May 27, 1941. F. G. STEINER ET AL 2,243,686

DISPENSING CABINET

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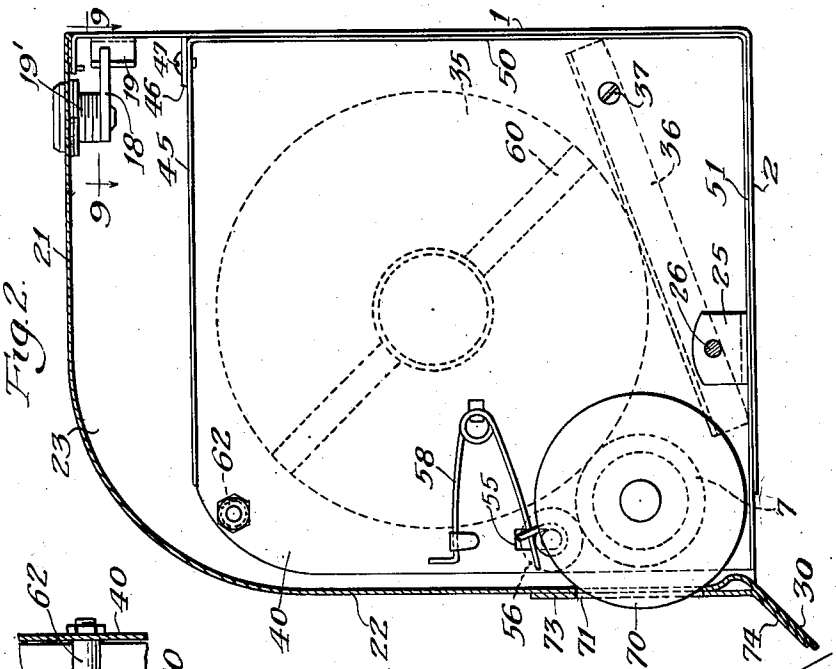


Fig. 2.

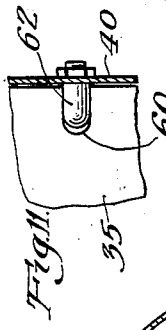


Fig. 11.

Fig. 1.

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Fig. 3.

