March 23, 1937. H. SADJIAN 2,074,674

DISPENSING DEVICE FOR SLENDER ARTICLES

Filed March 5, 1934 2 Sheets-Sheet 1

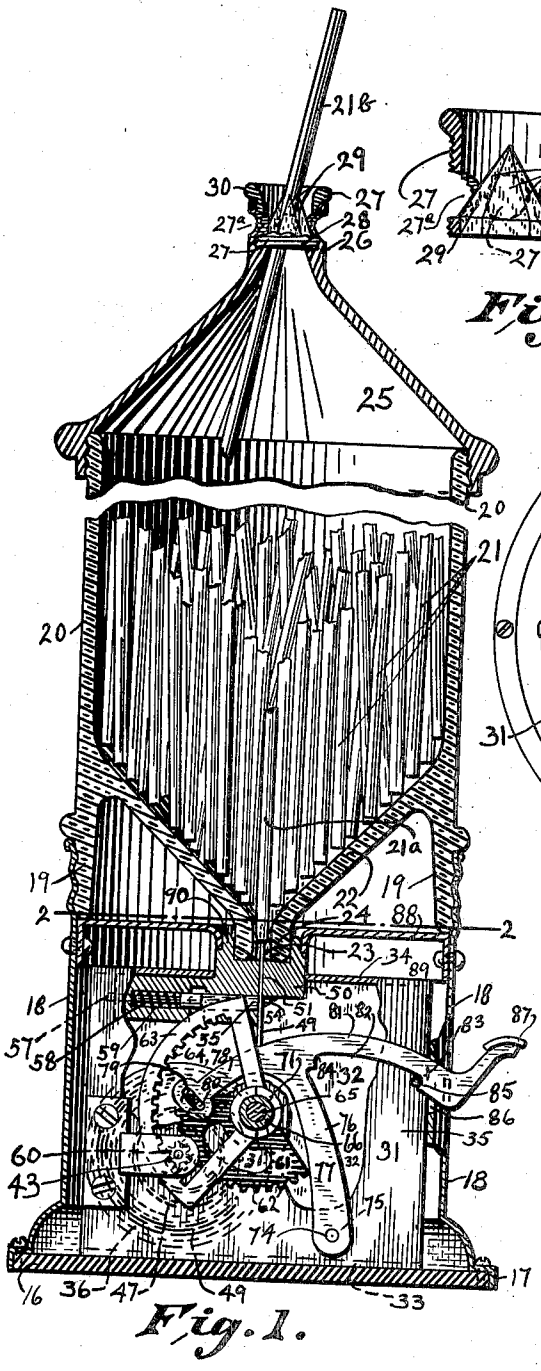


Fig. 1.

Fig. 6.

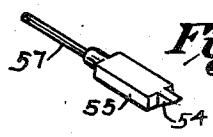


Fig. 5.

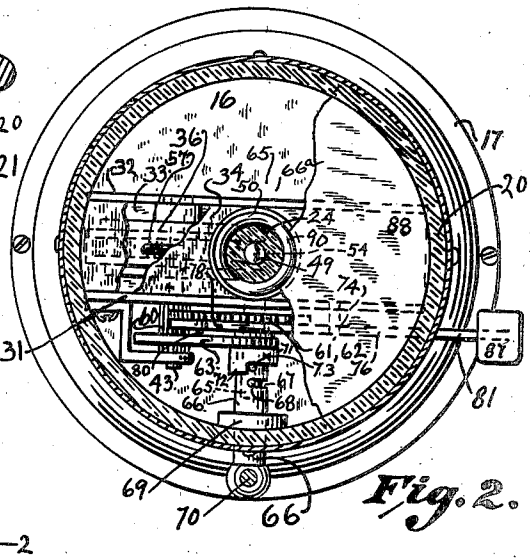


Fig. 2.

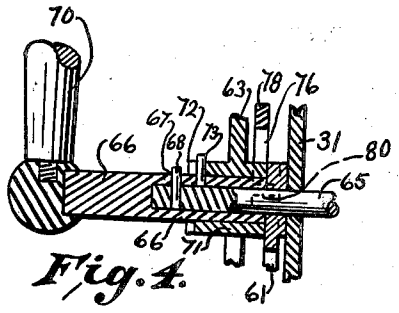


Fig. 4.

