of material to be dispensed, and a cover for the inner section attached thereto to be movable in a manner to permit introduction of a supply roll downwardly into rotative relation with the upright member, said cover having a dispensing opening extending upwardly from the bottom of the inner section to a height sufficient to permit dispensing of the material of the supply roll therethrough.

7. A device of the class described, adapted for dispensing a rolled supply of paper having a hollow core, comprising, an inner section adapted to be hung on a wall, a cover section, means pivoting the cover section to the inner section so that the top of the cover section can swing outwardly to permit dropping the supply rolls into the wall section from the top, the bottom portion of the cover section having a dispensing opening extending upwardly from its bottom to a height substantially equal to the axial length of a supply roll which is to be dispensed, an upright element attached to the bottom of the inner section and of a length adapted to receive and rotatably hold at least two superposed supply rolls, means associated with the upright element adapted to act on a lower roll to yieldably resist its rotation about said upright element, the relation of the top wall of the cover to the top of the uppermost supply roll being such as to act as a stop for limiting movement of that roll, the said bottom having an opening which permits introduction of the finger below the core of the bottommost roll after the paper has been removed therefrom, whereby upward movement of the finger may tear the core lengthwise to permit its removal.

8. A dispensing cabinet having, an inner section comprising, a back and a bottom on which the supply to be dispensed rests, a pair of brackets rigidly connecting said back and bottom to hold them in predetermined angular relation, a cover adapted to enclose the inner section, means pivoting the cover to the bottom in a manner to permit forward opening movement of the cover to a position to permit introduction of a supply roll from above downwardly to engage the bottom of the inner section, and means on the cover and on the brackets cooperable to limit the forward movement of the cover to the aforesaid position.

9. A dispensing cabinet having, an inner section comprising, a back and a bottom, means pivoting the cover to the bottom in a manner to

permit forward opening movement of the cover to a position to permit introduction of a supply roll from above downwardly to engage the bottom of the inner section, a member rising from the bottom and adapted to receive a supply roll which is dropped in from above and to rotatably support such a roll, said cover having a dispensing opening through which the material of a supply roll can be withdrawn only after the engagement of the bottom of such a roll with the bottom of the inner section.

10. A dispensing cabinet having, an inner section comprising, a back and a bottom, means pivoting the cover to the bottom in a manner to permit forward opening movement of the cover to a position to permit introduction of a supply roll from above downwardly to engage the bottom of the inner section, said cover having a dispensing opening through which the material of a supply roll can be withdrawn only after the engagement of the bottom of such a roll with the bottom of the inner section.

11. A dispensing cabinet having an inner section, an upright member attached to the inner section and free at its upper end and adapted to receive and support for rotation thereabout a supply of material to be dispensed, a cover for the inner section attached thereto to be movable in a manner to permit introduction of a supply roll downwardly into operative relation with said upright member, said cover having a dispensing opening extending upwardly from the lowermost part of the inner section to a height sufficient to permit dispensing of the material of the supply roll therethrough, and means for limiting downward motion of the supply roll at a position to permit dispensing through said opening.

12. A dispensing cabinet having a bottom wall and a dispensing opening near the bottom wall, and upright means anchored to the bottom wall

and over which supply rolls of sheet material can be dropped to be rotatably supported in superposed end-to-end relation so that the rolls can move by gravity in direction of their axes toward said dispensing opening, said opening being of such height as to only permit dispensing withdrawal of the material of the lowermost roll outwardly therethrough.

13. A dispensing cabinet having a bottom wall having an opening, a tube anchored to the bottom wall and in continuity with said opening of the bottom and over which supply rolls of sheet material can be dropped to be rotatably supported in superposed end-to-end relation so that the rolls can move by gravity in direction of their axes toward said dispensing opening, said opening being of such height as to only permit withdrawal of the material of the lowermost roll outwardly therethrough, said tube having an opening, and a spring wire adapted to pass through the tube opening and yieldably resist rotation of the lowermost roll during dispensing, said wire being detachably secured to the bottom of said bottom wall.

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