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DISPENSER FOR DISPENSING FLUFFY FIBROUS MATERIAL

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Fig. 1.

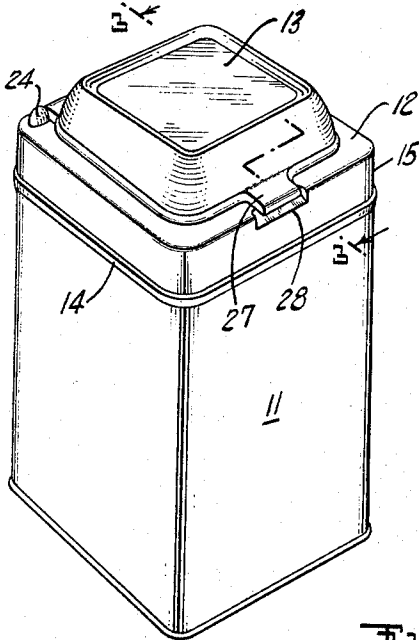


Fig. 2.

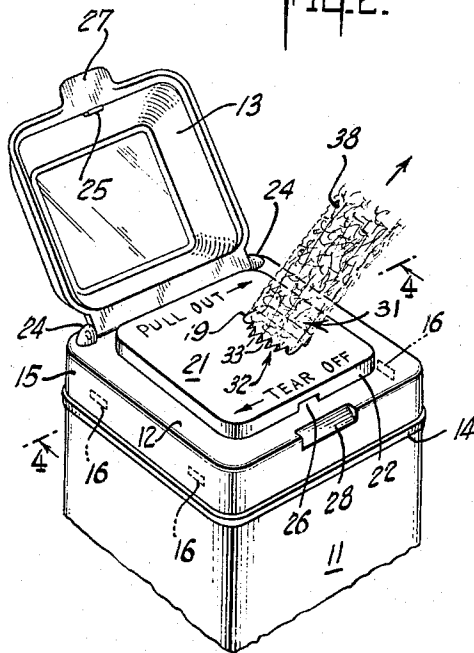


Fig. 3.

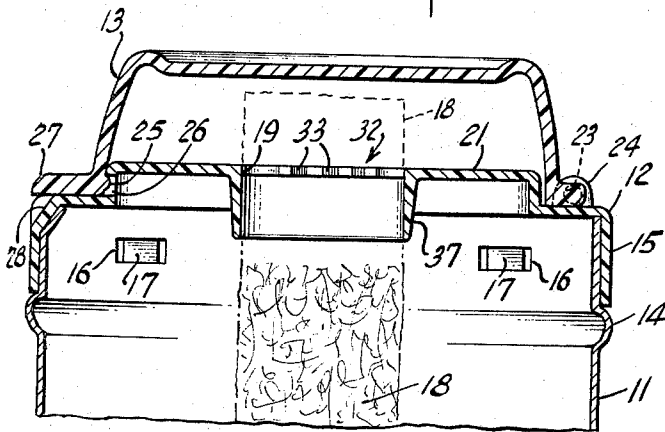


Fig. 5.

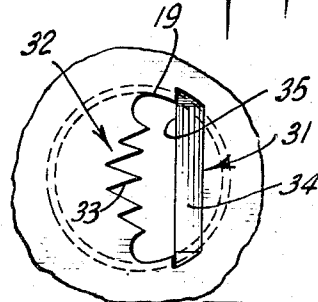


Fig. 6.

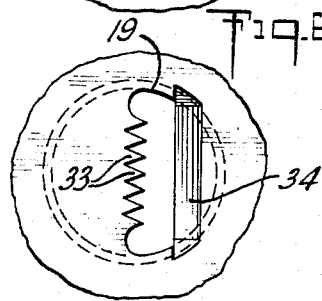
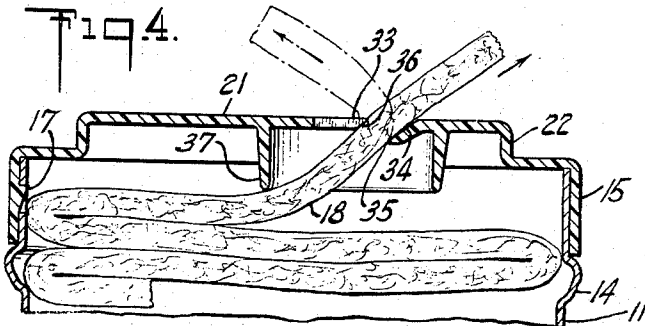


Fig. 4.