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DISPENSING DEVICE FOR SLENDER ARTICLES

Filed March 5, 1934 2 Sheets-Sheet 2

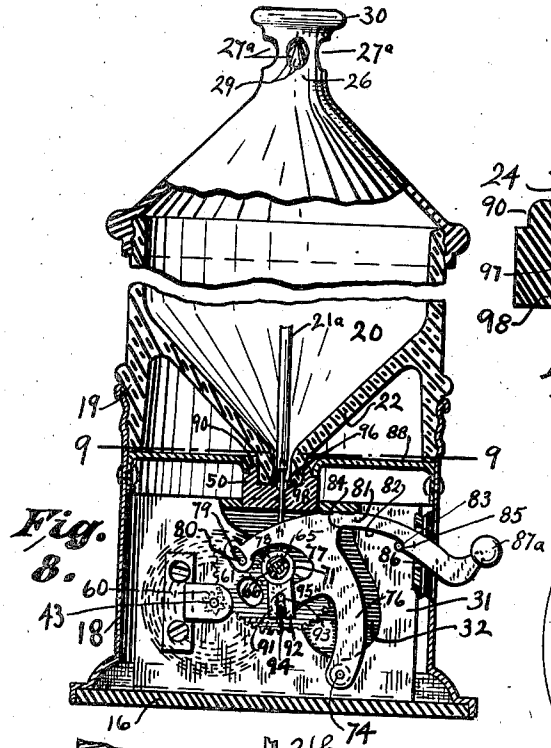


Fig. 8.

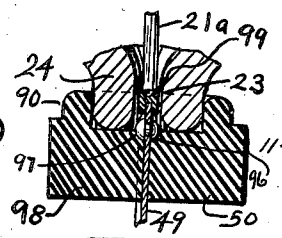


Fig. 11.

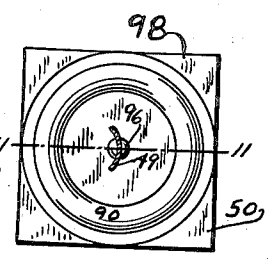


Fig. 10.

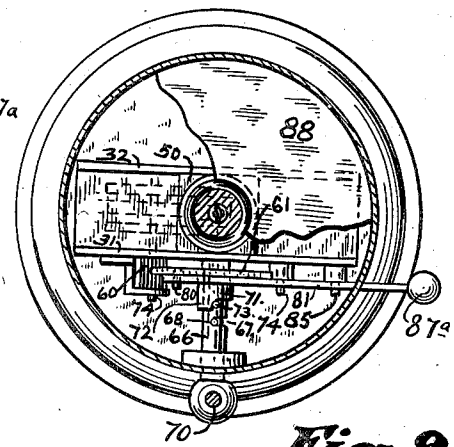


Fig. 9.

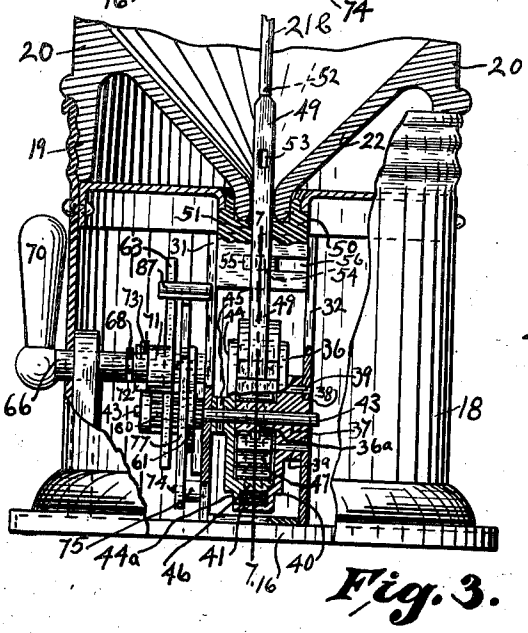


Fig. 3.

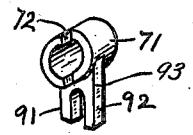


Fig. 12.