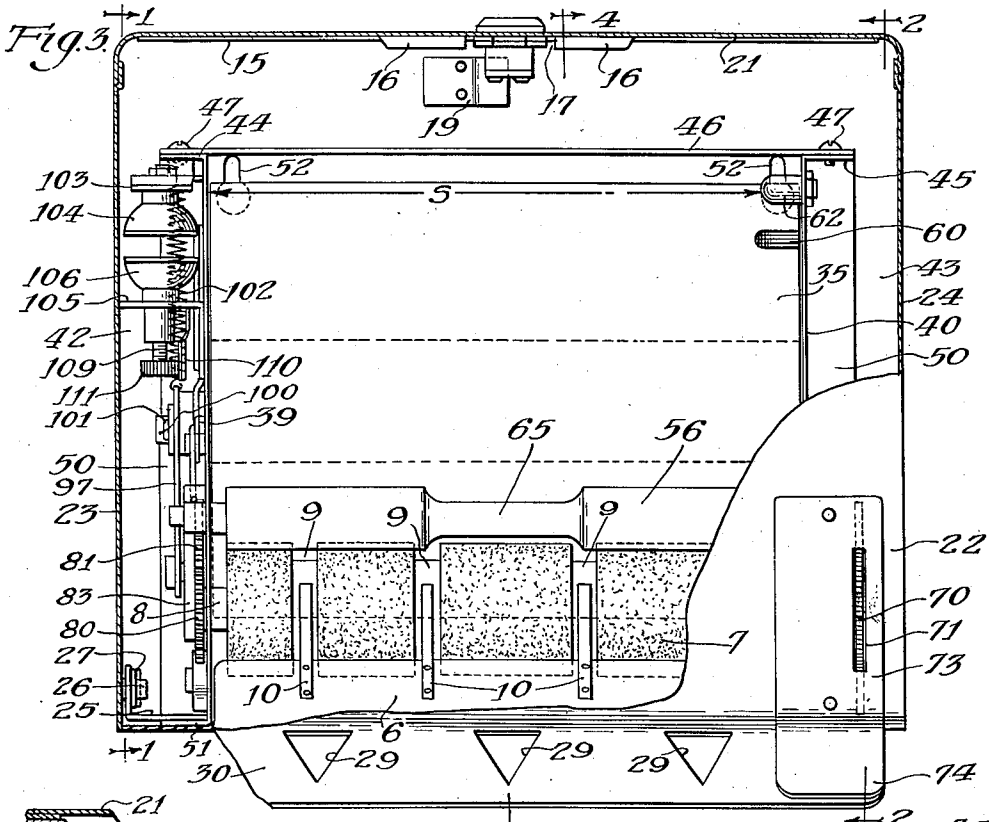


Fig. 4.

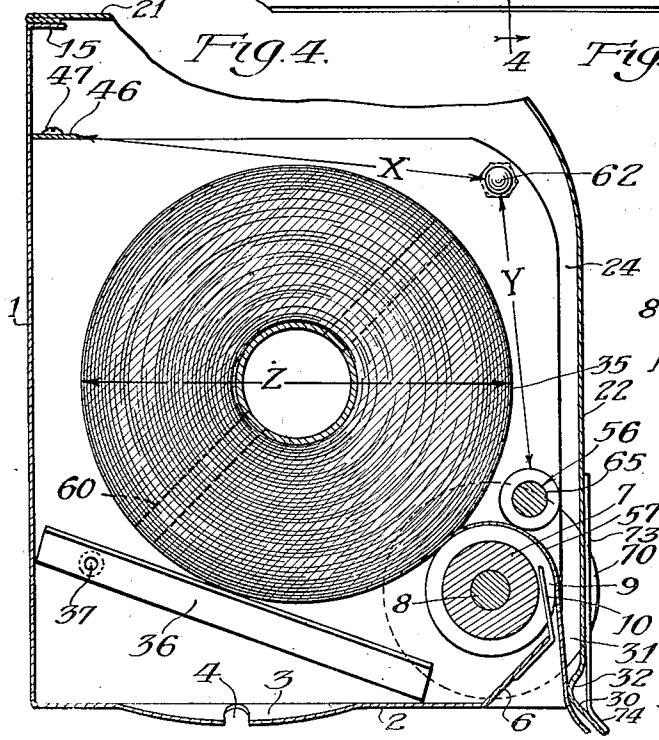
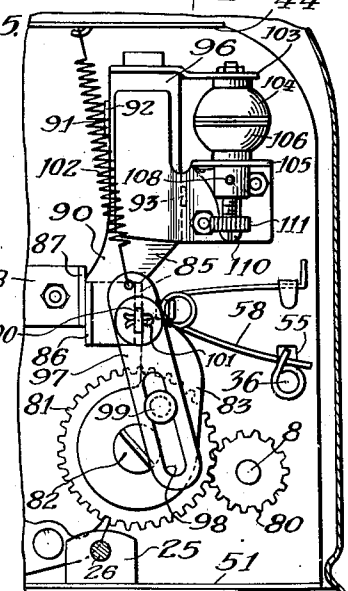


Fig. 5.



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Fig. 10.