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DISPENSER FOR DISPENSING FLUFFY FIBROUS MATERIAL

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The present invention relates to a dispenser for fluffy fibrous material such as absorbent cotton, in strip form.

The present invention contemplates means for dispensing fluffy fibrous material from a supply of such material, which allows small pieces of the material to be readily drawn from and detached from the supply. Absorbent cotton in strip form may be coiled or piled inside the container portion of a dispenser according to this invention and the end of the strip may be presented by the dispenser in such a way that a length of cotton may be drawn out readily from the supply and detached or torn from the cotton strip simply by pulling the end of the strip against a portion of the dispenser.

The end of the strip is presented through a dispensing opening having one relatively smooth edge and an opposite edge which includes means for gripping the strip or impeding its movement through the opening. A length of the strip is drawn longitudinally through the opening while pulling it laterally against the relatively smooth edge. In this "pull-out" operation the fluffy fibrous material of the strip is pulled away from or out of engagement with the gripping means on the opposite side of the opening. When a sufficient length is drawn through the opening, the end of the strip is swung from the "pull-out" to the "tear-off" position, i.e., the withdrawn length of the strip is pulled in the opposite direction laterally into contact with the gripping means on the opposite side of the opening. The gripping means holds the strip or impedes its longitudinal motion through the opening sufficiently to allow the desired length to be torn from the end of the strip. A portion of the strip remains protruding through the opening, thereby providing a new strip end for future dispensing.

This invention also contemplates such a dispenser wherein the dispensing opening is elongated or slot-like and, in this respect, is particularly suitable for dispensing fluffy material such as absorbent cotton in strip form. In other words, the opening possesses elongated sides, one of which is relatively smooth, and the other of which includes means for gripping the fibrous material. The width or distance across the slot from the smooth side to the gripping means, preferably, is in the same order of magnitude or approximately equal to the thickness of the strip of fibrous material in that direction. Thus, when the end of the strip is swung from the "pull-out" to the "tear-off" position, the gripping means comes into almost immediate contact with the strip. In addition, the end of the strip will be held in position, when at rest, by the sides of the opening. However, when the strip is pulled over against the smooth side of the opening, it is more or less pulled out of engagement with the gripping means so that it may be drawn readily from the dispenser.

Advantageously, when the material to be dispensed is in strip form, which incidentally is preferred, guiding means, which may be in the form of a collar depending from that portion of the dispenser defining the dispensing opening, is provided for leading the strip of fibrous material from the supply to the dispensing opening. This prevents jamming of the fibrous material in the opening.

A preferred form of dispensing opening has sharp serrations or teeth on one of its sides and a relatively smooth ledge on the other, with the ledge depressed

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slightly below the points on the teeth to facilitate the "pull-out" "tear-off" operation.

An advantageous form of dispenser according to this invention includes a top portion molded from a suitable plastic material with the dispensing opening located in a raised platform which may be integral with the top. A hinged cover may be provided which fits closely around the platform and seats below the platform upon the surrounding portions of the plastic top. This minimizes the sifting of dust under the edges of the hinged top and over the platform to the exposed end of the fibrous material to be dispensed.

According to this invention, there is provided a sanitary and efficient dispensing unit which comprises a hollow container portion, a top for the container which includes a platform defining a "pull-out" "tear-off" dispensing opening, a hinged cover, and a supply of fluffy material, such as absorbent cotton, in strip form inside the dispenser with one end of the strip protruding through the dispensing opening ready to be dispensed.

