

Aug. 15, 1939.

F. G. STEINER

2,169,399

DISPENSING CABINET AND MEANS FOR MOUNTING A SUPPLY ROLL THEREIN

Filed Jan. 12, 1938

3 Sheets-Sheet 1

Fig. 3.

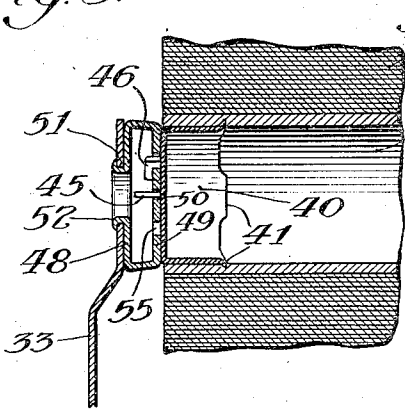


Fig. 1.

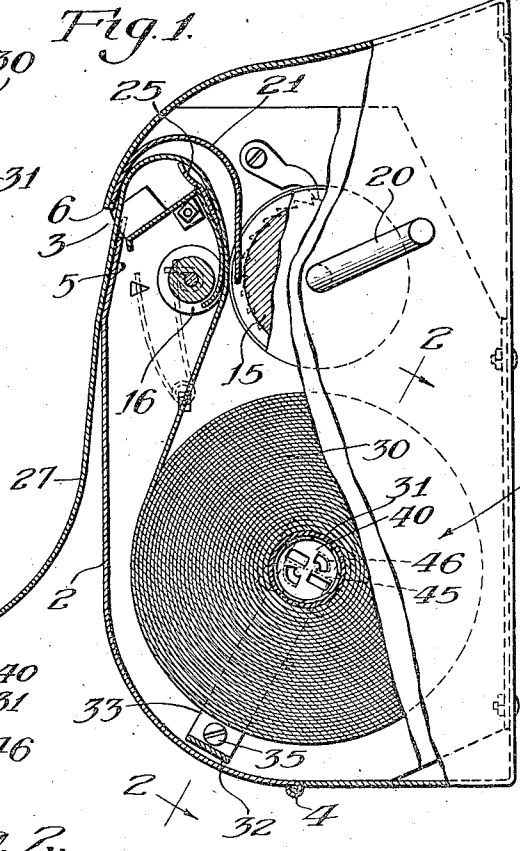


Fig. 4.

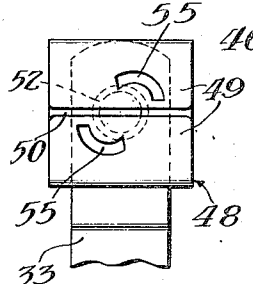


Fig. 5.

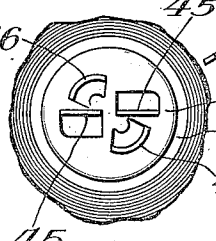
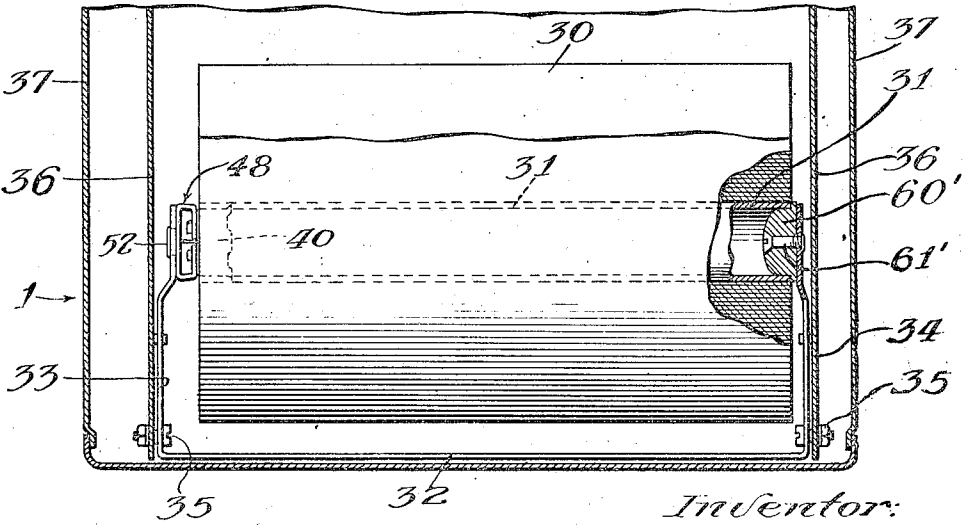


Fig. 2.



