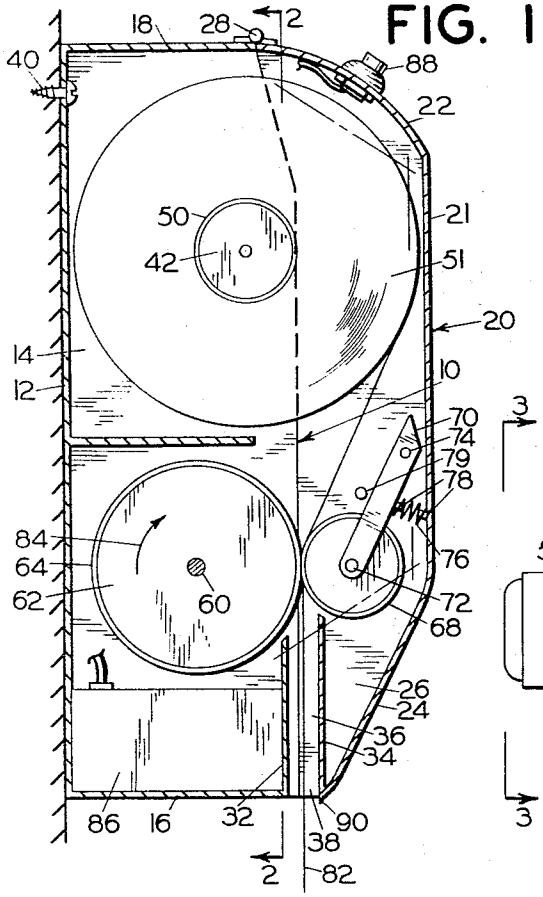
Jan. 10, 1967 E. F. McGREW 3,297,269

ELECTRIC TOILET PAPER DISPENSER

Filed March 1, 1965

FIG. 1



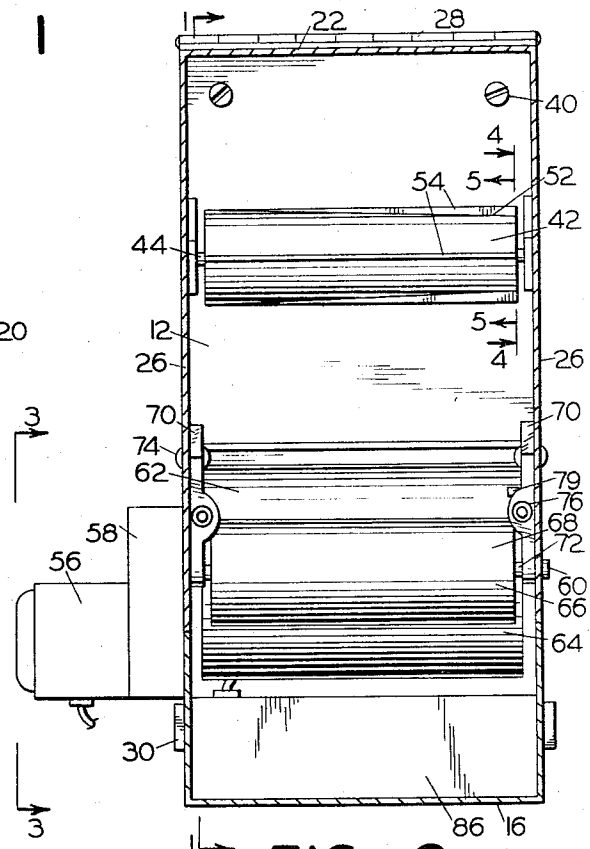


FIG. 2

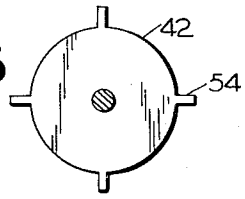


FIG. 5

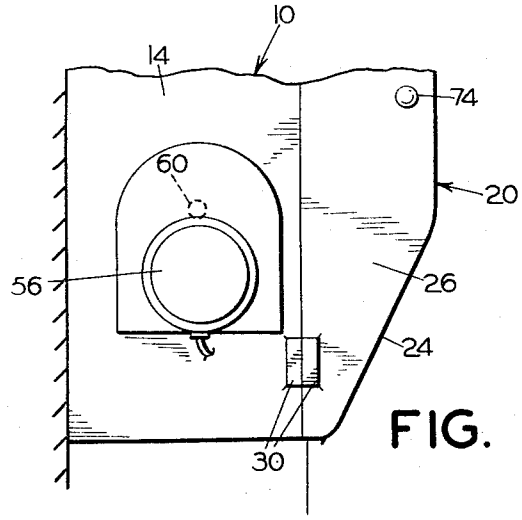


FIG. 3

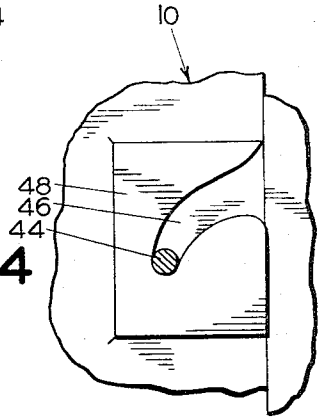


FIG. 4

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ELECTRIC TOILET PAPER DISPENSER

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This invention relates to new and novel dispensers for toilet paper.

