Feb. 13, 1951 N. F. SMITH 2,541,945

ARTICLE DISPENSER

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Fig. 1

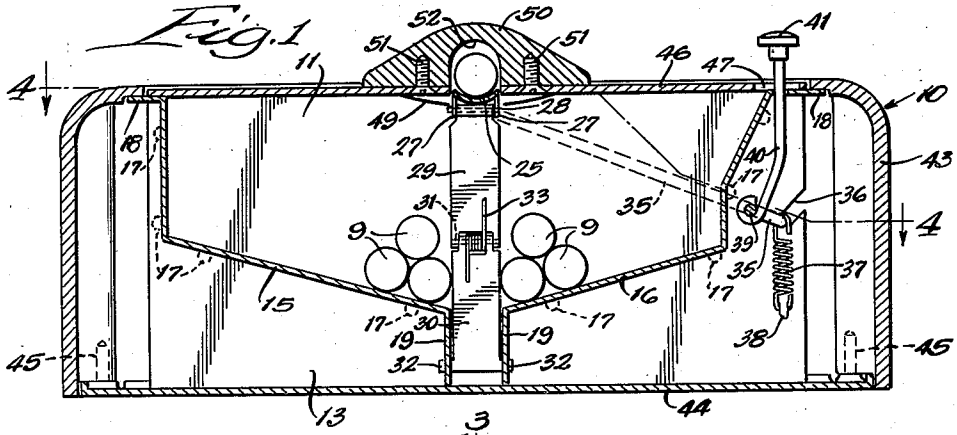


Fig. 2

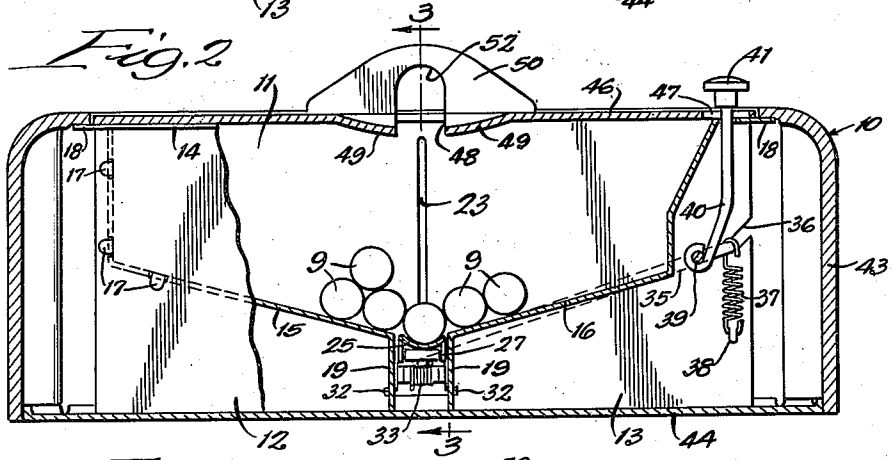
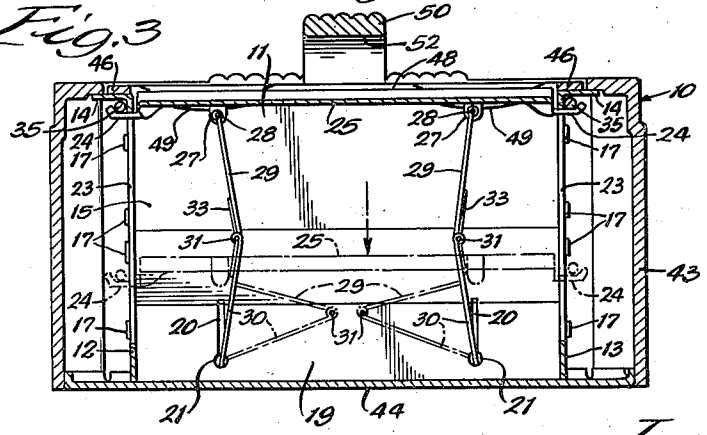