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3 Sheets-Sheet 2

Fig. 6.

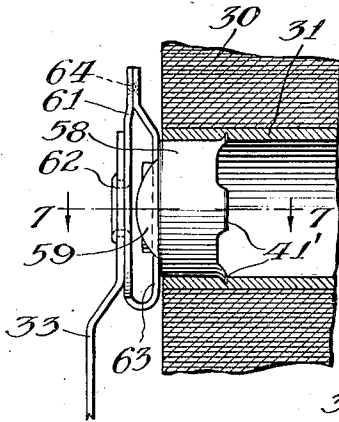


Fig. 16.

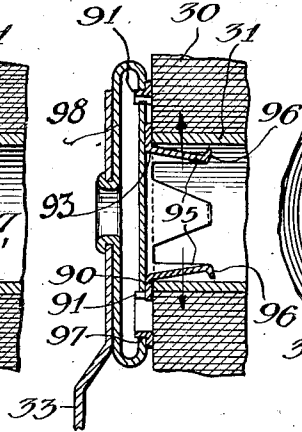


Fig. 17.

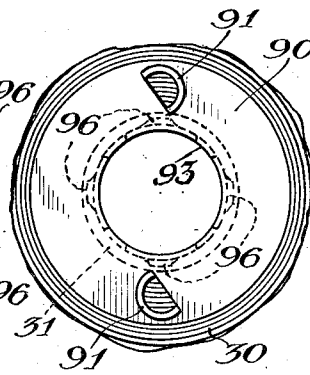


Fig. 7.

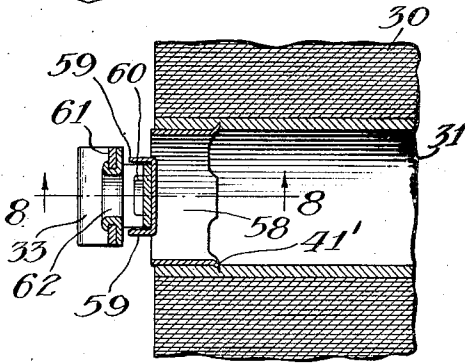


Fig. 8.

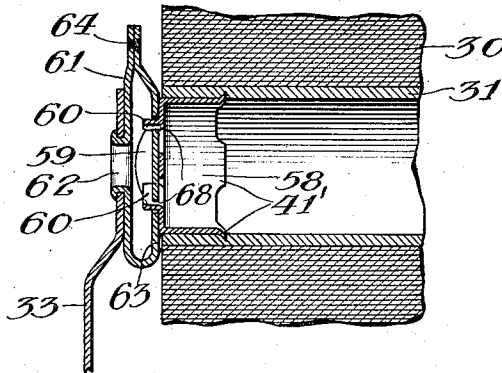


Fig. 9.

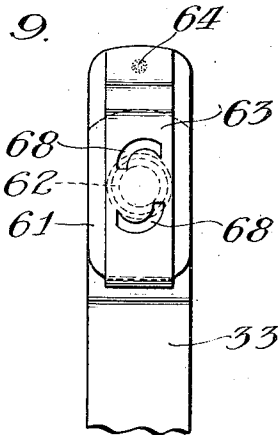
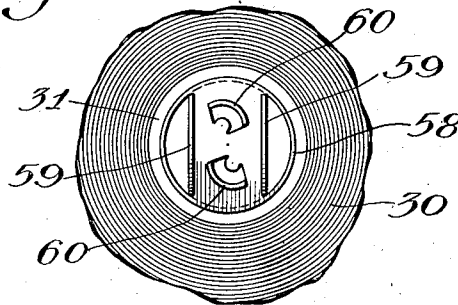


Fig. 10.



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3 Sheets-Sheet 3

Fig. 11.

