

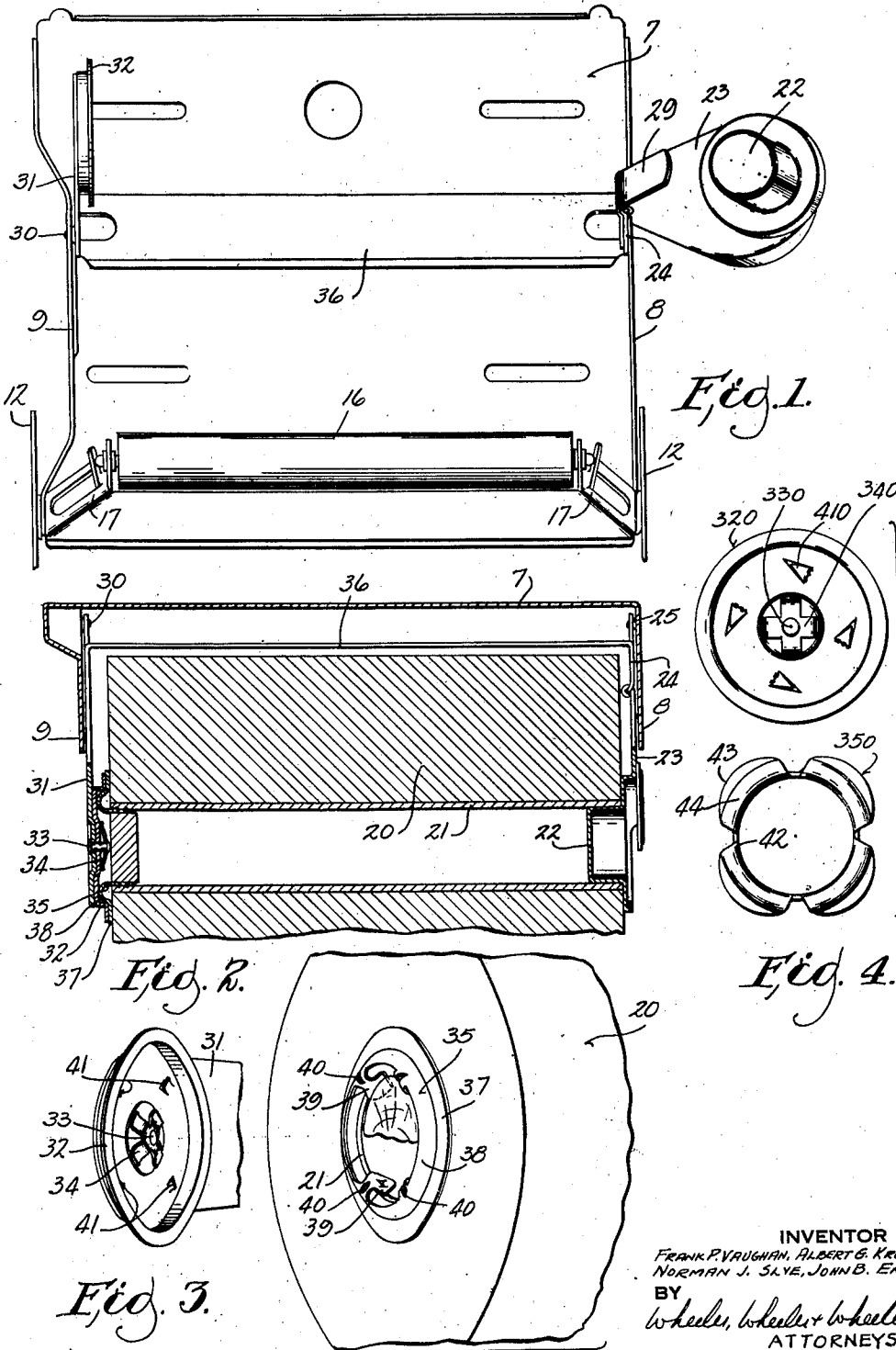
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WEB DISPENSER

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## WEB DISPENSER

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11 Claims. (Cl. 242-63)

This invention relates to improvements in web dispensers, having particular application to dispensers for paper toweling. The present application is a division of our co-pending application entitled Web dispensers, filed August 2, 1940, Serial No. 349,866, now Patent No. 2,308,840 issued Jan. 19, 1943.