Fig. 3



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ARTICLE DISPENSER

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Fig. 4

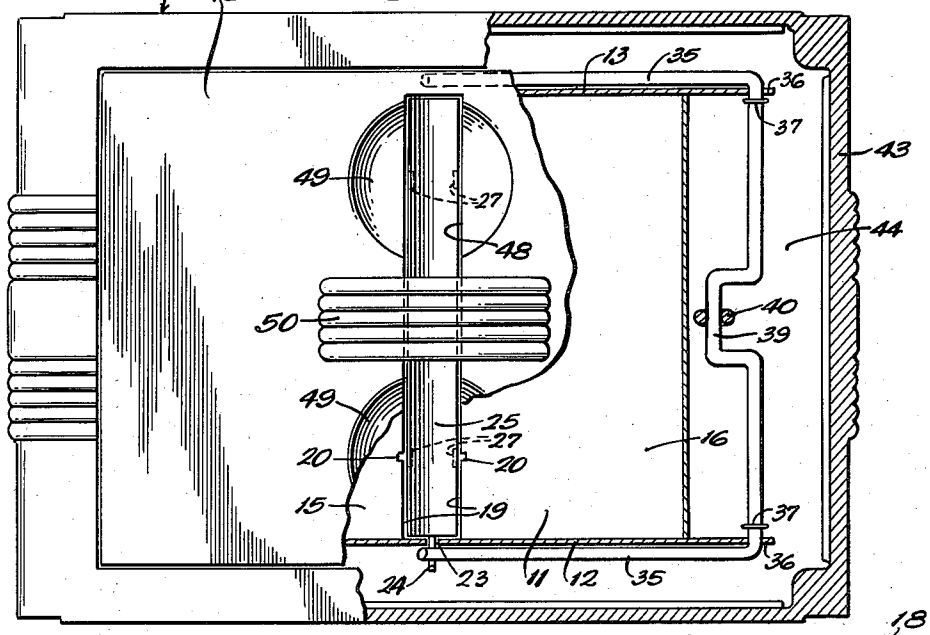


Fig. 5

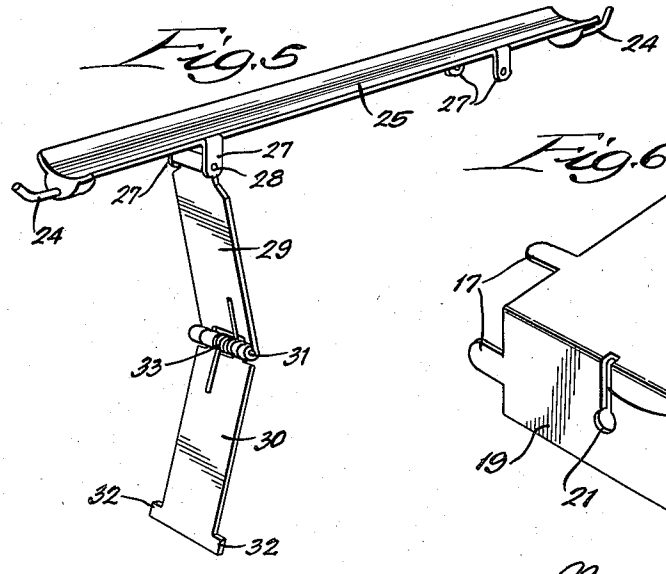
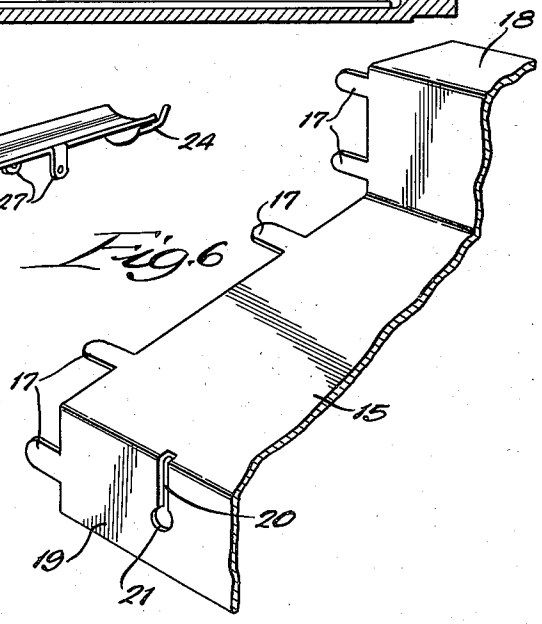