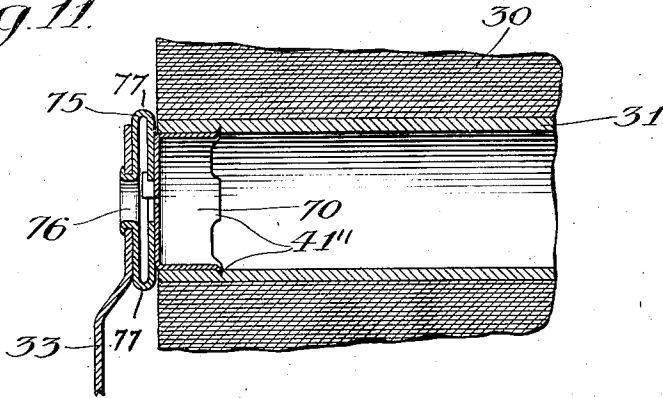


Fig. 12.

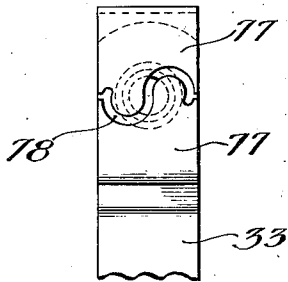


Fig. 13.

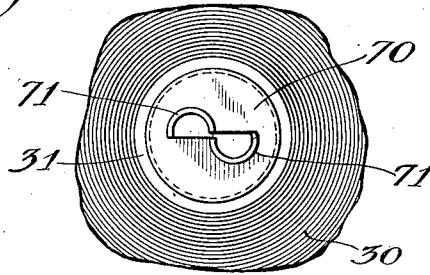


Fig. 14.

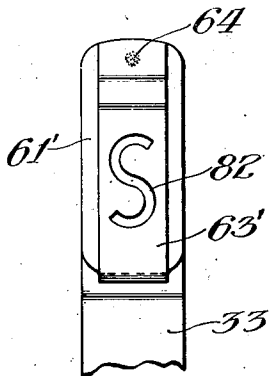
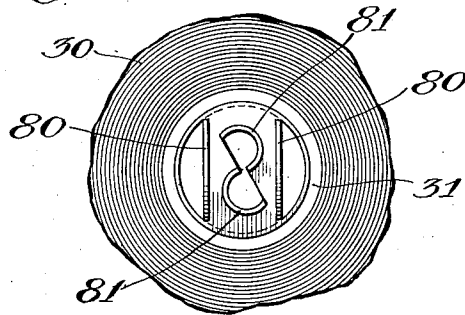


Fig. 15.



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UNITED STATES PATENT OFFICE

2,169,399

DISPENSING CABINET AND MEANS FOR MOUNTING A SUPPLY ROLL THEREIN

Frank G. Steiner, Chicago, Ill., assignor to Steiner Sales Company, Salt Lake City, Utah, a corporation of Utah

Application January 12, 1938, Serial No. 184,648

11 Claims. (Cl. 242—55.5)

This invention relates generally to paper or sheet material dispensing devices, and relates particularly to means for mounting a supply roll of paper in a cabinet, and for facilitating the connection of the roll with the mounting means. The invention has for an object to provide means for preventing wrong placement of the roll with reference to a dispensing mechanism.

The means for preventing wrong placement of the roll is related to the broad idea (disclosed in my co-pending application 40,794 series of 1935) of so feeding paper from a roll, that the tendency of the paper to curl in a direction toward the roll is utilized for causing the paper (after delivery through a delivery opening) to assume and be maintained in outwardly spaced relation with respect to the front face of the cabinet so that its end can be easily grasped.

This invention is also related in some respects to the invention disclosed in the application of Merle J. West 140,213 series of 1935, now Patent No. 2,146,038 of Feb. 7, 1939, which broadly provides means for preventing such wrong placement of a roll, as would defeat the purpose of utilization of the curl of the paper, for making the same more accessible for grasping.

The main objects of the present invention are, to provide means for preventing wrong placement of the roll, and to provide means for facilitating connection of this last mentioned means. Another object is to provide a new means for facilitating the connection of the roll with its mount, independently of any scheme for preventing wrong placement. I believe myself the first to provide any means for facilitating a connection of any kind for any purpose.

In the West application 140,213 supra, now Patent No. 2,146,038 although means are provided for preventing wrong placement of the roll, the connection of this means might sometimes be difficult because of the requirement of the registration between elements carried respectively by the roll and by the mount therefor. The present invention not only provides new forms of connecting means between the roll and the mount, but provides means by which such connections are facilitated.