An important object of the invention resides in the provision of means for frictionally opposing the rotation of the roll from which a web is dispensed whereby to prevent overrun, while at the same time providing novel and improved means for locking the end cap of the roll core to the frictionally retarded mount to prevent accidental displacement under the tension resulting from the application of friction during the dispensing of the web.

A further object is to provide a novel and improved mount for facilitating the replacement of used rolls with new rolls and using that portion of the cabinet in which the dispensing mechanism proper is housed as a means for holding the roll mount in operative engagement with the roll during the dispensing operation.

A further object is to generally improve and simplify the construction and operation of web-dispensing apparatus, with particular reference to roll mounting means incorporated therein.

Still further objects will be apparent to those skilled in the art upon examination of the following disclosure of the invention.

In the drawing:

Figure 1 is a fragmentary detail view in front elevation of a dispensing cabinet back wall as it appears when the cabinet proper is swung downwardly to permit replacement of a roll of web.

Figure 2 is a horizontal section through the back and axially through a roll core mounted thereon.

Figure 3 is a fragmentary detail view in perspective on an enlarged scale showing separated the opposing complementary faces of the end of a roll and the mount with which the end cap is adapted for association.

Figure 4 shows in opposite side elevations the complementary faces of the roll mount and end cap.

Like parts are identified by the same reference characters throughout the drawing and specification.

Figure 1 illustrates a dispensing cabinet back 7, including flanged side portions 8 and 9 which provide support for the roll mounting means later described. An enclosing case or housing

12, fragmentarily illustrated, is pivoted to the lower portion of back 7 to allow the case to be swung from a downward roll-exposing position, as illustrated, to an upwardly swung position in engagement with back 7, whereby the case encloses the roll and its supporting and dispensing mechanism.

Back 7 is adapted to be screwed or otherwise fastened to a wall or suitable support to sustain the weight of a dispensing apparatus of any well-known type. The dispensing apparatus may be mounted from base 7 within case 12, but for the purpose of illustrating this invention, details of the dispensing mechanism need not be shown, however, a portion of a dispensing mechanism comprising a roll 16 mounted between bracket arms 17 is shown in Figure 1.

A roll of web 20, Figure 2, provided with a tubular core 21, is shown mounted to back 7 intermediate a pair of bracket arms 24 and 31 in a position for dispensation of the rolled web. The end of core 21 at the right hand side of Figure 2 is open to receive a boss 22 formed at the free end of a hinged portion 23 of bracket arm 24, said arm being fulcrumed at 25 to the back structure 7.

At the opposite side of the back structure, in pivotal connection at 30 with the side 9 thereof, is another arm 31 upon the free end of which is a shallow cup 32 rotatable upon the rivet 33 and pressed by spring washer 34 into frictional engagement with the arm 31 in opposition to such rotation. The shallow cup-shaped member 32 constitutes a mount for the reception of the end cap 35 which, in accordance with conventional practice, is pressed into at least one end of the tubular core 21 of roll 20. The mount 32 is axially aligned with boss 22. Yoke 36, connected with arms 24 and 31, constrains the arms to move in unison about their respective pivots 25 and 30 to maintain the aforesaid alignment of the parts which receive the opposite ends of the core.

The purpose of the frictional pressure engagement of the mount 32 with the arm 31 is to prevent the overrun of the roll 20 as the web is dispensed therefrom. In order that the roll as a whole may benefit by the frictional braking action above described, it is necessary to provide some positive driving connection between the roll core 21 and the cup-shaped mount 32. This is done in the following manner.

The end cap generically designated by reference character 35 comprises an annulus 37 abutting the outer face of roll 20 as best shown in Figures 2 and 3. In the inner periphery of annu-

lus 37 is a bead 38 of which the outer diameter corresponds to the inner diameter of the cup-shaped portion of the rotatable mount 32 so that these parts nest telescopically as shown in Figure 2. At suitable intervals about the inner periphery of bead 38 are arms 39 projecting into the interior of the core 21 to maintain the end cap in connection with the core and the roll.