A primary objective of the present invention is to provide a dispenser of the type described which is electrically operated.

A more particular object of the present invention is to provide a toilet paper dispenser employing electric motor drive means arranged to operate dispensing rolls for withdrawig toilet paper from a supply roll and projecting the paper from the dispenser.

Another object is to provide an electric toilet paper dispenser which is simplified in construction and arranged for positive and efficient operation and also arranged for easy reloading of a roll of paper.

Additional objects will become apparent from the following specification and claims, considered together with the accompanying drawings, wherein the numerals of reference indicate like parts.

In the drawings:

FIGURE 1 is a vertical, sectional view of the present dispenser taken on the line 1—1 of FIGURE 2;

FIGURE 2 is a vertical, sectional view of the dispenser taken on the offset line 2—2 of FIGURE 1;

FIGURE 3 is a fragmentary, side elevational view taken on the line 3—3 of FIGURE 2;

FIGURE 4 is an enlarged, fragmentary, sectional view taken on the line 4—4 of FIGURE 2; and

FIGURE 5 is an enlarged, fragmentary, sectional view taken on the line 5—5 of FIGURE 2.

Referring now in particular to the drawings and first to FIGURES 1 and 2 the present dispenser comprises a housing 10 having a back wall 12, side walls 14, a bottom wall 16, and a top wall 18, the front of the housing 10 being open. Associated with the housing 10 is a front cover 20 having a vertical front wall portion 21, upper and lower inwardly angled front wall portions 22 and 24, respectively, extending from the vertical wall portion 21, and side walls 26. Front cover 20 is hingedly connected, as by hinge means 28, at its upper portion to the housing 10 and thus is free to swing upwardly from the bottom to expose the interior of the said housing. With particular reference to FIGURE 3, a catch mechanism 30, such as a magnetic catch, is secured to the housing and front cover at the lower portion thereof and on one side to hold the cover closed but at the same time to allow release of said cover from the housing when it is desired that it be opened.

Again with reference to FIGURES 1 and 2, the housing 10 has an upwardly extending baffle 32 integrated with the bottom wall 16 and the cover 20 has an upwardly extending baffle 34 integrated with its lower end. The side walls 14 and 26 of the housing and cover, respectively, are arranged for edge abutment in the closed position of the cover but the two baffles 32 and 34 are spaced inwardly with relation to their two supporting members to form a guide slot 36 therebetween. Furthermore, the bottom wall area between these baffles is open to form a bottom opening 38.

Housing 10 is adapted to be secured to a supporting member such as a wall by means of screws 40 or by any other suitable means. Preferably the housing is mounted in a wall recess as in conventional practice at least to the depth of the housing whereby only the cover portion protrudes. The opening 38 in such mounting arrangement would be disposed substantially flush with the wall surface.

Journaled in the side walls 14 of the housing 10 and at the upper portion thereof is a spindle 42. It is necessary that this spindle be removably supported in the housing in order to install a roll of toilet paper thereon, and for this purpose it is integrally mounted on a shaft 44 the ends of which project beyond the ends of the spindle and are arranged to be received in bayonet slots 46 provided in end plates 48, FIGURE 4, secured as by welding, to the inner surfaces of the side walls 14. The spindle 42 is arranged to removably receive the usual hollow roll supporting core member 50 of a roll of toilet paper 51.

It is preferred that the spindle 42 be of a size to frictionally grip the interior surface of the core member 50 in order that the roll of paper as well as the spindle will all turn in unison on the side journaled supports. To insure such a positive grip with the core member 50 and to permit easy insertion of said core on the spindle, the latter has a tapered surface 52 provided with longitudinal ribs 54. These ribs are radially dimensioned selectively to provide a uniform diameter throughout the length of the spindle. Thus, when a roll of paper is inserted from the right hand end, as viewed in FIGURE 2, the ribs can accommodate any non-round distortion which may exist in the core member 50.