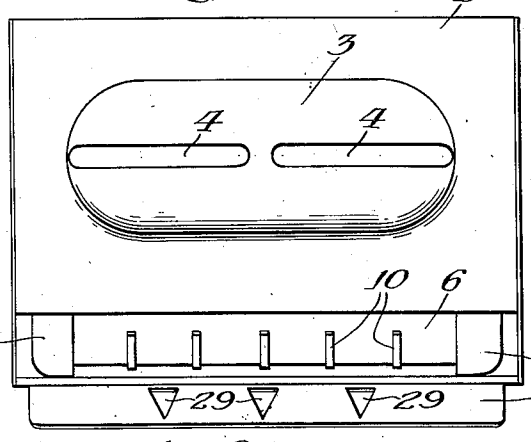


Fig. 6.

Fig. 7.

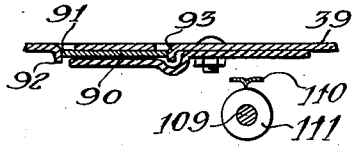
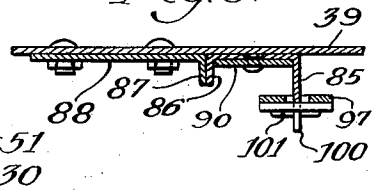


Fig. 8.



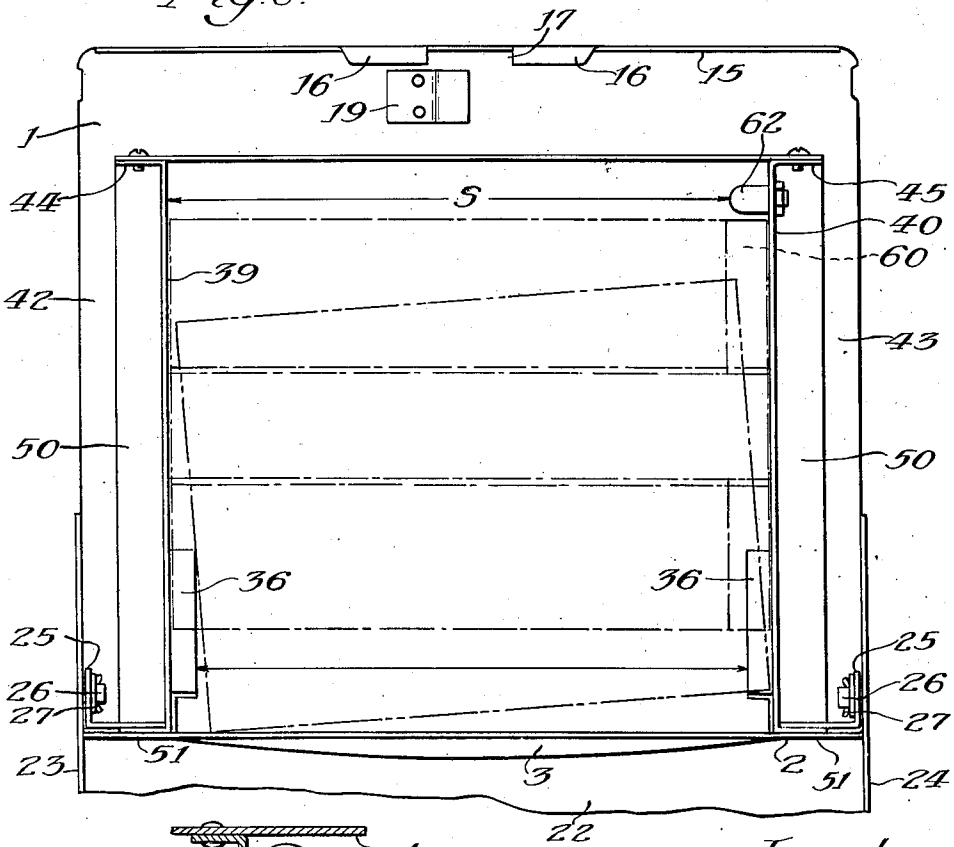
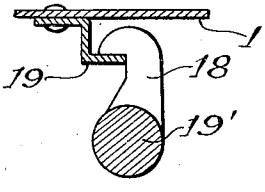


Fig. 9.