As shown in Figure 3, each of the arms 39 is provided with a beveled cut at 40 to provide openings into which the prongs 41 carried by the mount 32 are receivable. These prongs may be struck up integrally from the inner surface of the mount 32 and they are all inclined at an angle opposite to the direction in which motion is transmitted from the roll and the core and the end cap to the mount. Consequently, as the web is withdrawn from the roll to produce rotation of the core and end cap, each prong 41 engaged in one of the beveled notches at 40 provides a firm interlock between the end cap and the mount to require the mount to turn with the core, thus subjecting the core to the friction developed between the mount and the arm upon which it is pivoted.

Not only are the parts so interlocked as to require the mount to partake of the movement of the core, but, in addition, the inclination of the prongs 41 is such that so long as the parts are subject to the pressure developed in the dispensing of the web they will also resist separation in an axial direction. But for this arrangement there might be some tendency for the parts to cam upon each other in a direction tending to separate them axially under the tension produced by the withdrawal of the web and the retarding friction of the mount. Due to the inclination of the prongs and the bevel of the notches 40 in the end cap, the greater the stress which must be transmitted from the core to the mount the greater is the interlocking engagement against axial separation.

In the construction shown in Figure 2 and Figure 3, the portion 37 of the end cap is a complete annulus and the arms 39 provide a discontinuous surface within the core. In the construction shown in Figure 4, the end cap 350 is so devised that the sleeve portion 42, receivable within the core, is the only portion of the device which constitutes a complete annulus.

From sleeve 42 project arms 43, corresponding portions 44 of which provide a bead engageable within the shallow cup-shaped form of the mount here shown at 320. The ends of the several arms 43 abut the face of the roll and the space between the arms provides openings into the beads 44 to receive the somewhat longer prongs 410 of the mount 320. Mount 320 is pivoted on a rivet 330 under pressure of a spring washer 340 in the same manner as mount 32 shown in Figures 2 and 3. Motion is transmitted to mount 320 from end cap 350 in the same way, and resistance developed by friction between the mount and its supporting arm is imparted to the core in the same manner.

It is characteristic of both devices that the prongs 410 and 41 are in each case carried by the mount rather than the end cap, this being important for several reasons. In the first place, the parts cooperate more effectively. In the second place, there is less danger of injury to the operator than would be the case if the prongs projected from the end cap. Finally, from the standpoint of economy, it is much less expensive to form the prongs once for each cabinet than it would be to provide separate forming operations

on every end cap to be used therein, the end caps usually being discarded with the cores when the roll of web thereon is exhausted.

To install a roll of web, the hinged portion 23 of arm 24 is pivoted outwardly and the cut-away portions in the end cap are manipulated into the cup-shaped mount 32 or 320 in such a manner that the prongs of the mount enter the notches 40 or 42 in interlocking engagement therewith. Arm portion 23 is then swung inwardly to press boss 22 into the open end of the core to the position shown in Figure 2. A spring 29 is preferably provided to normally urge arm portion 23 outwardly, and suitable means are provided within the case to constrain arm portion 23 against outward pivoting during operation of the device, consequently the roll will be held in proper dispensing position.

It will be observed that the bead 35, or the bead-like members 44 shown in Figure 4, are adapted to serve as a tapering trunnion of slight projection from the end of the roll. Therefore these end caps may be shipped with the rolls and core to a destination provided with a cabinet to receive them without danger of having the caps knocked out of the core ends during shipment, and without danger of injury to persons handling the rolls, there being no prongs or other projections from which such injuries might result.

We claim:

1. A dispenser for web material mounted in a roll upon a core having an apertured end cap, said dispenser comprising means for supporting one end of said core and a pivoted mount for supporting the other end of said core, means for frictionally restraining the pivotal rotation of said mount, and an inclined prong carried by said mount and engageable in the aperture of the end cap by rotation of the roll and cap in a direction opposite that of prong inclination, said mount having portions complementary to the end cap and engageable therewith.