Fig. 6



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UNITED STATES PATENT OFFICE

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ARTICLE DISPENSER

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Application June 4, 1947, Serial No. 752,447

8 Claims. (Cl. 312—79)

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This invention relates to an article dispenser, such as a dispenser for cigarettes and the like.

The principal object of this invention is to provide an improved article dispenser for dispensing articles one at a time, which is simple in construction and operation and which may be manufactured and assembled at relatively low cost. In this connection, the improved article dispenser includes a container having side walls and a bottom wall, preferably fabricated from sheet material, and an elevator for lifting articles from the bottom wall and dispensing them at the top of the container. A pair of toggle arms support the elevator and the latter may be guided in its movement by elevator extensions operating in slots in the side walls. Spring means, preferably on the toggle arms, bias the elevator upwardly to dispensing position and the elevator may be lowered by a U-shaped lever pivoted to the side walls and engaging the elevator extensions. A link extending from the top of the dispenser may operate the U-shaped lever. To facilitate assembly and otherwise aid in low cost of manufacture, the toggle arms may be pivotally mounted in slots in the bottom wall and the U-shaped lever may be pivotally mounted in slots in the side walls.

The article container may be encased in a housing and provided with a top wall having a dispensing opening through which the articles are dispensed by the elevator. A guard may be provided over the dispensing opening to prevent displacement of the dispensed article should the dispensing action be too forceful.

Further objects of the invention reside in the details of construction of the component parts of the dispenser and in the cooperative relation between such parts.

Other objects and advantages will become apparent to those skilled in the art upon reference to the accompanying specification, claims, and drawing in which

Figure 1 is a vertical sectional view of the article dispenser with the elevator shown in dispensing position;

Figure 2 is a partial sectional view similar to Figure 1, but showing the elevator in lowered position;

Figure 3 is a sectional view taken substantially along the line 3—3 of Figure 2;

Figure 4 is a top elevational view partly in section taken along the line 4—4 of Figure 1;

Figure 5 is a partial perspective view of the elevator with one of the toggle arms associated therewith;

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Figure 6 is a partial perspective view of a portion of the bottom wall.

The article dispenser, which is particularly adaptable for dispensing cigarettes 9 one at a time, is generally designated at 10. It includes a container 11 having side walls 12 and 13, provided with upper flanges 14, and bottom walls 15 and 16. The bottom walls 15 and 16 are provided with ears 17 adapted to extend through slots in the side walls 12 and 13 and to be bent over for the purpose of securing the bottom walls 15 and 16 to the side walls 12 and 13. The bottom walls 15 and 16 are provided at their tops with flanges 18 and are provided at their bottoms with extensions 19 which form a channel therebetween. Preferably, the bottom walls 15 and 16 slant toward the center, as shown, for the purpose of feeding the articles 9 toward the channel between the extensions 19. The extensions 19 forming the channel are provided with slots 20 terminating in openings 21.

The side walls 12 and 13 of the container are provided adjacent the channel in the bottom wall with vertically arranged slots 23 for receiving extensions 24 of an elevator 25. The elevator 25 is adapted to be raised and lowered and the movement of the elevator is guided by the elevator extensions 24 operating in the slots 23. Preferably, the elevator 25 is concave on its upper side so as to conform generally to the shape of the article 9 to be dispensed thereby.