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UNITED STATES PATENT OFFICE

2,243,686

DISPENSING CABINET

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Application May 24, 1939, Serial No. 275,450

2 Claims. (Cl. 242—55.5)

This invention relates to improvements in dispensing cabinets for sheet material, and has among its objects to provide a simple construction which can be relatively cheaply manufactured.

Features of the invention include: Means by which to force the attendant when servicing the cabinet to use a roll of a certain length and place the roll in right relation to the feeding mechanism; the use of a pin and slot or its equivalent for forcing right placement; the use of means for forcing right placement in combination with a support which will only hold the roll in proper feeding relation if the roll is of the proper length; the construction whereby the supply roll is caused to fall off of its supports and be so conditioned that proper feeding cannot occur, if a roll having an axial length substantially less than a required axial length is laid upon the supports; the use of a pin in the supply roll receiving chamber and the arrangement of that pin near the front of the cabinet and over a dispensing roll which is also arranged near the front of the cabinet; and all details of construction in relation to the roll and its supports, along with the broader ideas of means inherent in the disclosure.

Objects, features and advantages of the invention will be pointed out in the description of the drawings forming a part of this invention; and

In said drawings

Figure 1 is a vertical section substantially on line 1—1 of Figure 3 viewing the stop mechanism in its released position;

Figure 2 is a vertical section substantially on line 2—2 of Figure 3 looking at the opposite side of the inner portion of the casing;

Figure 3 is a front view of the cabinet with the door closed, but broken away to show the interior structures;

Figure 4 is a section on line 4—4 of Figure 3;

Figure 5 is a view also taken on line 1—1 of Figure 3, but showing the stop in stop position as substantially at the beginning of the timing interval;

Figure 6 is a front view of the cabinet with the feed rolls and stop mechanism removed and showing the relation of the supply roll to its supports and to the pin, and illustrating how an unslotted roll of a length which can pass the pin will not be long enough to be properly supported, or will fall off of the supports at such an angle as to jam;

Figure 7 is a section through the slide and guide mechanism of the stop mechanism taken on line 7—7 of Figure 1;

Figure 8 is a horizontal section taken on line 8—8 of Figure 1 through the slide and one of the guides therefor;

Figure 9 is a plan section on line 9—9 of Figure 2 through the mechanism for locking the cover and base sections together to prevent tampering;

Figure 10 is a bottom view of the cabinet; and

Figure 11 is a plan section showing the relation of the pin to the slot in the roll.

In the drawings, the numeral 1 indicates the back of the cabinet, and numeral 2 the bottom thereof. The bottom and back are formed in one piece, or section, as best shown in Figure 4. The bottom is pressed outwardly and downwardly to form a depression 3 having slots 4 and arranged as shown. The slots are so positioned that dust or dirt rolls downwardly and outwardly through the slots. The depressed portion 3 is elongated, as shown in Figure 3, in a direction transverse of the cabinet or parallel with the axis of rotation of the feed rolls and the supply roll.

A forward portion of the bottom 2 is bent upwardly as at 6, so that its upper edge is arranged close to a feed roll 7 suitably journaled on an axis or shaft or trunnions 8 in a manner to be hereinafter described. This feed roll is grooved as at 9, and the upwardly, outwardly slanted portion 6 has attached thereunto suitable fingers 10 which cooperate with the groove to direct the paper downwardly and outwardly.

The upper edge of the back has an inturned or forwardly directed horizontal flange 15, which in turn has at its forward edge downwardly turned flanges 16 spaced apart to provide an opening 17. Below this cut out portion 17 and below the flange 15 is arranged a keeper 19 with which the hook 18 of a lock generally indicated at 19' engages to secure the cover. The locking mechanism is not described because it is of well known construction, but it will be understood when the key is inserted in the lock and the lock is rotated, the hook 18 is swung from the position shown in Figures 2 and 9, for example, to a release position which allows the front cover to be swung forwardly and downwardly below the bottom 2 to act as a shelf.

