Jan. 15, 1963 J. C. LAYTON ETAL 3,073,541

APPARATUS FOR DISPENSING AND AUTOMATICALLY DISMOUNTING ROLLS OF MATERIAL

Filed April 1, 1960

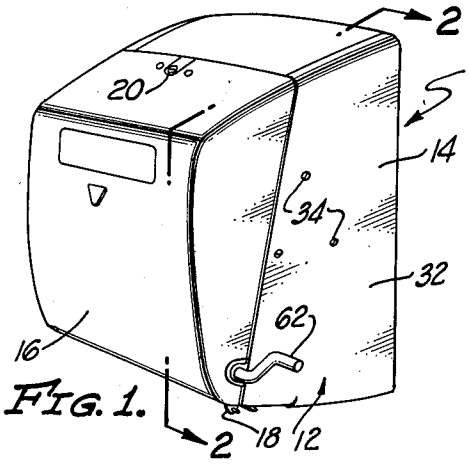


FIG. 1.

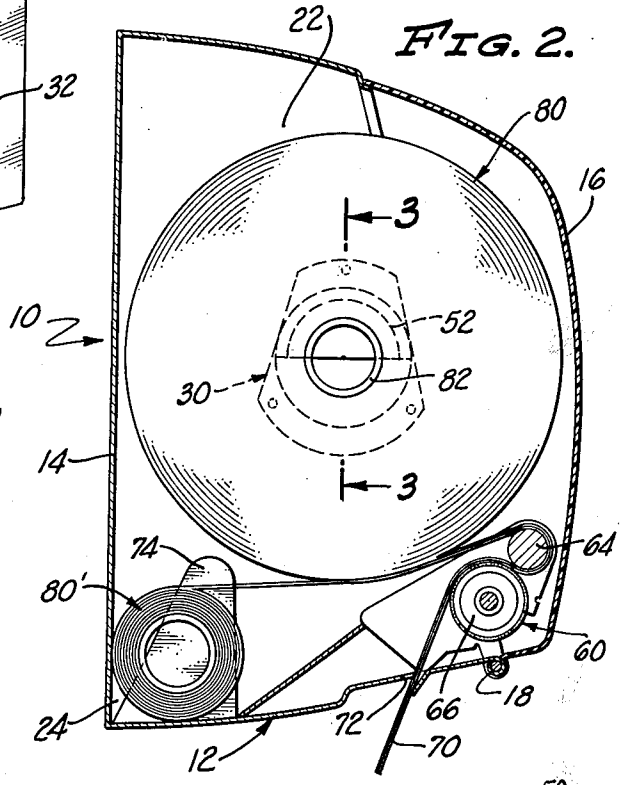


FIG. 2.

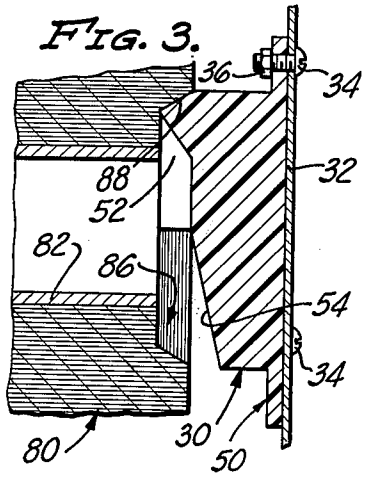


FIG. 3.

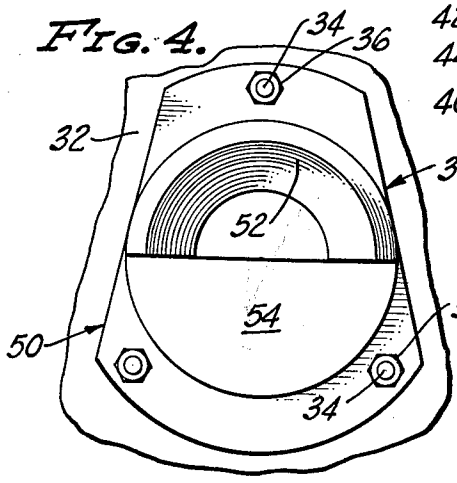


FIG. 4.

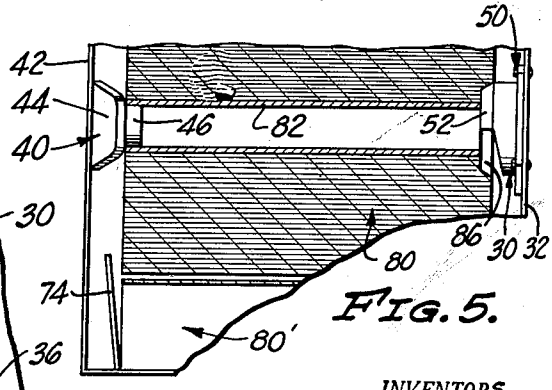


FIG. 5.