Other advantages of the invention will be apparent from the following description and claims taken together with the drawings wherein:

FIGURE 1 is an isometric view of a dispenser according to this invention with the hinged top closed;

FIG. 2 is a similar view of a portion of the dispenser of FIG. 1, showing the hinged top open and the end of a strip of absorbent material protruding through the dispensing opening;

FIG. 3 is an enlarged fragmentary view partly in section and partly in elevation, taken along the line 3-3 of FIG. 1;

FIG. 4 is a similar enlarged view partly in section and partly in elevation taken along the line 4-4 of FIG. 2, and with the hinged top omitted for clarity;

FIG. 5 is a fragmentary plan view of the portion of the dispenser of FIG. 2 which defines the dispensing opening; and

FIG. 6 is a similar view of a dispenser having a dispensing opening according to another embodiment of the invention.

Referring to the drawings, there is shown a dispenser which comprises a box-like container portion 11 and a snap-on top 12 having a hinged cover 13. While the container, the top, and the cover may be of any one of a number of suitable materials, including various metals, paper, plastic, and the like, it is preferred that the container portion 11 be formed from a flexible metal, such as tin plated can steel, and that the top 12 and the hinged cover 13 be molded from a suitable plastic or plastics, such as styrene, or a similar durable and strong material. Preferably, the top 12 is formed from an opaque plastic material, while the cover is transparent. The sides and the bottom of the container portion 11 may be swaged or otherwise secured together in a conventional way. As shown best in FIGS. 2, 3 and 4, a shoulder 14 is provided around the sides of the container portion 11 on which the plastic top 12 of the dispenser may be seated. The top has a depending exterior flange 15 which is shaped to fit over the top of the container portion and rest on the shoulder 14. Opposite pairs of slots 16 are provided in an upstanding portion of the sides of the container above the shoulder 14 for receiving corresponding pairs of projections 17 molded integral with opposite sides of the flange 15 depending from the plastic top. The projections 17 are wedge shaped so that the plastic top 12 may be snapped on to the container portion 11 of the dispenser when it is desired to close the dispenser. A strip 18 of fluffy material, such as absorbent cotton, is coiled, piled, or otherwise stored inside the container portion 11 of the dispenser and one end of the strip is drawn through a dispensing opening 19 in the plastic top 12. Then the top

12 is snapped on to the container 11 to close the dispenser.

As shown most clearly in FIGS. 2, 3 and 4, the dispensing opening 19 is located in a raised platform 21, which in turn is centrally located in the plastic top. The platform 21 occupies a major portion of the area of the top of the dispenser and is joined to the rest of the top, along its edges by vertical walls 22. The hinged cover 13 is shaped to correspond to a certain extent with the raised platform. That is, the edges of the cover 13 fit down around the walls 22 of the platform 21 fairly closely. The cover 13 is hinged to the plastic top 12 behind the platform 21 through male portions 23 of the cover which enter raised female portions 24 of the plastic top adjacent the sides of the top. The cover is held in position by a detent 25 which enters another slot 26 provided in the front wall 22 of the platform. A lifting tab 27 molded integral with the cover 13 is provided adjacent the detent 25 for opening and closing the cover. The plastic top of the dispenser contains a depressed portion 28 in line with the lifting tab 27 to allow access to the latter.

The dispensing opening 19 is located slightly off center in the raised dispensing platform 21 of the top of the dispenser for a reason which will be described more fully hereinafter. In the embodiments shown in the drawings, the dispensing opening is elongated, possessing one relatively smooth longitudinally extending side 31 and an opposite longitudinal side 32 which includes a plurality of pointed serrations or teeth 33 for gripping purposes.

Referring to FIGS. 2-5, the relatively smooth longitudinal side 31 is in the form of a ledge 34 having a leading edge 35 depressed below the teeth 33 on the opposite side of the opening and below the rest of the dispensing platform. The teeth 33 are pointed and, as shown in section in FIG. 4, present leading surfaces or edges 36 which are inclined upwardly in the direction of the opposite smooth side 31 of the opening. Correspondingly, the ledge 34 formed in this smooth side of the opening is inclined downwardly into the opening. The advantages of these features will be explained more fully hereinafter. Guiding means in the form of a cylindrical collar 37 depending from the dispensing platform 21 is provided around and below the dispensing opening for leading the strip of fibrous material thereto.