The front cover is substantially formed of three parts, one part of which forms the top 21 and the front 22, the other two parts forming the sides respectively indicated at 23, 24, all parts

together forming a four-sided compartment. The hinging means includes a pair of L-shaped brackets arranged one at each side of a pair of upright journaling plates later to be described, said brackets being indicated by numerals **25**. Each bracket rests on the top of a flange of a corresponding feed roll journaling plate and each has an upturned outer portion through which passes a pivoting pin **26**, one pin being attached to the side **23** and the other to the side **24**. A split key **27** secures the pin **26** against outward movement. The pins are introduced into openings of the brackets from opposite sides by movement toward one another after the sides of the device have been preliminarily sprung outwardly. The straightening of the previously sprung sides **23, 24** tends to hold the pins in position.

The placement of these pins in relation to the inner and outer sections is such that when the cover is swung outwardly and downwardly to its lowermost position (while the inner section hangs on a wall), the outer edge of the knife portion, later to be described, engages the bottom wall of the cabinet as a stop to limit rearward swing. In such a position the cover forms a receptacle for a temporary placement of the supply roll. From this position the end of the paper can be started or threaded through the rolls, and then the supply can be lifted and placed in position within the cabinet.

The tear-off knife is a downwardly, forwardly extending part of the bottom of the front wall **22** of the cover, and is best shown in Figures 1, 3 and 4. This extension is indicated at **30** and it has paper-sighting openings **29** therein, as best shown in the bottom plan view, Figure 10.

Referring to Figure 4, it will be noted that the front **22** of the cover or outer section and the upturned part **6** of the bottom of the case form a throat **31** downwardly through which the paper is projected from the feed roll **7**. The front **22** is bent to provide a bead **32** around which the paper passes to a point beneath the knife. The bead **32** constitutes means for holding the projecting end of the paper, remaining after tear-off, away from the knife so that the fingers or thumb can be introduced between the inner side of the knife and the paper, for grasping the paper to pull out more of it.

As shown in Figure 4, the supply roll **35** is so supported that it simultaneously rests upon the feed roll **7** and upon supporting means, specifically upon a pair of supports, each indicated by the numeral **36**. These cross sectionally L-shaped supports are held by a single fastening device indicated at **37**, the supports being swingable about this fastening device and their lower ends being in contact with the bottom of the inner section of the casing. The weight of the roll tends to hold them in that position. Due to the inclination of the ledges or movable supports **36**, the paper tends to roll constantly toward the feed roll **7**, no matter how small the roll becomes. This makes for even pull-feed action. It is equally efficient in any cabinet in which the paper supply is in roll form, whether it be of pull-type or crank-operated type of feed. Moreover, there is no intention to entirely limit the invention to supports such as **36**.

The provision of the elements **36** and the arrangement by which they are separately adjustable provides means whereby leveling of the supply roll in relation to the dispensing roll can be obtained conformably to variations in winding irregularities in the supply roll, and whereby the degree of contact pressure of the supply roll with the dispensing roll can be varied conformably to the changing weight of said roll resultant from use.

The construction for the journaling support for the rolls and for the mounting of a stop mechanism includes two upright plates respectively indicated at **39, 40**. It is to the inner sides of these plates that the inclined supports **36** are attached and it is between these plates that the supply and feed rolls are disposed. Each plate (see Figure 2) has at each of three margins an outwardly directed flange, the flanges pointing toward the sides **23** and **24** of the cabinet. These elements **39, 40** are spaced to provide lateral chambers respectively indicated at **42, 43**. The top flanges for the plates are respectively indicated at **44, 45** and these flanges are cross-connected by a bar **46** held by suitable screws **47**. The rear flanges are indicated at **50** and the bottom flanges are indicated at **51**. The bottom flanges **51** are spot welded to the bottom **2**, as are the flanges **50** spot welded to the rear wall **1** of the cabinet. Key-hole slots **52** are provided in the rear wall so that the cabinet can be hung on suitable fastening devices (see Figure 3). This flanged and welded structure braces the vertical and horizontal parts of the inner section and provides an unusually strong cabinet, by the use of a minimum amount of material.