2. The combination with a roll of paper webbing having a cylindrical roll supporting core, of an end cap having one portion fitting within one end of the core in pressed fit relation thereto, and having at its outer side a rounded bead of relatively slight projection from the roll end sufficient to receive an interlocking prong between the roll and the inner surface of the bead for engagement with such surface, said bead being convexly rounded and apertured at intervals for interlocking engagement with a pronged mount, whereby the cap may be shipped with the roll and core without danger of dislodgement or injury to persons handling such rolls.

3. In a dispenser cabinet for rolled paper webbing, a cup-shaped mount provided with a central pivot upon which said mount may rotate, and a spring washer interposed between the inner head of the pivot and the bottom of the cup and adapted to hold the cup in frictional engagement with a support to which the pivot is connected, said mount having prongs between its annular side wall and said pivot adapted for engagement with a roll supporting member socketed in said cup, said prongs being inclined in a direction opposite that of normal roll rotation.

4. In a dispenser for rolled webbing, the combination with a support, of a rotatable cup-shaped mount pivotally connected with the support for rotation, resilient means for frictionally restraining the rotation of said mount, and spurs carried within the cup-shaped mount and rear-

wardly inclined respecting the normal direction of mount rotation in positions for relative rotation into interlocking engagement with a complementary end cap of the roll to be dispensed, the side walls of the cup extending beyond the spurs in positions to embrace the spur engaging portions of such end cap.

5. In a dispenser for rolled strips, the combination of a frictionally retarded rotatable mount for a roll of strip material, said mount being provided with prongs inclined in a direction opposite that of normal roll rotation during dispensing operations, and a roll end cap complementary to said mount and provided with prong receiving apertures in which said prongs may be entered by relative rotation of the roll and cap in the direction of strip delivery, said prongs being adapted to transmit motion from the roll to the mount and the roll being held against over-rotation and the prongs being held in engagement in the apertures by the frictional resistance of the mount.

6. In a dispenser for rolled strips, the sub-combination of a roll supporting core and an end cap having a projecting bead-like annulus, convex in cross section, and having portions extended from the inner margin of the bead for engagement in the core, said bead being provided with openings, each having a bevelled wall at one side and adapted to receive obliquely disposed arms carried by a complementary mount into which the bead is adapted to fit.

7. In a dispenser for rolled strips, the combination of a cylindrical roll-supporting core, an end cap therefor having a portion in telescoping relation to the core in pressed fit relation thereto, said end cap having an arcuately disposed convexly rounded bead having apertures at intervals, and a complementary cup-shaped mount adapted to receive said bead, and provided with prongs inclined in a direction opposite that of an unwinding operation of the roll and engaged in said apertures during such unwinding operation.

8. In a dispenser for rolled web material, the sub-combination including a support, a cup-shaped member, means pivotally mounting the member on the support for rotation, means frictionally resisting such rotation, and a plurality of prongs radially distant from said means and inclined at acute angles to the plane of such rotation for engagement with the inner wall of an apertured core cap in an interlocking connection resisting axial as well as rotative relative movement respecting said member and cap.

9. In a dispenser for rolled web material, the sub-combination which comprises a core end-cap of annular form having a core receiving portion, a roll end-engaging portion, and an intervening outwardly convex bead projecting beyond said portions to be in spaced relation to the end of a core with which said cap is engaged, said bead being provided adjacent its farthest projecting portion in its convex surface with a plurality of openings adapted to receive complementary inclined prongs of a supporting mount and to admit entry of said prongs to the interior of the space between the bead and the core end.

10. The sub-combination of claim 9, in further combination with a core with which said cap is engaged, said core terminating short of said bead, together with a web wound upon said core in the form of a roll terminally abutted by said roll end-engaging portion.

11. In a dispenser cabinet for rolled paper webbing, a cup-shaped mount centrally riveted to one wall of the cabinet with a spring washer interposed between the inner head of the rivet and said mount, said mount being rotatable upon the rivet in frictional contact with said wall under resilient pressure imposed by the washer, inclined interlocking projections within said cup-shaped mount, and a complementary roll and core engaging cap having a portion adapted to fit within said cup-shaped mount and provided with apertures through which said inclined projections may pass during relative rotation of the roll upon the mount to bring said projections into interlocking relation with the opposite face of the cap.

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