Features of the invention include all details of construction shown, along with the broader idea of providing guiding means for facilitating connection of the connecting means.

Objects, features and advantages of the invention will be set forth in the description of the drawings forming a part of this application, and in said drawings,

Figure 1 is a vertical section through a cabinet showing how the curl of paper is utilized to cause the end thereof to assume outstanding relation after ejection through the delivery opening and showing the present invention applied;

Figure 2 is an upright section taken approximately on line 2—2 of Figure 1 and showing the swinging mount;

Figure 3 is a fragmentary detail axial section through the roll and core and mounting means therefor, showing one form of the invention;

Figure 4 is an inner face view of the part of the mounting means of Figure 3 showing the part of the connecting means and its relation to guiding means;

Figure 5 is an end elevation of the roll and part of the connecting and guiding means carried thereby and complementary to the parts of Figure 4;

Figure 6 is a view similar to Figure 3 but showing a modified form;

Figure 7 is a plan section on line 7—7 of Figure 6;

Figure 8 is a horizontal section on line 8—8 of Figure 7;

Figure 9 is an inner face view of the mounting element positioned as shown in Figures 6 and 8;

Figure 10 is an end view of the roll showing the groove or channel which receives the projection of Figure 9;

Figure 11 is a section similar to Figure 3 showing another modification, in which an S shaped slot in the mount receives complementary outstanding elements of a part which is attached to the core;

Figure 12 is a face view of the mount member of Figure 11;

Figure 13 is a fragmentary end view of the roll showing the part which cooperates with the slot of Figure 12;

Figure 14 is a modification showing another form of the S shaped slot in the mount member;

Figure 15 is an end view of the roll showing the complementary connecting elements on the roll;

Figure 16 is a longitudinal section showing another form of the invention in which the cap is attachable by means inserted from that end of the core to which the cap is applied, the prongs being shown as before expansion into the tube; and

Figure 17 is an end view of the roll of Fig. 16 showing the cap, with the prongs expanded to their cap-securing position.

In the drawings, the device has been shown

applied to a specific form of cabinet. It is understood of course that the invention is not limited to use with any particular form of cabinet, and that the device can be used not only for forcing placement of a roll in such relation to a feed mechanism as to assure utilization of the curl of the paper for the purpose above mentioned, but may be used as means for facilitating the connection of various kinds of rolls in various kinds of cabinets.

The cabinet is generally indicated at 1. It has a front wall 2 having a delivery opening 3. In this instance the front wall 2 is pivoted as at 4 to the bottom of the cabinet to swing downwardly to a point below the cabinet. The upper edge 5 of the down-swingable front 2 cooperates with the lower edge 6 of the top of the cabinet to define the down-leading delivery opening 3.

Rolls 15 and 16 cooperate to feed the paper. Roll 15 is operated by a crank 20. A suitable guide 21 directs the paper outwardly and downwardly through the opening 3. The paper is guided upwardly and over a tearoff knife or blade 25 by which the paper is separated as a result of pull thereon.

It will be noted that face 27 of the paper which was opposed to the roll faces, after ejection through the opening 3, is directed toward the user and away from the front 2 of the cabinet. It is noted that paper curls outwardly, and thus the natural curl of the paper, due to its original roll formation, is utilized for facilitating grasping.

Referring now to Figures 2 and 3, a supply roll of paper is indicated at 30, and a hollow paper core or tube for the roll is indicated at 31. The roll itself may be said to provide axially aligned openings or depressions at opposite ends, but preferably these openings are formed in or by a tubular core or by a core having openings in its ends. Upon this core the paper is wound tightly. This core thus constitutes an element which is permanently nonrotatably secured in the roll, in a manner to strongly resist detachment.

The support or mount for the roll includes an element of sheet metal having a horizontal portion 32 and bent up arms 33-34. Each arm is pivoted as at 35 to a plate 36, which plates extend vertically of the cabinet and are spaced inwardly from the outer walls 37 of the cabinet. While the particular mount is claimed in combination it is understood that the invention is broader than the particular structure of the mount.