As before stated, the feed roll is suitably journaled by means of a shaft **8**, and the plates **39, 40** form part of the journaling means, the said shaft or equivalent trunnions passing through bearing collars punched out of the plates **39, 40**. These plates also have slots **55** in which are journaled a presser roll **56** pressed into engagement with the paper **57**, as best shown in Figure 4. Springs **58** suitably secured, as best shown in Figures 1 and 5, yieldably hold the roll in the position shown in Figure 4.

Reverting to the feature wherein the attendant is forced to properly place the roll, and by which proper feeding action is interfered with when a roll of shorter axial length is placed in the cabinet. Referring to Figures 3 and 4. The axial length of the supply roll is about equal to the horizontal distance between the plates **39** and **40** and the supply roll has an inwardly directed diametric slot **60**. Referring to Figure 4. A pin **62** projects inwardly from the plate **40**, this pin being slightly shorter than the axial depth of the slot **60**, said slot being of sufficient width so that its sides can rest and slide on the pin as the roll is moved inwardly in the direction of the arrow A of Figure 4 when servicing the cabinet. It is noted that only one end of the roll has a slot **60** so that unless the slot is arranged on the same side as the pin (of which there is only one), the roll cannot be introduced. Moreover, when the roll is placed so that the slot is on the same side as the pin registration must be obtained between the slot and the pin before the roll can be moved inwardly. This is done while the pin is in register and while the walls of the slot engage and move along or are guided by the pin.

Referring to Figure 4, it is noted that the diameter of the full roll represented by the letter Z is greater than the distance X from the inner side of the pin **62** to the forward edge of the bar **46** so that a roll of full diameter cannot be dropped in from the top. Also, the diameter Z is greater than the distance Y from the bottom of the pin to the top of the presser roll **56** so that the full roll cannot be introduced in this direc-

tion. If an attempt is made to use a roll of a diameter Z, but of a length S which is slightly less (see Figure 3) than the distance between the end of the pin and the inner side of the plate 39, then the roll will not be properly supported by the elements 36. The reason is that the inner edges of these elements are so spaced (see Figure 6) that although a roll of such shorter length can bridge and rest on the supports, it will move axially during feeding and one of its ends will slip from one of the supports while its opposite end is held, and the axis of the roll will assume a non-parallel relation with the axes of the feed rolls to cause jamming. In the front view the roll of proper length is shown in dot-and-dash lines and the roll of improper length is shown in two dots-and-dash lines. Right placement gives the right curl to the paper under the knife. It is seen that the pin and slot arrangement prevents wrong placement, and that the pin and slot in conjunction with the support arrangement makes it very inconvenient, if not impossible, to get a proper operation when a roll of a lesser length is used.

It is noted that this device requires a dispensing roll of a predetermined axial length which in length is substantially equal to the horizontal distance between the two upright walls of the chamber. The pair of spaced supports is adapted to only receive and support by its opposite end portions a supply roll which is of the above mentioned predetermined axial length, and these supports are adapted to support said supply roll in proper feeding relation with the dispensing roll whereby if the supply roll is shortened to a certain degree it will fall off of the supports and proper feeding cannot occur. In this case if the length of the roll is shortened by an amount equal to the depth of the slot 60, this falling off will occur. Therefore, in order that proper feeding take place the roll must be of a predetermined length, and if a very much shorter roll is used it will fall off of the supports.