The elevator 25 is provided with a plurality of depending ears 27 for receiving pins 28 upon which are pivotally mounted the arms 29 of a toggle arrangement. The lower arms 30 of the toggle arrangement are pivoted to the upper arms 29 by means of pivot pins 31 and the lower ends of the toggle arms 30 are provided with lateral extensions 32 which are received through the slots 20 into the holes 21 formed in the sides of the channel in the bottom wall. The lateral extensions 32 operating in the holes 21 in the channel therefore provide pivotal mountings for the lower ends of the toggle arms 30. Torsion springs 33 are carried by the pivot pins 31 for the purpose of extending the toggle arms and lift the elevator 25 to its raised position. The toggle arms 29 and 30 in addition to supporting the elevator 25 also operate to prevent the articles 9 from getting underneath the elevator 25 when the latter is in a raised position.

A U-shaped lever 35 is carried by notches 36 formed in the side walls 12 and 13 of the container and the lever 35 is held within the notches by springs 37 extending between the lever 35 and

ears 38 formed on the inner sides of the side walls 12 and 13. The extremities of the U-shaped lever 35 engage the elevator extensions 24 for controlling the raising and lowering of the elevator 25. The U-shaped lever 35 is provided between the side walls 12 and 13 with a crank arm 39 which carries one end of an operating link 40 which extends upwardly through an opening in the flange 18 of the bottom wall 16 and terminates in a button 41.

The container and the parts thus far discussed may be encased in a housing 43 provided with a bottom plate 44 secured thereto by screws 45. The housing 43 engages the flanges 14 and 18 of the bottom and side walls so that the container and the component parts are clamped between the housing 43 and the bottom plate 44.

A top wall 46 rests upon the flanges 14 and 18 and operates to cover the container 11. The top wall 46 is provided with an opening 47 for receiving the actuating link 40 and associated button 41 and is also provided with a dispensing opening 48 directly above the elevator 25. Adjacent the ends of the dispensing opening 48, the top wall 46 is provided with depressions 49 to aid in picking up a dispensed article from the elevator 25. A guard 50 secured to the top wall 46 by screws 51 and provided with a central opening 52 is located over the dispensing opening 48. The guard 50 prevents displacement of the dispensed article should the dispensing action be too forceful and also serves as a handle for removing the top wall 46 in order to refill the container with articles to be dispensed.

When the container is supplied with articles 9 to be dispensed and the top wall 46 is in place, the elevator 25 is maintained in the raised position as shown in Figure 1 and consequently closes the dispensing opening 48 thereby cutting down circulation of air in the container and maintaining fresh the articles therein. When it is desired to dispense an article from the container, the button 41 is depressed and the U-shaped lever 35 forces the elevator 25 downwardly against the action of the springs 33, the downward movement being permitted by folding of the toggle arms 29 and 30. When the elevator 25 is lowered into the channel in the bottom wall, an article 9 will then fall upon the elevator 25 as is shown in Figure 2.

When the button 41 is released, the springs 33 straighten out the toggle arms 29 and 30 and raise the elevator to the dispensing position as shown in Figure 1 and carry along with it the article to be dispensed. The article being dispensed appears in the dispensing opening 48 and may be readily grasped at the depressions 49. Should the dispensing action be too forceful, displacement of the article being dispensed from the elevator 25 is prevented by the guard 50.

The manner of pivotally mounting the lower ends of the toggle arms 30 in the channel in the bottom wall and the manner of pivotally mounting the U-shaped lever in the side walls of the container provide a simple construction and mode of assembly. Obviously a two-way connection may be provided between the elevator extensions 24 and the U-shaped lever 35, and the springs for raising the elevator 25 may act upon the U-shaped lever 35 in lieu of acting upon the toggle arms 29 and 30.