Referring first to the form of invention illustrated in Figures 1 to 5 inclusive, broadly, means is provided for detachably mounting the roll, including parts which facilitate connection of parts on the roll with parts on the mount.

Referring first to Figures 3 and 5, a cap-like element 40 is fitted within the core 31 so as to close one end thereof. The cap may fit in a depression in a core. Terminal prongs are provided on the circular inner margin of this member 40, the prongs being indicated at 41. There are four of these prongs only three of which are shown. Element 40 is shown as a cup or cap but may be a disc or plate. The use of this element and its immovable attachment in the manner shown is a feature. As attached it cannot be removed without considerable difficulty until the supply roll is depleted. The element is introduced and moved to the position shown in Figure 3, at which time the prongs are aligned with a cylindrical wall of the cap 40. After the cap

has been positioned as shown, a tool is introduced into the core from the opposite end and the prongs are forced outwardly to bite into the paper of the core. This is a very effective and simple means for substantially non-removably and non-rotatively securing the cap within the core.

The cap 40 has punched-out therefrom a pair of parallel flat ears or projections indicated by the numeral 45, and also has punched out therefrom a pair of arcuate ears or projections 46. The guide ears 45 are aligned on a diameter which passes through the rotative axis of the roll. The elements 45 and 46 are symmetrically arranged as are the corresponding elements of the mount (see Figure 4), later to be described, to the end that the elements will register for connecting the parts together and to the end that the guide means can cooperate for facilitating this connection. While the specific one-piece construction of its cap and connection and guiding means is claimed per se, there is no intention to limit the broader aspects of the invention to this specific construction.

Referring now to Figures 2, 3 and 4, there is rotatably mounted upon the arm 33 of the swinging mount an element generally indicated by the numeral 48 which is formed by bending a piece of metal to provide portions 49 having their ends spaced to provide a guide slot 50, adapted to receive the projection or fin formed by the members 45 of the cap 40. The element 48 is rotatably mounted in an opening 51 of the arm by means of a tubular extension 52, as shown. Arranged symmetrically on opposite sides of the slot 50 are arcuate slots 55 corresponding in shape and adapted to receive elements 46 of the cap 40. Just as soon as members 45 enter slot 50 it is only necessary to slide the parts in one direction or another to cause elements 46-55 to register so that elements 46 enter the slots or openings 55. Arm 33 is slightly sprung outwardly before the parts 46 enter the slots 55, and just as soon as these parts register the arm springs inwardly automatically. Thus a very simple means is provided for facilitating the connection between the parts 46 and 55. The thickness of the fins 45 and the width of the slot 50 are so proportioned as to slide easily one in the other. It will of course be understood that the slots 50 and 55 may be in the cap 40, and the projections 45 and 46 may be on the part 48, thus obtaining a reversal of the parts. The means for facilitating the connection are broadly claimed although the preferred form shown, is also claimed. There might be some advantage in making the cap 40 projectionless.

The arm 34 has rotatably mounted thereon a projection 60, a pin 61 riveted to the part 34 serving as means about which this element rotates. This element 60 is rounded as shown to fit into the end of the tube. It is evident from an inspection of Figure 2 that if the roll were turned end for end, that is, if the part 40 were positioned at the right instead of at the left, no proper connection with the support or swing frame could be made. This is the feature which prevents wrong placement of the roll with reference to the feeding mechanism and front of the cabinet. It may here be said that any suitable mount equivalent of the arms 30-34 may be used, it being understood that it is not necessary in all cases that there be any movement of the mount. The part 40 could be rotatably connected with the plate 36 or with the wall 37. The frame is the pre-

ferred construction because it can be swung to a point outside of the cabinet.

Referring now to the modification illustrated in Figures 6 to 10 inclusive, the cap element is generally indicated at 58 and is connected by means of the prongs 41' as in case of the first form. Referring to Figures 8 and 10, the cap or closure 58 has a pair of punched-out, outstanding flat parallel ears indicated at 59, spaced a suitable distance apart. These ears are arranged symmetrically at opposite sides of the plane passing through the rotative axis of the roll, and form a guide groove. Arranged within the groove and also formed by punching out the metal are a pair of outstanding arcuate members 60 which correspond functionally to the members 46 of the first form and which are symmetrically placed with reference to the axis of rotation.