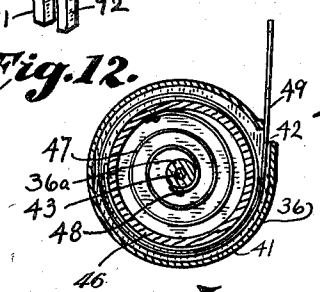


Fig. 7.

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UNITED STATES PATENT OFFICE

2,074,674

DISPENSING DEVICE FOR SLENDER ARTICLES

Harry Sadjian, Philadelphia, Pa.

Application March 5, 1934, Serial No. 714,032

7 Claims. (Cl. 312—78)

This invention relates to dispensing devices for slender articles.

One of the objects of my invention is to provide a dispensing device for holding and delivering slender articles, having the device adapted to operate automatically, when manually actuated, to discharge one of said articles at a time vertically upward from a magazine adapted to hold a number of said articles in the vertical position. The articles may be pencils, cigarettes, cigars or other articles which are slender, but the particular embodiments of my invention illustrated and herein described are designed for handling drinking straws, where the device is to stand upon a counter or table and is preferably designed to occupy as small a space as possible, and to be operated at more than one side thereof by the hand, for the convenience of a customer, standing or sitting near the device.

The inner surface of the magazine I form like certain other magazines with a cylindrical wall and a hopper bottom with a hole in the center thereof, having the top conical, terminating in an opening into which the slender article is guided as it is elevated.

A further object is to provide in a closed dispensing device, a closure for the opening at the top, designed to be normally closed, and preferably dust tight for sanitary reasons. I also provide open spaces in the top neck of the device to be above and surrounding the closure to permit dust and dirt lodging on the closure to shake off, while at the same time permitting the easy upward passage of the protruded slender article, having the closure also designed as a holder to retain the slender article partly protruding, after the elevating means, below, has been retracted for the next elevating movement. I desire to have the holder so designed as to afford an angular freedom to the protruding article, permitting of a leaning position thereof to avoid bending the straw or slender article, when removing it by hand.

A further object is to provide in connection with the automatically operating mechanism, a slender elevating means which is preferably made in the form of a thin ribbon of sheet metal adapted to be wound upon a narrow drum and upon itself. The type of thin metal ribbon, which I prefer to use, is one which is normally curved transversely to its length, but which is also flexible enough to become straight transversely, when wound upon a drum and when extended becomes transversely curved, causing it to become self-straightening as well as self-stiffening, so when standing up from a guiding slot in a guide block through which it passes, it will stand straight in line with the guide, that determines its position.

In selecting such a ribbon element to be used in connection with the elevating means, I desire to take advantage of its compactness, particularly when wound upon a drum and thus to economize in the height of the required casing of the device for practical reasons.

In connection with the slotted guide, I provide a stop on the ribbon to limit its retracted movement, so as to position the upward receiving end of the ribbon to register with the lower end of the article which has gravitated thereto, to be elevated.

Another object is to provide, in connection with mechanism, adapted to fulfill the above named objects, two sets of manually actuating means, located with one set having its handle projecting from one side of the casing of said device, while having the handle for the other of said sets of actuating means, projecting from a different point on said casing, angularly spaced, horizontally, from the handle of the other of said sets of manually actuating means.

A further object is to provide a manually actuating means having a horizontally projecting sleeve with a handle, and shaft, adapted to be turned by moving the handle to the right or left, whereby either turn of the handle serves to actuate the elevating means.

With these and other objects, as will hereinafter appear, my invention resides in certain construction, adapted to fufill the above named objects, the said construction being shown in various embodiments of my invention illustrated in the drawings, which are hereinafter described in detail. The operation of the said invention is explained and what I claim is set forth.

In the drawings,

Figure 1 is a sectional elevation of one form of a slender article dispensing device embodying my invention.

Figure 2 is a horizontal section taken on the line 2—2 of Figure 1.

Figure 3 is another sectional elevation showing a different view of the lower part of the device shown in Figures 1 and 2.

Figure 4 is a sectional elevation of the handle, sleeve and shaft portions of one of the sets of the manually actuating means.

Figure 5 is a perspective view of the tongue member of the latch stopping means, for stopping the ribbon.

Figure 6 is a sectional elevation showing the construction of the holding means for the elevated article.

Figure 7 is an elevated section taken in the plane of the spool-like drum with the winding spring inside and the ribbon tape outside, but within an enveloping casing.