INVENTORS
J. C. LAYTON,
JACK L. PERRIN
BY Thomas P. Mahoney
ATTORNEY

United States Patent Office 3,073,541 Patented Jan. 15, 1963

3,073,541

APPARATUS FOR DISPENSING AND AUTOMATICALLY DISMOUNTING ROLLS OF MATERIAL

J. C. Layton, La Habra, and Jack L. Perrin, Los Angeles, Calif., assignors to Towlsaver, Inc., Los Angeles, Calif., a corporation of California

Filed Apr. 1, 1960, Ser. No. 19,363
8 Claims. (Cl. 242—55.53)

This invention relates to an apparatus for dispensing material from a roll thereof and for automatically dismounting said roll of material after it has been partially consumed.

This invention is particularly applicable to a dispenser for material in roll form, such as paper toweling, where it is desirable that a partially exhausted roll of paper toweling be automatically dismounted from a first dispensing location in the dispenser and moved into a second dispensing location in the dispenser so that, when a custodian services the dispenser, the supporting bearings of the dispenser in the first dispensing location will be ready to receive a new roll of paper toweling.

While the principles of the invention are described herein as applied to a dispenser for roll paper toweling, it is of course obvious that they may be utilized with equal cogency in various other types of environments involving the dispensing of roll material or the utilization thereof and it is, therefore, not intended that the principles of the invention be limited to the particular embodiment thereof disclosed hereinbelow.

One of the major objections to the utilization of roll paper toweling involves the refill problem since a custodian servicing a roll paper toweling dispenser must estimate whether a partially exhausted roll should be removed and replaced by a full roll or whether the partially exhausted roll will last until the next servicing of the dispenser. In order to play safe, many custodians simply remove a partially exhausted roll and discard it, which entails waste of toweling and increases the cost of roll towel service.

It is, therefore, an object of the invention to provide a dispenser for roll toweling or roll material in any form which incorporates first and second dispensing locations therein, which are referred to hereinafter as primary and auxiliary dispensing locations. The dispenser incorporates first and second bearing members at the first dispensing location adapted to receive a roll of toweling, said roll being characterized by the fact that in at least one extremity thereof it is provided with a first bearing surface, said surface being constituted by contiguous layers of toweling, which is engageable by the first bearing member. Therefore, when the roll is partially exhausted, consumption of the contiguous layers of toweling of said first bearing surface will cause the elimination of said bearing surface and permit said roll of toweling to drop downwardly into the second auxiliary dispensing position.

When located in the second or auxiliary dispensing position, the roll of toweling will still serve as a source of toweling until the custodian services the dispenser. Upon opening the dispenser he will automatically be apprised of the fact that a new roll needs to be placed in the dispenser and, since the partially consumed roll is already located in the second dispensing position, he will not discard the same but will permit toweling therefrom to be dispensed until the partially exhausted roll is completely exhaused. Therefore, the economic waste characteristic of prior art roll toweling dispensers is eliminated.

Another object of our invention is the provision of an apparatus for dispensing roll toweling which is characterized by the inclusion of a bearing member particularly adapted for engagement with a bearing surface on a roll

of toweling constituted by contiguous layers of said toweling and so constructed that it will automatically release the roll of toweling when the contiguous layers of toweling have been consumed.

A further object of our invention is the provision of an apparatus of the aforementioned character wherein the first bearing member is incorporated in a body having a bearing portion engageable with the aforesaid bearing surface and a clearance portion adapted to permit the extremity of the roll in which said bearing surface is provided to clear said first bearing member, after said bearing surface has been eliminated in the above described manner, to permit the roll to drop downwardly from a first dispensing to a second dispensing position.

Other objects and advantages of the invention will be apparent from the following specification and the accompanying drawings, which is for the purpose of illustration only, and in which:

FIG. 1 is a perspective view of a roll toweling dispenser constructed in accordance with the teaching of the invention;

FIG. 2 is a vertical sectional view taken on the broken line 2—2 of FIG. 1;

FIG. 3 is an enlarged, fragmentary sectional view taken from the broken line 3—3 of FIG. 2;

FIG. 4 is a front elevational view of the first bearing member of the invention; and

FIG. 5 is a schematic view showing the manner in which both extremities of the roll of toweling are supported within the towel dispenser.

Referring to the drawing, and particularly to FIGS. 1–2 thereof, we show a roll towel dispenser **10** which includes a housing **12** constituted by a rear portion **14** adapted to be mounted upon a wall or similar vertical surface, not shown, and a front portion **16** adapted to be closed upon said rear portion and hingedly connected thereto at the lower extremity thereof by hinge means **18**.