Another feature which facilitates introduction of the leading end of the paper between the rolls, is the cut-out reduction in diameter of the middle part of the presser roll 56. This cut out portion is indicated at 65. Two or three human fingers can be introduced into this reduced portion of the presser roll, the tips of the fingers at this point pressing the paper inwardly toward the meeting point of the roll. This can be accomplished whether the supply roll is pocketed in the outer casing or cover when open, or after the supply roll has been placed within the cabinet by sliding past the pin 62. In either instance the paper is preliminarily laid on top of the presser roll and then the fingers are curved and the paper is pressed into the reduced portion with the fingers curved, their tips turn or move the roll to move the paper toward and into the bite or meeting points of the rolls. After the paper is brought through the rolls its forward portion is pulled so that it lies in the receptacle or cover and then as the cover moves to its closed position the end of the paper falls below the end of the cabinet, in proper relation to the tear-off blade.

Referring to Figures 3 and 4. Attached at one end of the roll 7 between the plate 40 and the side 24 is a feed roll operating disk 70 which projects through slots 71 respectively in the front 22 of the cover, and in a finishing plate 73. The plate is suitably secured by fastening devices and is has an outwardly, downwardly bent portion 74 which overlies the tear-off knife 30. It will be understood that this disk is used for starting the paper after tear-off, the paper after tear-off lying against the under side of the knife and being visible only through the sighting openings 25.

A stop mechanism, its structure and assembly arrangement will now be described. Referring to Figure 1 which shows the stop mechanism in its normal or non-stop position. Figure 5 shows the stop mechanism in stop position. The only essential difference in the positions of these figures is the positions of the slide. In Figure 1 the slide is in its uppermost position with its cushion engaging the flange 44, and in Figure 5 the slide is in its lowermost position with the vacuum cups in vacuum attached relation. It will be understood that when the mechanism is operated from its position in Figure 1 the slide is lowered even below the position shown in Figure 2 to primarily compress the cups, and then the resiliency of the cups moves the slide slightly to the position shown in Figure 5.

The axle or trunnion 8 of the feed roll 7 projects laterally through the plate 39 and has attached thereto a small spur gear 80. This gear meshes with a second larger gear 81 suitably journaled on a screw 82 carried by the plate 39. Suitably attached to the outer face of this gear 81 is a stop arm 83 which is adapted to engage the outer side of a stop flange 85, which is part of a slide 90. This flange is part of a channel-shaped element having an opposite flange 86 slidingly engaged with the flange 87 of a bracket 88 suitably secured to the outer side of a plate 39. The channel element is suitably secured to a slide element generally indicated at 90.

The inner face of the slide lies against the outer face of the plate 39 and the inner upright edge 91 of the slide is engaged with another guide member 92 preferably struck out of the plate 39 and this element 92 and the flange or element 87 guide the slide on the inner side. It will be seen from the dot-and-dash line position of Figure 1 that as the arm 83 moves in clockwise direction the slide is lowered. This is accomplished by means of a link later to be described, and in the dot-and-dash line position shown it will be noted that when the arm 83 moves in counter-clockwise direction, which it is now supposed to be doing, the principal thrust of the slide is against the element 87, while there is a tendency to rock the upper part of the slide to the right against a strike-out guide 93, which lies under a part of a timer-supporting bracket 94, suitably secured to the outer face of the plate 39. The bracket is arched to receive the guide 93, and the bracket 94 has a portion 95 overlying the upper part 96 of the slide 90, and the slide is held between this portion 95 and the outer surface of the plate 39.

Three guiding elements are thus provided for the slide, one adjacent its upper end, one near its bottom, both on the same side, and one near the middle on the opposite side. The first and last mentioned guides are struck up from the plate, the lowermost guide is detachably secured by bolts. In order to make room for the struck out middle guide the bracket is bowed outwardly, as shown, and this bowed portion merges into the attached portion of the bracket and into that portion which overlies the slide and prevents its outward movement from the upright 39.