It is noted that the cap and its elements 59 and 60 are all of one piece of metal made by punching, and this is a feature of all of the devices herein, including the mount elements.

Referring again to Figure 8 the arm 33 has rotatably attached thereto by means of a tubular extension 62 a mount element indicated at 61. This element 61 is formed by bending a strip of metal upon itself as shown to form a spaced out guide portion 63, which is narrower than the base portion. The ends of the element are secured as by spot welding at 64. This guide part 63 slidably fits between the parallel elements 59. Introduction by sliding motion may be made at either end of the element 61. In this guide portion 63 are two arcuate slots 68 which positionally correspond to and which receive the arcuate outstanding ears or lugs 60 of the cap. It will be seen that as soon as the part 63 is placed in the groove formed by parts 59, slight sliding motion one way or the other will bring parts 60 into registration with the parts 68, to enter thereinto, and thus connect the roll to the mount.

Referring now to Figures 11 to 13 inclusive, in this form no guiding means to facilitate connection is used. The cap 70 is provided with prongs 41'', and with punched-out outstanding arcuate portions 71 symmetrically arranged as shown about the axis of rotation of the wall. The arm 33 has rotatably secured thereto a mount element 75 rotatably held by means of a tubular portion 76. The element 75 has end portions 77 formed by bending inwardly as shown, and the ends of these portions are so formed that they cooperate to define an open-end S shaped slot 78. The shape of this slot is such as to receive and connect with the arcuate parts 71. The specific construction of this device is a feature of this invention.

Referring now to Figures 14 and 15 another modification is shown in which the cap is provided with punched-out guide elements 80, and with outstanding arcuate elements 81. All elements are arranged symmetrically as in the other cases. The connecting mount element which is attached to the arm 33 has a structure substantially like Figure 9 with the exception that the S shaped slot 52 is closed. The slot is adapted to receive the parts 81 which as viewed in Figure 15 are reversed S shaped. Again it is noted that the cap may have the slot and the mount have the projection.

It is further noted that in all forms of the invention with the exception of that form illustrated in Figures 12 and 14, guide means is provided for facilitating the connection between the elements respectively of the cap and of the

mount. This means is therefore broadly claimed because I believe myself the first to provide any means for facilitating such a connection and moreover the first to provide any of the specific means shown herein and the first to connect a cap in a core immovably and simply and in the manner shown.

It is again noted that the cooperative locking parts are arranged symmetrically about the axis of rotation of the roll. Just as soon as registration is obtained between the guides, it is only necessary to slightly slide the parts in one direction or another to cause the connecting means to connect. In both forms the guide means provide a projection on one of the elements fitting a groove in the other.

It is further noted that the projecting parts of the guide means are longer in an axial direction than the projecting parts of the connecting means, so that the slide or guide groove is deep enough to perform the guiding function while the outer ends of the projecting parts of said connecting means ride along the inner surface of the guide part of the mount.

In Figure 16 a modification has been shown wherein a ring or annulus is attached to the core. In this, as in the other forms, the attachment is made by expanding the prongs, to cause them to bite into the material of the core and thus immovably secure the cap or ring.

Numeral 90 generally indicates a cap having punched out diametrically related arcuate attaching projections 91. The ring 90 has inward extensions 95 which, normally or before attachment of the cap, occupy the position shown in the drawings, but which are to be expanded outwardly as indicated by the arrows by a suitable tool introduced through the opening 93 of the ring. It, of course, will be understood that when this occurs the prongs 96 bite into the material of the core 31 as has been indicated in Figure 17. The advantage here is that instead of introducing a tool, or mandrel, from the opposite end of the core, the expanding tool may be introduced through an opening in the ring, that is, introduction is at the same end as that to which the cap is attached. The cap in this instance has a spool-like relation to the material on the core. That is, it overlaps this material. Numeral 33 indicates one of the arms of the swinging mount and this arm has attached thereto an element indicated at 98 which is the substantial equivalent of element 15, of Figure 11, and which has therein arcuate slots 97 receiving the arcuate projections 91. The feature of this form has in common with the feature of the other forms, the connection of the cap by expanding prongs into the material of the cover.