A lock **20** serves to maintain the front portion **16** of the housing **12** in operative relationship with the rear portion **14** thereof, and cannot be opened except by a custodian having a key which will be received in the lock **20**.

When the lock **20** is opened the front portion **16** of the housing **12** can be swung downwardly to expose the interior of the housing **12** and, more particularly, the rear portion **14** thereof which is provided with a first, upper dispensing location indicated generally at **22** and a second, lower dispensing location indicated generally at **24** in FIG. 2 of the drawing. The first and second dispensing locations may also be referred to as primary and auxiliary dispensing locations.

Positioned at the first dispensing location **22** within the dispenser housing **12** is a first bearing member **30** secured to the side wall **32** of the rear portion **14** of the housing **12** by means of screws **34** and nuts **36**. A second bearing member **40**, which is spring-biased, is mounted on the side wall **42** of the rear portion **14** of the housing **12**, as best shown in FIG. 5 of the drawing.

The second bearing member includes an elongated arm **44** and a cylindrical bearing boss **46** and is of conventional construction. The first bearing member **30** includes a unitary body **50** formed from a synthetic resin such as nylon, or the like, and includes a semi-circular bearing portion **52** which is disposed at the upper extremity thereof and which, as best shown in FIGS. 3 and 4 of the drawing, is of generally triangular cross section. The body **50** is also provided with a clearance portion **54** constituted by a downwardly and inwardly oriented inclined plane, for a purpose which will be described in greater detail below.

Mounted in the lower extremity of the rear portion **14**

of the housing **12** is a dispensing mechanism indicated generally at **60**, said dispensing mechanism including an operating handle **62** and dispensing rollers **64** and **66** which are adapted to discharge a strip of toweling **70** through an opening **72**. Secured to the bottom of the rear portion **14** of the dispenser housing **12** is a pair of spaced, upstanding locating tabs **74** which serve to locate a partially exhausted roll of toweling in proper orientation with the dispensing mechanism **60**.

A roll **80** of toweling **70** is placed at the first dispensing location in the housing **12** and incorporates an elongated core **82**. At the left-hand extremity of the roll **80** the cylindrical bearing boss **46** is urged into the core **82** and supports said left-hand extremity, as viewed in FIG. 5 of the drawing. The right-hand extremity of the roll **80** incorporates a bearing receptacle **86** which, as best shown in FIG. 3 of the drawing, has an inclined bearing surface or wall **88** defined by a plurality of contiguous layers of toweling **70**.

Therefore, when the roll **80** is placed in the first dispensing location **22** in the dispenser housing **12**, the first bearing surface **88** is engaged by the semi-circular bearing portion **52** of the first bearing member **30** and will serve to support the roll **80** until the contiguous layers of toweling **70** have been consumed. When this occurs the roll **80** will be automatically dismounted from operative engagement with the first bearing **30** and the second bearing **40** and will drop downwardly in the dispenser **10** into the auxiliary dispensing position indicated by the roll **80'**, as best shown in FIG. 2 of the drawings.

Therefore, when a custodian services the dispenser **10** he need not handle the roll **80'** at all but need merely insert a new full roll **80** upon the first and second bearings **30** and **40**. He also can thread the length of paper toweling from the new roll **80** into overlying relationship with the similar length from the roll **80'** located in the second auxiliary dispensing location. Therefore, a double layer of toweling **70** will be dispensed until the roll **80'** is consumed. Since such a double portion of toweling is dispensed, those using the machine will not call for a second supply of toweling and the toweling from the auxiliary roll **80'** will be efficaciously utilized.

Since the bearing surface **88** may be formed in the toweling at any location spaced from the center of the roll **80**, it is possible to determine at what point the roll **80** will automatically drop downwardly from the primary to the secondary dispensing position within the housing **12**. Therefore, an automatic indication of partial consumption of the roll **80** to a predetermined extent is presented to the custodian servicing the dispenser **10** and there is no necessity for the guess work or discarding of partially exhausted rolls as in the case of prior art roll towel dispensers.

There is thus provided by the invention an apparatus which will automatically dismount a roll of paper toweling from a primary to a secondary dispensing position within the housing of the dispenser to indicate that a new roll should be installed, and to effectively utilize the partially exhausted roll. In addition, the provision of a bearing surface formed from the material on the roll eliminates the necessity for additional bearing members customarily provided in the ends of rolls of paper toweling. Of course, it is not intended that the principles of the invention be limited to any specific configuration of the bearing surface on the extremity of the roll of toweling nor to any specific configuration of the bearing member adapted to be engaged upon said bearing surface.