The slide is moved to stop position and released for independent movement away from that position, by means of a link 97, slotted as at

98. A pin 99 passes through the slot and thus rotatably and translatably attaches the link to the gear 81. The opposite end of the link is pivoted to an outward extension 100 of the flange 85, and a split key 101 and a suitable washer secures the link in pivotal relation. The upper end of the link is attached to one end of a spring 102, the opposite end of which is attached to a struck-out portion of the flange 44, as best shown in Figure 1. This spring, it will be seen, acts through the link to raise the slide, as soon as it is released by the link, so that when the parts are positioned as in Figure 5 and the vacuum is released the link is free to slide upwardly under the action of the spring.

At the upper part of the slide is an extension 103 to which is attached a vacuum cup 104. The bracket or plate 94 has a shelf 105 upon the top of which is mounted another vacuum cup 106 which cooperates with the vacuum cup 104 in the manner to be described. This vacuum time-stop device is not herein claimed per se, inasmuch as it is covered in other pending applications. It will be understood that an intake opening 108 admits air within the cups so that the vacuum is gradually released, and the rate of air entry can be adjusted by means of a screw 109, yieldably held for adjustment by means of a spring 110 (see Figure 3) acting on the screw head 111.

It can be seen by an inspection of Figure 1 that the stop mechanism is, in this instance, arranged at a level above the feed roll, so that as the feed roll rotates the slide is pulled downwardly against the action of the spring 102. During downward action the link causes the flange 86 to be pressed against flange 87, the spring also acting at this time to press the slide rearwardly in the same direction against its two guides. Rocking tendency towards the right is prevented by the guide 93. When the slide moves upwardly from its position in Figure 5 by the action of the spring, the link now being loose and the slot sliding on the pin, the spring continues to keep the slide against both of its guides 87 and 92. This is a valuable and efficient arrangement of the parts not exactly like any other mechanism for the same purpose, known to me. The mechanism is particularly adapted for reducing noise, and for allowing an arrangement above the level of the feed roll, and for allowing an accessible positioning of the timer at the front so that adjustment can be easily accomplished. The three-guide arrangement, with the link and spring acting to hold the slide in anti-rattle relation to the two guides is a valuable construction.

We claim as our invention:

1. A dispensing cabinet having a back and side walls, a dispensing roll journaled in the side walls, a pair of supports, each carried by a side wall, means pivoting each support to its side wall so that each can be separately adjusted, said supports extending forwardly and downwardly toward and to a point below the level of the bottom of the dispensing roll, said supports adapted to be bridged by and to support by its outer ends a supply roll so that said supply roll constantly engages the dispensing roll by gravity action, said supports being adapted to be adjusted by moving their outer and lower ends upwardly toward the measuring roll, whereby leveling of the supply roll in relation to the dispensing roll can be obtained conformably to variations in winding irregularities in the supply roll and whereby the degree of gravity contact pressure of the supply roll with the dispensing roll can be varied conformably to the changing weight of the roll resultant from use, and whereby these adjustments can be made with a minimum of forward movement of the supply roll.

2. A dispensing cabinet having a back, bottom and side walls, a dispensing roll journaled in the side walls adjacent the bottom wall, a pair of supports, each carried by a side wall, means pivoting each support to its side wall at a point near the back wall so that each can be separately adjusted, said supports extending forwardly and downwardly toward and to a point below the level of the bottom of the dispensing roll, said supports adapted to be bridged by and to support by its outer ends a supply roll so that said supply roll constantly engages the dispensing roll by gravity action, said supports lying at a level below the level of the top of the dispensing roll and being adapted to be adjusted by moving their outer and lower ends upwardly toward the measuring roll, whereby leveling of the supply roll in relation to the dispensing roll can be obtained conformably to variations in winding irregularities in the supply roll and whereby the degree of gravity contact pressure of the supply roll with the dispensing roll can be varied conformably to the changing weight of the roll resultant from use, and whereby these adjustments can be made with a minimum of forward movement of the supply roll.

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