While for purposes of illustration one form of this invention has been disclosed, other forms thereof may become apparent to those skilled in the art upon reference to this disclosure and, therefore, this invention is to be limited only by the scope of the appended claims and prior art.

What is claimed is:

1. An article dispenser comprising a container for the articles including side walls and a bottom wall, an elevator for lifting articles from the bottom wall of the container and dispensing them at the top of the container, slots in the side walls of the container, extensions on the elevator extending through the slots for guiding the elevator, a pair of spaced toggle arms supporting the elevator, spring means on the toggle arms for raising the elevator, and a lever engaging the elevator extensions for lowering the elevator.

2. An article dispenser comprising a container for the articles including side walls and a bottom wall, an elevator for lifting articles from the bottom wall of the container and dispensing them at the top of the container, slots in the side walls of the container, extensions on the elevator extending through the slots for guiding the elevator, a pair of spaced toggle arms supporting the elevator, notches in the side walls of the container, and a U-shaped lever located in the notches and engaging the elevator extensions for moving the elevator.

3. An article dispenser comprising a container for the articles including side walls and a bottom wall, an elevator for lifting articles from the bottom wall of the container and dispensing them at the top of the container, slots in the side walls of the container, extensions on the elevator extending through the slots for guiding the elevator, a pair of spaced toggle arms supporting the elevator, notches in the side walls of the container, a U-shaped lever located in the notches and engaging the elevator extensions for moving the elevator, and spring means for retaining the U-shaped lever in the notches.

4. An article dispenser comprising a container for the articles including side walls and a bottom wall, an elevator for lifting articles from the bottom wall of the container and dispensing them at the top of the container, slots in the side walls of the container, extensions on the elevator extending through the slots for guiding the elevator, a pair of spaced toggle arms supporting the elevator, spring means on the toggle arms for raising the elevator, notches in the side walls of the container, and a U-shaped lever located in the notches and engaging the elevator extensions for lowering the elevator.

5. An article dispenser comprising a container for the articles including side walls and a bottom wall, an elevator for lifting articles from the bottom wall of the container and dispensing them at the top of the container, slots in the side walls of the container, extensions on the elevator extending through the slots for guiding the elevator, a pair of spaced toggle arms supporting the elevator, spring means on the toggle arms for raising the elevator, notches in the side walls of the container, a U-shaped lever located in the notches and engaging the elevator extensions for lowering the elevator, and spring means for retaining the U-shaped lever in the notches.

6. An article dispenser comprising a container for the articles including side walls and a bottom wall, an elevator for lifting articles from the bottom wall of the container and dispensing them at the top of the container, slots in the side walls of the container, extensions on the elevator extending through the slots for guiding the elevator, a pair of spaced toggle arms supporting the elevator, a U-shaped lever having a crank

arm and pivoted in the side walls of the container and engaging the elevator extensions for moving the elevator, a link engaging the crank arm for moving the U-shaped lever to lower the elevator, and spring means for raising the elevator.

7. An article dispenser comprising a container for the articles including side walls and a bottom wall, an elevator for lifting articles from the bottom wall of the container and dispensing them at the top of the container, slots in the side walls of the container, extensions on the elevator extending through the slots for guiding the elevator, a pair of spaced toggle arms supporting the elevator, notches in the side wall of the container, a U-shaped lever having a crank arm located in the notches and engaging the elevator extensions for moving the elevator, a link engaging the crank arm for moving the U-shaped lever to lower the elevator, and spring means for raising the elevator.

8. An article dispenser comprising a container for the articles including side walls and a sloping bottom wall provided with a channel, an elevator

receivable in the channel for lifting articles from the bottom wall and dispensing them at the top of the container, a pair of spaced toggle arms pivoted at their tops to the elevator and provided with lateral extensions at their bottoms, and vertical slots in the channel for receiving the lateral extensions of the toggle arms for pivotally mounting the bottoms of the toggle arms.

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