Secured to one side wall 14 of the housing 10 is a drive motor 56 and gear reduction assembly 58. An output shaft 60 from the gear reduction assembly 58 projects into and across the housing 10 for journaled support in the opposite side wall 14. This shaft carries integrally thereon a dispensing roller 62 having a friction surface 64. Associated with the dispensing roller 62 is an idling pressure roller 66 having a friction surface 68. Pressure roller 66 is mounted on a pair of side arms 70 by means of a shaft 72 journaled in these arms. Arms 70 are pivotally attached to the side walls 26 of the cover 20 by pivot pins 74 and are arranged to move the pressure roller 66 into engagement with the dispensing roller 62. Pressured engagement of the roller 66 against the roller 62 is accomplished by compression springs 76 disposed between the front wall of the cover 22 and the arms 70, the springs being held in place by suitable pins 78 secured on the front wall of the cover 20 as well as on the arms 70.

A stop pin 79 is secured to one of the side walls 26 of the cover interiorly thereof and is positioned to limit spring pressed movement of the roller 66 when the cover is opened. That is, this pin is selectively positioned so as not to interfere with the pressured engagement of the roller 66 against the roller 62 but will be engaged by one of the arms 70 when the cover is opened to keep the roller 66 in said cover.

A roll of paper 51 is mounted on the spindle 42 such that its free end 82 is on its forward side. This free end is disposed between the rollers 62 and 66, whereby upon rotation of roller 62 in the direction of arrow 84, FIGURE 1, by operation of the motor 56, paper is unrolled from the roll 51. Springs 76 have sufficient strength to provide the necessary gripping force of the two rollers 62 and 66 on the paper. The guide slot 36 is disposed vertically below the engaging point of the rollers 62 and 66 and paper pulled from the roll will thus discharge through bottom opening 38. Baffles 32 and 34 extend upwardly to a point closely adjacent the rollers and serve to prevent the paper from becoming entangled with internal structure.

Motor 56 is suitably electrically driven such as by one or more dry cells supported in a casing 86 at the bottom of the housing 10. Disposed in the circuit to the motor 56 is a switch 88 which as shown may comprise a push button type switch. In a preferred arrangement, the switch 88 is mounted on the wall portion 22 of the cover 20 whereby to be available for ready manipulation by the operator.

In the operation of the present dispenser the switch **88** is held down until sufficient paper has been ejected from the bottom opening **38**. When it is necessary to reload the dispenser, the front cover **20** is swung upwardly to remove the spindle **42** and the old core member **50**. A new roll is then mounted on the spindle and the latter reinstalled in the housing. It is then merely necessary, with the new roll installed, to pull the free end of the roll down sufficient an amount such that when the cover is closed the free end of the paper will be engaged between the rollers **62** and **66**.

It is desirable that the cover portion **20** at the opening **38** be provided with a full width sharpened cut-off edge **90** in the event it is necessary to tear paper from the opening.

It is to be understood that the form of my invention herein shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A toilet paper dispenser comprising a housing, means in said housing adjacent the upper end thereof for rotatably supporting a supply roll of paper, a front cover hingedly attached to said housing and arranged to be opened for providing access to the interior of said housing, a first dispensing roll mounted in said housing, a second dispensing roll mounted in said cover, said dispensing rolls having surface engagement with each other when said front cover is closed whereby to frictionally grip a layer of paper from said supply roll and pull paper therefrom when one of said dispensing rolls is rotated, said dispensing rolls being spaced from each other when said cover is open whereby to permit manual feeding of paper from said supply roll therebetween, means defining a discharge opening in said housing below said dispensing rolls, electric drive means connected wtih one of said dispensing rolls for driving the same to dispense paper through said opening, an electric circuit for said drive means, and a switch in said circuit for selectively operating said electric drive means.

2. A toilet paper dispenser comprising a housing, a spindle mounted in said housing adjacent the upper end thereof for rotatably supporting a supply roll of paper, a front cover hingedly attached to said housing and arranged to be opened for providing access to the interior of said housing, a first dispensing roll mounted in said housing, a second dispensing roll, pivotal arm means in said cover supporting said second dispensing roll, means biasing said pivotal arm means in a pivoted direction towards said first dispensing roll whereby said second dispensing roll has surface engagement with said first dispensing roll when said front cover is closed to frictionally grip a layer of paper from said supply roll and pull paper therefrom when one of said dispensing rolls is rotated, said dispensing rolls being spaced from each other when said cover is open whereby to permit manual feeding of paper from said supply roll therebetween, means defining a discharge opening in said housing below said dispensing rolls, electric drive means in said housing connected with said first dispensing roll for rotatably driving the latter to dispense paper through said opening, an electric circuit for said drive means, and a switch in said circuit for selectively operating said electric drive means.

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