We claim:

1. In an apparatus for dispensing and automatically dismounting roll material, the combination of: a roll of material having an axial bore extending centrally thereof and bearing surfaces at its opposite extremities, with one of said bearing surfaces being defined by a plurality of adjacent layers of roll material encompassing said bore; a first bearing member whose diameter is greater than said bore and which has a portion located outwardly of said bore engageable with said one bearing surface and adapted to support the associated extremity of said roll until the partial exhaustion of the material on said roll causes the consumption of said one bearing surface and the disengagement of said extremity from said portion of said first bearing member; and a second bearing member engageable with the bearing surface at the other extremity of said roll.

2. In an apparatus for dispensing and automatically dismounting roll material, the combination of: a roll of material having an axial bore extending centrally thereof and bearing surfaces at its opposite extremities, with one of said bearing surfaces being defined by a plurality of adjacent layers of material encompassing said bore; a first bearing member having an arcuate flange extending coaxially of said bore and externally thereof engageable with said one bearing surface and adapted to support the associated extremity of said roll until the partial exhaustion of the material on said roll causes the consumption of said one bearing surface and the disengagement of said extremity from said flange of said first bearing member, said first bearing member having a body incorporating a bearing portion and a clearance portion disposed below said bearing portion and adapted to permit the associated extremity of said roll to clear said body when said roll is automatically dismounted from said bearing member; and a second bearing member engageable with the bearing surface at the other extremity of said roll.

3. In a dispenser for roll paper toweling, the combination of: a roll of paper toweling having an axial bore and having first and second bearing surfaces at its opposite extremities, said first bearing surface being constituted by contiguous layers of toweling externally of said bore and said second bearing surface being constituted by the wall of said bore; a first bearing member in said dispenser having an axial flange engageable with said first bearing surface externally of said bore until the partial consumption of said roll eliminates the contiguous layers constituting said first bearing surface; and a second bearing member in said dispenser engageable with said second bearing surface.

4. In a dispenser for roll paper toweling, the combination of: a housing; a roll of paper toweling in said housing having first and second bearing surfaces at its opposite extremities, said first bearing surface being constituted by contiguous layers of toweling; a first bearing member in said housing engageable with said first bearing surface until the partial consumption of said roll eliminates the contiguous layers constituting said first bearing surface; a second bearing member in said housing engageable with said second bearing surface; and an auxiliary receptacle in said housing for the reception of the partially exhausted roll of toweling after it has been automatically dismounted from said first bearing member by the elimination of said first bearing surface.

5. In a towel dispenser, the combination of: a housing having a first dispensing location and a second dispensing location therein; a roll of paper toweling in said housing having first and second bearing surfaces at its opposite extremities, said first bearing surface being constituted by contiguous layers of toweling; a first bearing member in said housing at said first dispensing location; and a second bearing member in said housing at said first dispensing location engageable with said second bearing surface, said roll being receivable in said second dispensing location of said housing when said roll is automatically dismounted from said first bearing member by the consumption of the toweling layers defining said first bearing surface.

6. In a dispenser for paper toweling, the combination of: a housing having a first upper dispensing location and a second lower dispensing location therein; a first bearing member mounted in said housing at said first dispensing location; a second bearing member mounted in

said housing at said first dispensing location; and a roll of paper toweling located in said housing at said first dispensing location and having a first bearing surface at one extremity constituted by a plurality of contiguous layers of toweling and engageable by said first bearing member, the other extremity of said roll being engageable by said second bearing member, said roll being adapted to be automatically dismounted from said first bearing member when the partial consumption thereof eliminates said first bearing surface to permit said roll to fall downwardly from said first to said second dispensing location in said housing.

7. In a dispenser for paper toweling, the combination of: a housing having a first upper dispensing location and a second lower dispensing location therein; a first bearing member mounted in said housing at said first dispensing location, said first bearing member having a body incorporating a bearing portion and a clearance portion; a second bearing member mounted in said housing at said first dispensing location; and a roll of paper toweling located in said housing at said first dispensing location and having a first bearing surface at one extremity constituted by a plurality of contiguous layers of toweling and engageable by said first bearing member, the other

extremity of said roll being engageable by said second bearing member, said roll being adapted to be automatically dismounted from said first bearing member when the partial consumption thereof eliminates said first bearing surface to permit said roll to fall downwardly from said first to said second dispensing location in said housing.

8. A supporting bearing adapted to engage a bearing surface constituted by a plurality of contiguous layers of material in a roll including a body, said body having an arcuate bearing portion of triangular cross section engageable with said bearing surface and a clearance portion adapted to clear the end of said roll when it is automatically dismounted from said bearing portion by the consumption of the contiguous layers of material defining said bearing surface, said bearing portion being constituted by an axially extending arcuate flange projecting beyond said body.

References Cited in the file of this patent

UNITED STATES PATENTS

2,742,241	Miller	Apr. 17, 1956
2,797,054	Ruch	June 25, 1957
2,904,274	Hicks	Sept. 15, 1959