Figure 8 is a sectional elevation of another form of actuating mechanism embodying my invention.

Figure 9 is a horizontal section taken on the line 9—9 of Figure 8.

Figure 10 is a top plan of the guide block shown in connection with Figures 8 and 9.

Figure 11 is a section taken on the line 11—11, of Figure 10.

Figure 12 is a perspective of the fork shown in Figures 8 and 9.

In the figures, referring particularly to Figures 1 to 7, inclusive, the base of the device has a bottom disc plate 16, releasably fixed in the flange 17 of the sheet metal cylindrical wall 18, forming part of the casing of the device. Threaded with the upper part of the wall 18 is the skirt 19, of the glass container 20 forming a magazine for the drinking straws 21, standing upright within and resting upon the inclined surface of the hopper bottom 22, having one of the straws numbered 21^a, standing within the hole 23, of the neck 24, of the hopper bottom 22. The hole 23 is slightly larger in diameter than the straw 21^a but only large enough to admit but one straw at a time to gravitate into it. In threaded engagement with the upper end of the container 20 is the conical metal cap 25, which is convergent upward, terminating in a cylindrical neck 26. Screwed into the neck 26 is a holder 27, having a threaded wall 28, within the bottom of which is fixed a plurality of flexible and elastic sheet metal pointed fingers 29, which normally lie together, forming a closure to the central opening in the neck 26. These fingers 29 are thin enough to readily yield apart at their points, to permit a straw to be protruded through the holder 27 and held there by the finger points, against falling back. The wall 28 has a rounded rim 30. Dust and dirt lodging upon the holder 27 can shake off thru the holes 27^a thru the neck 26 and the wall 28.

Considering the operating mechanism housed within the wall part 18, we have the two upright parallel plates 31 and 32 fixed to and spaced by the horizontal plates 33 and 34, and all fixed to the bottom disc plate 16. The frame 35 thus formed by the plates 31, 32, 33 and 34, is centrally located on the bottom disc plate 16.

Positioned between the plates 31 and 32 (see Figure 3), is the ribbon and spring casing 36, having a hub 37, fitting a hole 38, in the plate 32, and pinned to this plate 32 against turning by the pins 39. The casing 36 has a circumferential shoulder 40 and a flange 41 (see Figure 7), with an open cross slot 42 therein. Journaled in the casing hub 37 and the plate 31, is a short shaft 43, upon which is fixed the disc 44, by means of the pin 45 passing through the hub of the disc 44 and the shaft 43. The disc 44 has an inturned flange 46, reaching to near the shoulder 40 and spaced within the flange 41. Walling in the space between the outer edge of the flange 41 and disc 44, is the disc extension 44^a. The hub 36 has an inner sleeve extension 36^a extending along the shaft 43 to the disc 44. Fixed at its inner end to the extension 36^a and at its other end to the inside of the flange 46, is a coiled clock spring 47. The fastening of the spring 47 at the lug 48, upon the sleeve extension 36^a is of a releasable hook and spring hole formation, similar to that in watches, permitting the spring and its container to be assembled or taken apart. Wound and fixed upon the outer surface of the rotatable flange 46, and within the stationary flange 41, is the narrow sheet metal ribbon 49. This ribbon 49 while being adapted to be wound upon the flange 46, assumes, due to the manner in which it is manufactured, a transversely curved formation when extended freely beyond its coiled condition, so as to assume also, a self-stiffened and self-straightened formation.

Fixed to the upper parts of the plates 31 and 32, is the guide block 50, having a vertically positioned, transversely curved slot 51, through which the transversely curved ribbon 49 slidingly fits for reciprocation and to give a vertical axial position to the free extension of the ribbon 49 as it rises within the magazine container 20, elevating a straw engaging the upper end of the ribbon 49, which is adapted to engage the hollow straw 21^a and is pointed, as shown at 52, in Figure 3. In order to limit the downward position of the point 52, I provide a rectangular slot 53, below the point 52, in the ribbon 49, to be engaged by the tongue 54 of the latch member 55, which is in sliding engagement with a channel 56, in the guide block 50. The stem 57, of the latch member 55, is surrounded by a compression spring 58, within the hole 59, and acts to normally press the latch member 55 toward the ribbon 49, so as to have the tongue 54 engage the slot 53, during a downward movement of the ribbon 49, as the slot 53 comes in registration, while, on account of the tongue 54 being beveled below, the ribbon 49 is free to move upward.