In the embodiment of FIGS. 2-5 and in the embodiment of FIG. 6, the width or the distance across the slot 19 from the leading edge 35 of the ledge 34 to the inclined leading edges 36 of the teeth 33 is approximately equal to the thickness of the strip 18 or at least in the same general order of magnitude therewith, as will be described more fully hereinafter. In the embodiment of FIGS. 2-5, the teeth 33 follow a slightly curved pitch line with the center teeth being slightly larger than the teeth at the ends of the gripping means so formed. The curvature is such that the slot form ledge 34 to tips of teeth 33 is slightly wider in the center of the slot than at the ends. This is somewhat advantageous in feeding strip or rope material in this manner since the strip tends to become thicker at the center and thinner at its edges. For the same reason, the heavier teeth in the center of the slot may be advantageous in gripping the strip as it also is heavier in the center. However, the teeth may be of different sizes, and shapes, and in different arrangements. For instance, they may all be of the same size and shape and arranged in a straight line as shown in FIG. 6.

With the dispenser assembled and the end 38 of the strip 18 of fibrous material protruding through the dispensing opening 19, the dispenser is ready for operation. In operation, the end of the strip is drawn longitudinally through the dispensing opening 19 in the pull-out direction in such a way that it is pulled against and over the relatively smooth inclined ledge 34 at one side of the dispensing opening, as shown in FIGS. 2 and 4. When the desired length of fibrous material is drawn from the dispenser, the end 38 of the strip is swung in the opposite, or tear-off, direction so that the portion of the strip which is

located in the dispensing opening 19 is pulled against or into intimate contact with the row of teeth 33 on the other side of the opening, as shown in phantom in FIG. 4. Further pull in this direction upon the end of the strip 18 will tear off most of that portion of the strip extending outside the dispensing opening thereby detaching a piece of fibrous material for use.

Since the fibrous material preferably is in the form of a rope or layer of more or less randomly intermingled fibers, tearing off a piece of the strip in this way will not sever the strip at the level of the dispensing opening. On the contrary, the strip is held at this level and the tearing occurs in the strip quite a bit above the gripping means. Thus, a length or a free end of the strip remains protruding through the dispensing opening for subsequent dispensing. This length more or less remains extending in the tear-off direction, very much as shown in FIG. 4. It is mainly for this reason that the dispensing slot 19 is located off center since this assures that the tip of the free end of the strip will not extend over the edge of the platform 21 and thereby become caught under the edge of the cover 13 when it is closed.

As shown particularly in FIG. 4, when the strip is pulled in the pull-out direction, it is drawn away from engagement with the points on the teeth 33 on the gripping side of the dispensing opening. The supply of fibrous material is located below the dispensing opening, and since the end of the strip is pulled against the smooth ledge 34, it also may be compressed somewhat as it passes over the ledge in such a way as to avoid engagement with the teeth 33 on the opposite side of the opening. However, even if there is some contact between the strip 18 and the teeth 33 on the opposite side of the opening as the strip is drawn in the pull-out direction, the teeth and the strip do not come into gripping relation with one another. In the embodiment shown in the drawings and illustrated particularly in FIG. 4, the operation of the dispenser as the strip is drawn in the pull-out direction is further enhanced by the fact that the leading edge 35 of the smooth side of the dispensing opening is depressed somewhat below the level of the teeth 33 on the opposite side of the opening. The top of the ledge 34 at the smooth side of the opening is inclined in the same general angular direction in which the end of the strip is drawn from the opening, and the leading or front edges 36 of the gripping teeth 33 also are inclined in the same general angular direction. Thus, as shown in FIG. 4, as the strip is drawn to the right or in the pull-out direction, the sides of the strip are more or less parallel with the top of the ledge 34, on one side, and the inclined leading edges 36 of the teeth 33, on the other side. When it is desired to tear off the end of the strip, the specific structure of the dispensing opening of FIG. 4 again is advantageous. Since the leading edge 35 of the smooth side of the dispensing opening is depressed below the level of the opposite side of the opening and therefore the width of the opening has a horizontal and a vertical component, this edge may be located closer horizontally to the opposite side of the opening than if it were on the same level therewith. In other words, in the preferred form of dispensing opening shown in the drawings, the horizontal distance between the leading edge 35 on one side of the opening and the tips of the teeth 33 on the other side of the opening, is less than the thickness of the strip. This is advantageous for holding the free end of the strip in position for dispensing. Thus, as indicated in FIG. 4, as the end of the strip 18 is swung from the pull-out to the tear-off direction, it does not lose contact with the leading edge 35 at the smooth side of the opening at least until it comes into full engagement with the teeth 33 at the opposite side of the opening. Preferably, contact is maintained with both sides of the opening as shown in FIG. 4. Thus, the strip is under full control at all times during this operation. Similarly, as the end of the strip is torn off, the short free end nor-