I claim as my invention:

1. In a dispensing cabinet, a supply roll, means by which the roll is operatively connected to the cabinet and parts of which means are respectively on the roll and on the cabinet and must be first registered by motion in a direction transverse to the axis of rotation and then engaged by motion in an axial direction to complete the connection, and tongue and groove means on the roll and on the cabinet cooperative to positively guide and direct the registration of said connecting means, and arranged parallel with a diameter passing through the rotative axis of the roll.

2. In a dispensing cabinet, a supply roll, a mount for the roll, means by which the roll is connected to the mount and parts of which are respectively on the roll and on the mount and

comprising a projection which enters an opening, which projection and opening must be first diametrically registered and then engaged to complete the connection, and means respectively on the roll and on the mount cooperative to positively guide and direct registration of said connecting means, said means comprising a groove and a projection slidable therein.

3. In a dispensing cabinet, a supply roll having a core, a mount for the roll, means by which the roll is connected to the mount and parts of which are respectively on the core and on the mount, including a part immovably secured to the core and having a projection which enters an opening in the mount, and diametrically disposed means respectively on the immovable part and on the mount cooperative to positively guide and direct registration of said connecting means.

4. In a dispensing cabinet, a supply roll having a core, a cap secured to the core, a support for the roll including elements one of which cooperates with one end of the core, said cap and the remaining element having connecting means cooperable to support the roll, said cap and last mentioned element also having means cooperable to positively guide and direct registration of said connecting means, said last mentioned element having portions bent to provide a diametrically disposed guide slot, and said cap having an outstanding element adapted to move in a diametric direction in said slot.

5. In a dispensing cabinet, a supply roll having a core, a cap secured to the core, a support for the roll including elements one of which fits within one end of the core, said cap and the remaining element having connecting means cooperable to support the roll, said cap and last mentioned element also having means cooperable to facilitate registration of the aforementioned connecting means including a diametrically disposed guide slot in said element and an outstanding element on said cap adapted to slide in said slot, in a diametrical direction to perform its guiding function.

6. A supply roll having a core, a cap secured within the core having punched-out projections arranged at opposite sides of a diameter passing through the rotative axis of the core and by which connection can be made with a suitable support, and further having punched-out guide means so diametrically related to said projections as to facilitate registration of the projections with corresponding means on the support.

7. In combination with a cabinet, a supply roll, means by which the roll is operatively mounted in the cabinet, including a pair of elements on one end of the roll and a pair of elements on the cabinet, which pairs are first to be registered and

then connected, and guide means comprising parts on said one end of the roll and on the cabinet, and disposed diametrically in relation to said pairs of elements, and adapted to facilitate registration of the same.

8. In combination with a cabinet, a supply roll, means by which the roll is operatively disposed in the cabinet, including a pair of elements on the roll and a pair of elements on the cabinet which pairs are first to be registered and then connected, the elements of each pair lying at opposite sides of a diameter which passes through the axis of rotation of the roll, said elements being arcuate as viewed in axial direction and having their concave sides opposed to one another and facing toward said diameter, and guide means respectively on the roll and on the cabinet adapted to facilitate registration of said pairs of elements.

9. In combination with a cabinet, a supply roll, means by which the roll is operatively disposed in the cabinet, including a pair of elements on the roll and a pair of elements on the cabinet which pairs are first to be registered and then connected, the elements of each pair lying at opposite sides of a diameter which passes through the axis of rotation of the roll, said elements being arcuate as viewed in axial direction and having their concave sides opposed to one another and facing toward said diameter, each pair of which together form a substantially S-shaped figure, and guide means respectively on the roll and on the cabinet adapted to facilitate registration of said pairs of elements.

10. In combination with a cabinet, a supply roll, means by which the roll is operatively disposed in the cabinet, including a pair of elements on the roll and a pair of elements on the cabinet which pairs are first to be registered and then connected, the elements of each pair lying at opposite sides of a diameter which passes through the axis of rotation of the roll, and guide means respectively on the roll and on the cabinet, adapted to facilitate registration of said first mentioned pairs of elements, and lying between the same.

11. A supply roll having a core, a cap secured within the core and having projections arranged at opposite sides of a diameter passing through the rotative axis of the core and by which connection can be made with a suitable support, and further having guide means parallel with a diameter passing through the rotative axis of the core and so related to said projections as to facilitate registration of said projections with corresponding means on the support.

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