The operating means for causing the shaft 43 to rotate and wind the spring 47, while unwinding the ribbon 49, to elevate a straw, includes a wide faced pinion 60, fixed to the shaft 43. In mesh with this pinion 60 are two fragmental gears, one numbered 61, with external teeth 62, and the other numbered 63, with internal teeth 64. These gears 61 and 63 are in different planes, but are co-axial. Co-axial with the gears 61 and 63, is the shaft 65. Fixed upon the other end of the shaft 65, next to the plate 31, is the external gear 61, and journaled co-axially upon the shaft 65, is the sleeve 66, having a semi-circular slot 67, engaged by a pin 68, fixed in the shaft 65. The sleeve 66 is also journaled in the upper end of the post 69, and has a handle 70, positioned at its outer end, outside the wall 18, to be turned to the right or left, from an upright position. Journaled upon the sleeve 66, next to the gear 61, is a hub 71, having integral therewith, the other parts of the internal gear 63. The hub 71 has its outer end formed into a semi-circular shoulder 72, for engagement with a pin 73, which is fixed to the sleeve 66, but free from the shaft 65, shown more particularly in detail in Figure 4.

Journaled upon a pin part 74, of a lug 75, fixed to the plate 31, is the T-lever 76, positioned to oscillate in a plane between the gears 61 and 63. The T-lever 76 has an arm 77, with a branch 78, provided at its end with a slot 79, engaging a pin 80, fixed upon the external gear 61, and having a branch 81 curved on an arc whose center is the pin 74. The lower part of the branch 81 is cut away at 82, to form two shoulders 83 and 84, for engagement with the pin 85, fixed in the plate 31. The branch 81, extends out through a slot 86, in the wall 18, and terminates in a metal end 87.

Near the top of the wall 18 is a flat disc 88 with a flange 89, riveted to the wall 18. There is a hole in the center of the disc 88, where it fits around the rim 90, of the guide block 50. Within the rim 90 fits the neck 24, of the container 20. The disc 88 serves as a cover to the operating mechanism below, when the container 20 is removed from the wall 18.

Referring now to the modified form of my invention illustrated in Figures 8–12, inclusive, parts similar to parts just described for the device illustrated in Figures 1–7, inclusive, are similarly numbered respectively. The principal difference resides in the elimination of the toothed portion of the internally toothed gear 63, but retaining the hub 71, and providing integral therewith the two prongs 91 and 92, forming a fork 93, adapted to engage, between the prongs 91 and 92, the pin 94, projecting out from the side extension 95, of the arm 77, of the T-lever 76. Another difference between the forms of my invention illustrated in Figures 1 and 8, is the elimination of the slot 53, in the ribbon 49, and also eliminating the latch member 55, for the purposes of a stop for the ribbon 49, and providing instead a rivet 96, through the ribbon 49, adapted to rest in a pocket 97, in the guide block 98, which is somewhat similar to the guide block 50. The guide block 98 is shown enlarged in the Figures 10 and 11. In Figure 11, I have shown a cupped end 99, to the ribbon 49, adapted to engage the lower end of a solid slender article, like a pencil or a tooth pick.