mally will remain roughly in the position shown in phantom in FIG. 4 with one side of the strip in contact with the leading edge 35 of the smooth side of the dispensing opening and the other side of the strip in contact with the gripping teeth 33 at the other side of the dispensing opening. In this way the end of the strip is held ready for subsequent dispensing.

It should be understood that when the word "strip" is used in the specification and claims with reference to the fluffy fibrous material to be dispensed, it is intended to mean any strip, rope, or other body of fluffy absorbent material which is capable of being drawn continually through the dispensing opening and torn off in the dispensing operation which just has been described. Preferably, the fluffy material is in the form of a strip of fibers which are intermingled sufficiently to provide the necessary strength to the strip for handling purposes and yet do not present a high degree of resistance to tearing of the strip. Various absorbent materials may be used. For instance, absorbent cotton, rayon, or similar cellulosic fibrous absorbent materials may be dispensed readily in the form of a strip or a narrow layer of intermingled fibers, such as is shown in the drawings, in accordance with this invention.

Having now described the invention in specific detail and exemplified the manner in which it may be carried into practice, it will be readily apparent to those skilled in the art that innumerable variations, applications, modifications, and extensions of the basic principles involved may be made without departing from its spirit and scope. I therefore intend to be limited only in accordance with the appended patent claims.

The claims are:

1. A dispenser for fluffy fibrous material in strip form which comprises a container for holding a supply of said material, a dispensing platform at the top of said container, said platform defining a dispensing opening of fixed dimensions, and a supply of said strip material in said container, said dispensing opening being located above said supply of strip material and having a relatively smooth ledge on one side and a plurality of teeth protruding from the opposite side into the opening, said strip being drawn through said opening in contact with said teeth on one side of the opening and said ledge on the other side of the opening, the leading edge of said ledge being horizontally spaced from the tips of said teeth by an amount slightly less than the thickness of the strip whereby the strip is prevented from being displaced from the teeth and falling back into the container after a length

of the strip material has been torn away from the strip by pulling the strip against the teeth.

2. A dispenser for fluffy fibrous material in strip form which comprises a container for holding a supply of said strip material, and a dispensing platform at the top of said container, said platform defining a dispensing opening of fixed dimensions, said dispensing opening having a relatively smooth inclined ledge on one side and having a plurality of teeth protruding from the opposite side into the opening, the leading edge of said ledge being positioned vertically below and horizontally away from the tips of said teeth and the top of said ledge and the leading surfaces of said teeth being inclined in the same general direction, the shortest distance across said opening measured at an angle to the plane of the platform from the ledge to the inclined leading surfaces of said teeth being approximately equal to the thickness of the strip, the horizontal component of said distance in the direction of the plane of the platform being less than the thickness of the strip.

3. A dispenser for fluffy fibrous material in strip form which comprises a container for holding a supply of said strip material, and a dispensing platform on said container, said platform defining a dispensing opening of fixed dimensions, said dispensing opening having a relatively smooth ledge on one side and having a plurality of teeth protruding from the opposite side into the opening, the shortest distance across said opening from the ledge to the leading surfaces of said teeth being approximately equal to the thickness of the strip, the teeth adjacent the center of the opening being larger than the teeth at the ends of the opening and said teeth following a pitch line which is curved away from the center of the ledge.

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