Considering now the operation of the form of my invention shown in Figures 1–7, inclusive, assume that the magazine container 20, is filled with drinking straws 21, of full length, as now in use. (The straws 21 and the container 20, are shown in Figure 1 to be broken across in order to have the illustration come within the available space upon the drawing sheet.) Then let us assume that the latch member 55 has its tongue 54 engaging the slot 53, in the sheet metal ribbon 49, and that the spring 47 exerts a turning force upon the flange 46, to wind on the ribbon 49, and thereby draw the ribbon 49 down upon the tongue 54, fixing the position of the pointed end 52, of the ribbon 49, within the hole 23, of the neck 24, of the container 20, and that one of the straws, as 21^a, has gravitated into the hole 23 and come to rest, engaging the pointed end 52, of the ribbon 49. We are now ready to raise the straw 21^a, to the position shown by the straw 21^b. Upon pressing down the T-lever 76, at the finger rest 87, the T-lever 76 will turn as the branch 81 moves outwardly and the pin 80, upon the gear 61, engaging the slot 79, of the T-lever 76, will cause the gear 61 to turn clockwise, as we look at Figure 1, and the pinion 60, in mesh with the gear 61, will turn counterclockwise, as will also the shaft 43 and the disc 4, with its flange 46, winding the spring 47, while unwinding the ribbon 49, causing it to move upward, releasing the latch member 55, due to the bevel on the underside of the tongue 54. As the pointed end 52, of the ribbon 49, moves upward, pushing up the straw 21^a, the ribbon 49, moving through the curved slot 51, remains curved, due to its transversely curved formation being its normal condition, when unrestrained, making it self-straightened and self-stiffened, and is given a vertical direction, due to the vertical position of the slot 51, in the guide block 50, with which it slidingly fits. As the ribbon thus pushes upward, the upper end of the straw 21^a hits the conical inner wall of the cap 25, and is guided into the neck 26, and against the pointed flexible and elastic fingers 29, of the holder 27, which yieldingly open to allow the straw to pass upward. Inasmuch as it is not desired to push the straw entirely out, where it will fall down, the straw is left part way out, as is shown at 21^b, positioned to be withdrawn by hand, and held from falling back into the container 20 by the engagement of the points of the fingers 29, with the wall of the straw. By having the fingers 29 inclined to bring their points normally together to be dust tight, there is afforded an angular freedom to the straw as it is held, so that if it is naturally pulled a little to one side, as it is being withdrawn, the tendency to break or bend the straw, as it is being withdrawn, is considerably lessened. After the straw has taken the position just described, as being held by the fingers 29, the pressure upon the finger piece 87 is withdrawn, and the wound spring 47 turns back the flange 46, winding on the ribbon 49, drawing it back to normal position where it is again engaged by the latch member 55, and there held to elevate the next straw, which gravitates down the hopper bottom wall 22, into the neck hole 23, to engage the point 52, of the ribbon 49. As the spring 47 turns back the disc 44 and the flange 46, upon which is wound the ribbon 49, the gear 61 and the pinion 60, cause the T-lever 76 to turn back, bringing the finger piece 87 back to the normal position as shown illustrated in Figure 1.

I have explained above, the operation of elevating a drinking straw, by pressing down upon the finger piece 87, of the T-lever 76. I will now explain another way of turning the pinion 60 for causing the ribbon 49 to elevate a straw. When the handle 70 is turned to the right or the left, it affords another actuating means, at a position around the wall 18, of the container, about 90 degrees from the finger piece 87, thus one has two positions about the wall 18 to select from, when desiring a straw. Confusion as to which way to turn the handle 70, is avoided, by having this handle operate the device by turning it either way. When all parts are in their normal resting position, as shown in Figure 1, the handle 70 stands vertically upright. Suppose we turn the handle 70 to the right, as we face it. Then the upper end of the semi-circular slot 67, bears upon the pin 68 and turns it, and the shaft 65, with its gear 61, which, meshing with the pinion 60, revolves the shaft 43, and upon the turning of this shaft 43, the disc 44, and flange 46 turns, causing the ribbon 49 to unwind and lift a straw which engages the pointed end 52, as above described. Upon releasing the handle 70, the shaft 65 is reversely turned, through the action of the spring 47, and as the shaft pin 68 turns, it bears upon the top end of the cross slot 67 and returns the handle 70 to its normal vertical position.

Assume now that we turn the handle 70 to the left, causing the upper end of the slot 67 to recede from the pin 68, then the other pin 73 will bear against the hub extension 72, to turn the internal gear 63 counter-clockwise, as well as the pinion 60, meshing with it, counter-clockwise, and unwind the ribbon 49 to elevate a straw. Upon releasing the handle 70, from its left-turned position, the internal gear 63, reversely turns, through the action of the spring 47, causes the hub extension 72, to bear clockwise against the pin 73, bringing the handle 70 back to its normal vertical position, ready to be used again. Inasmuch as both gears 61 and 63, mesh with the pinion 60, these gears will move in unison, but in opposite

directions, whichever gear 61 or the gear 63, is initially turned.

Referring now to the operation of the modified form of my device shown in Figures 8 to 12 inclusive, where I dispense with the internal gear 63, and use instead the fork 93, engaging a pin 94 on the arm extension 95, also where I dispense with the latch member 55 and the notch 53 in the ribbon 49, and use instead the rivet 96 as a stop, but retain the T-lever 76 on one side of the device, and the handle 70 with co-operating parts, on another side. Let us assume that the parts of the device are in their normal resting position, shown in Figures 8 and 9. Also let us assume that a straw 21a, has gravitated down the inclined hopper bottom 22 and into the neck hole 23, to rest upon and engage the top of the ribbon 49. Then when pressing down upon the finger piece 87a, of Figures 8 and 9, the T-lever 76 will turn, as the branch 81 moves out through the slot 86, in the wall 18. The gear 61 will at the same time, turn clockwise, (as we look at Figure 8) due to the engagement of the pin 80, of the gear 61, with the slot 79, on the T-lever 76. The fork 93 will turn counter-clockwise due to its engagement with the pin 94, of the arm extension 95. As the gear 61 turns clockwise, the pinion 60 turns counter-clockwise and unwinds the ribbon 49, as above explained in connection with the operation of the device shown in Figure 1. Thus a straw, resting on, and engaging the top of the ribbon 49 is elevated to project out from the top of the dispensing device. Upon releasing pressure upon the finger piece 87a, the spring 47 returns the parts to their normal resting position, and the rivet 96 stops at the pocket 97, holding the ribbon 49 from any further down movement and positioning the top of the ribbon 49 within the neck 23, of the container 20, ready to receive a straw gravitating into the neck 24, to engage the top of the ribbon 49. While the action and subsequent retraction of the various parts takes place, as just described, the fork 93 moves in idle relation, but returns to its vertical downward position, rather slightly inclined from the vertical, for functional reasons, in co-operating with the pin 94, on the arm extension 95. Suppose, after the parts have come to rest, we turn the handle 70 to the right. Then the pin 68 of the shaft 65 will be turned by the sleeve 66 at the semi-circular notch 67, and the turning of the shaft 65 will turn the gear 61 to which it is fixed, and as explained above, the parts operated upon by the turning of the gear 61, cause the ribbon 49 to lift a straw 21a, and upon releasing the handle 70, the ribbon 49 is retracted and the parts assume their normal position. During this action and reaction of the parts responding to the initial turning of the handle 70 clockwise, the fork 93 turns counter-clockwise, and the pin 73 fixed to the sleeve 66, moves idly away from the upper shouldering part of the hub extension 72, which turns in the opposite direction. Assume now that we turn the handle 70 to the left from its normal upright position, then the sleeve 66 turning counter-clockwise, causes the pin 73 to push the hub extension 72 of the fork 93, in the same rotative direction, so that the fork 93 then causes the T-lever 76 to turn clockwise the same as it did, when the finger piece 87a was pressed upon, to pull on the pin 80 and the gear 61 clockwise, to cause the ribbon to rise and lift a straw.

In adapting the device for use in dispensing such slender articles as pencils, toothpicks or stick candy, the adapted upper end of the ribbon 49 can be of a cup formation as shown at 99, in Figure 11.

Inasmuch as other modifications in the forms of my invention than those shown and described, may be made with departing from the spirit and scope of my invention, I wish to include all forms and adaptations thereof which come within the purview of the following claims.

I claim:

1. In a dispensing device adapted to hold slender articles vertically positioned within a magazine having a hopper bottom and a hole at the apex of said bottom, elevating means for said articles, including a winding drum, means for turning said drum, a flexible elastic ribbon wound partly upon said drum and having a part of said ribbon extending from said drum, and a guide for that part of said ribbon extending from said drum for guiding said ribbon into said hole, a stop for said ribbon, adapted to hold said ribbon from having its end recede below said hole, said ribbon being adapted to assume normally, a transversely curved formation after leaving said drum, to give it a self-straightened and self-stiffened alignment to support and propel upward, one of said articles mounted upon the upturned end of said ribbon, within said magazine, as said ribbon is caused to unwind from said drum.

2. In a dispensing device adapted to hold slender articles vertically positioned within a magazine having a hopper bottom with a hole at its apex, and a conical cover top with a hole in its apex, elevating means for said articles, including a winding drum, a manually operated means for turning said drum, a spring for turning said drum contrary in direction to that given by said manually operated means, when this last named means is released, a flexible elastic ribbon wound partly upon said drum and having a part of said ribbon extending from said drum, and a guide for the part of said ribbon free of said drum, to guide said ribbon into the apex hole of said hopper bottom, a stop for said ribbon, adapted to hold said ribbon from having its end recede below the hole in said hopper bottom, said ribbon being adapted to assume normally a transversely curved formation after leaving said drum, to give it a self-straightened and self stiffened alignment to support and propel upward, one of said slender articles, mounted upon the upturned end of said ribbon, within said magazine, as said ribbon is caused to unwind from said drum.

3. In a dispensing device adapted to hold slender articles vertically positioned within a magazine, having means for elevating one of said articles at a time, a spring for retracting said elevating means, said device having a hole in its top, forming an outlet for the slender article raised by said elevating means, a shaft to said elevating means, and manually operated means for actuating said shaft to move said elevating means, intervening mechanism between said shaft and said manually operated means, said manually operated means including a second shaft, a sleeve journaled axially with said second shaft and enveloping a part of said second shaft, a shoulder on said sleeve, a stop fixed on said second shaft and positioned to engage against said shoulder, and to be free to leave said shoulder, and a handle on said sleeve for manually turning the same.

4. In a dispensing device adapted to hold slender articles vertically positioned within a magazine, having means for elevating one of said articles at a time, a spring for retracting said elevating means, said device having a hole in

its top, forming an outlet for the slender article raised by said elevating means, a shaft to said elevating means, and manually operated means for actuating said shaft, to move said elevating means, intervening mechanism between said shaft and said manually operated means, said manually operated means including a second shaft, a gear on the first mentioned shaft, a second gear on the last mentioned shaft in mesh with the gear on the first mentioned shaft, a pin on the said second gear, and a rocking arm engaging said pin, a part of said rocking arm extending through the wall of said device to be manually engaged to operate said elevating means.

5. In a dispensing device adapted to hold slender articles vertically positioned within a magazine, having means for elevating one of said articles at a time, a spring for retracting said elevating means, said device having a hole in its top, forming an outlet for the slender article raised by said elevating means, a shaft to said elevating means, and manually operated means for actuating said shaft to move said elevating means, intervening mechanism between said shaft and said manually operated means, said last named means including a second shaft, a gear on the first mentioned shaft, a second gear on the last mentioned shaft, in mesh with the gear on the first mentioned shaft, a sleeve, axially engaging said last mentioned shaft, a handle on said sleeve for manually turning the same, a hub enveloping said shaft for releasable engagement with said sleeve, an internal gear enveloping and in mesh with said first mentioned gear, said internal gear being integral with said hub, means for releasably engaging said hub with said sleeve, and other means for releasably engaging said sleeve with said second shaft, said last mentioned means being adapted to operate each for a different direction of turning of said handle.

6. In a dispensing device adapted to hold articles vertically positioned within a magazine member thereof, which has a hopper bottom and a hole at the apex of said bottom, elevating means for said articles, including a winding drum, means for turning said drum, a flexible elastic ribbon wound partly upon said drum, and having a part of said ribbon extending from said drum, a guide for that part of said ribbon which extends from said drum, for guiding said ribbon into said hole, said ribbon being adapted to normally assume a transversely curved formation after leaving said drum, whereby it takes on a self-straightened and self-stiffening alignment, to support and propel upward, one of said articles, gravitating down said hopper bottom to said hole and becoming mounted upon the upturned end of said ribbon, as said ribbon is caused to unwind from said drum.

7. In a dispensing device having a magazine for holding articles therein to be dispensed from an exit hole in said magazine, conveying means for moving said articles in the direction of and into said exit hole, said conveying means including a winding drum, means for turning said drum, a flexible elastic ribbon wound partly upon said drum and having a part of said ribbon extending from said drum, and a guide for that part of said ribbon extending from said drum, for guiding said ribbon, to have it move one of said articles in the direction of and into said exit hole, said ribbon being adapted to normally assume a transversely curved formation after leaving said drum, whereby it takes on a self-straightened and self-stiffened alignment between said guide and said article, which it moves into said exit hole, as said ribbon is caused to unwind from said drum.

HARRY SADJIAN.