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DEVICES FOR DISPENSING OBJECTS FROM A CONTAINER

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2 Sheets-Sheet 1

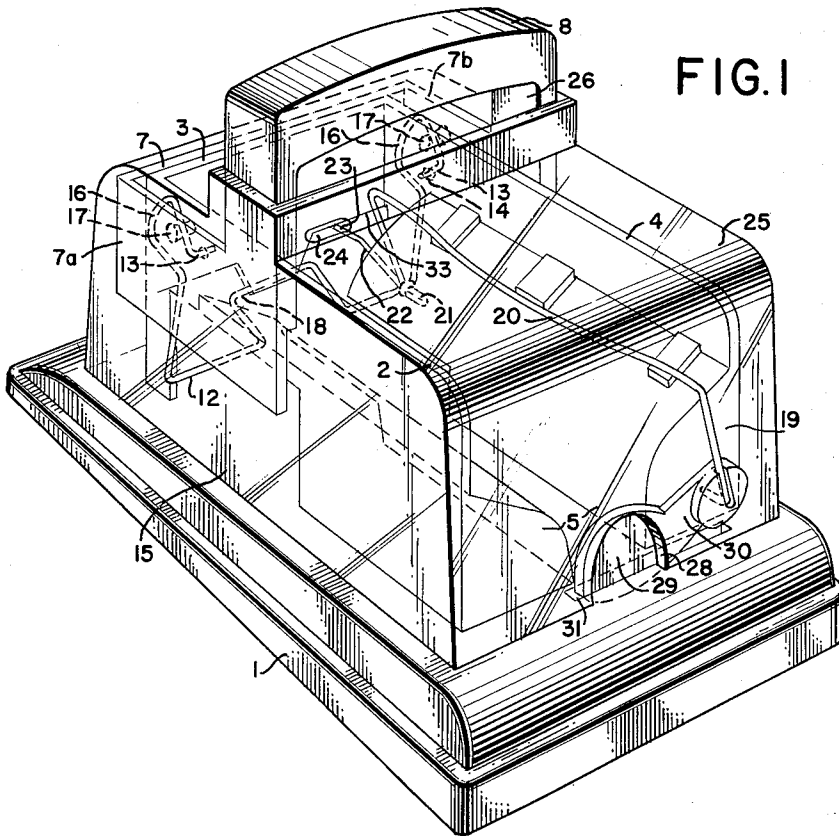


FIG. 1

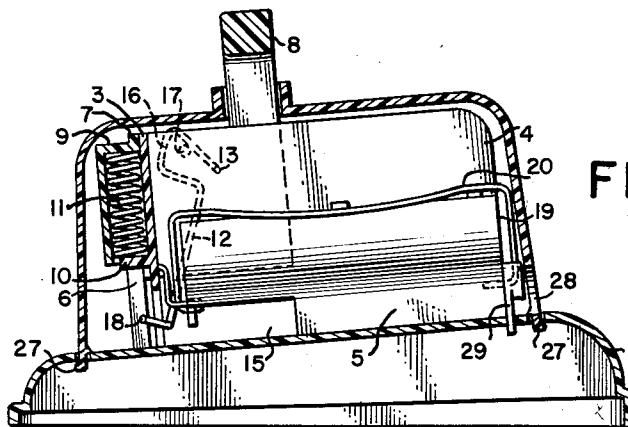


FIG. 2

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FIG. 3

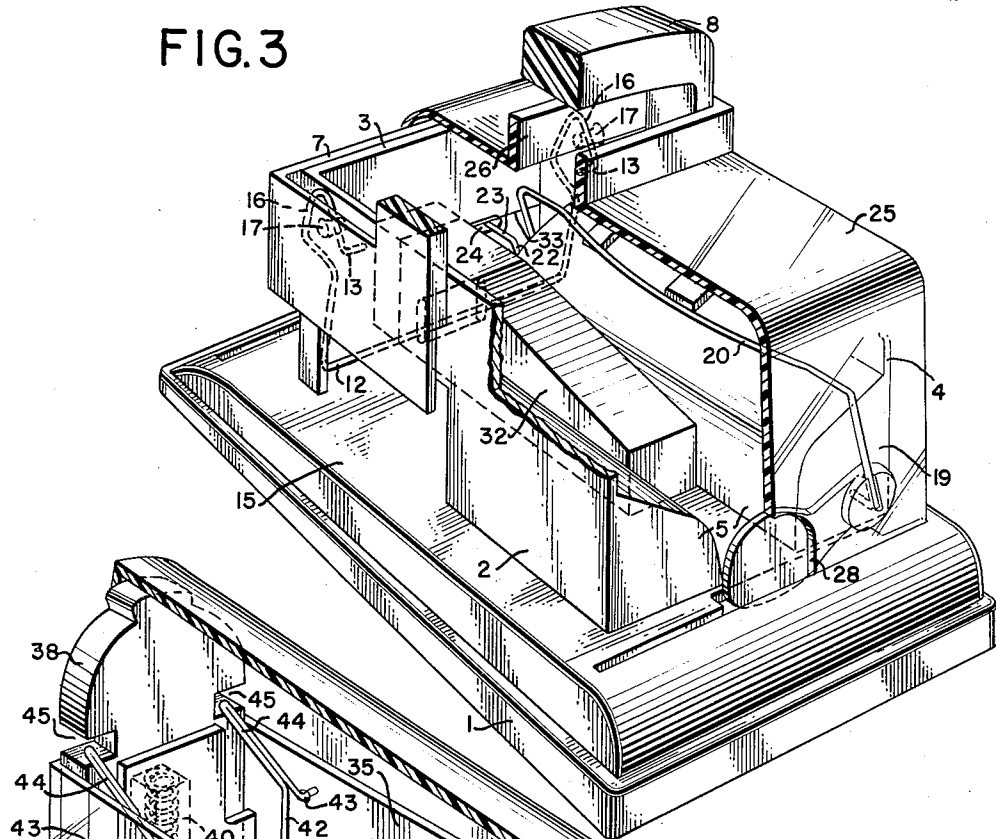
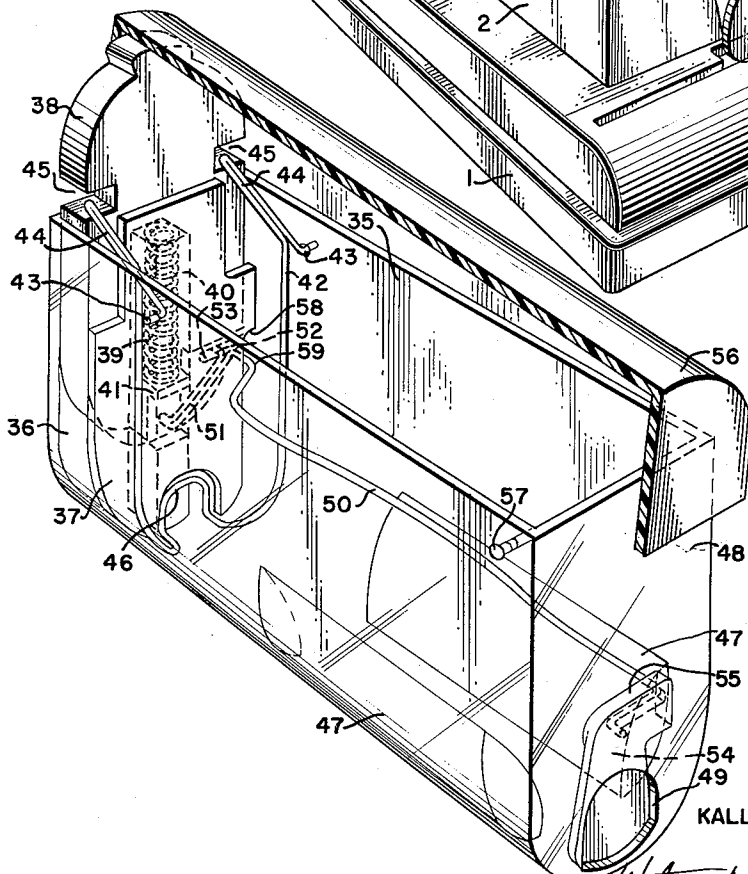


FIG. 4



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DEVICES FOR DISPENSING OBJECTS FROM A CONTAINER

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The present invention relates to a device for dispensing objects from a container, e.g. cigarette cases, cigarette boxes, tablet boxes and the like. Accordingly to the present invention, the dispensing device comprises a slide which is displaceable along one side of the container against the action of a spring, said slide cooperating with a discharging member mounted pivotably in the container so that on pressing down the slide it is swung in the discharging direction and is returned to its initial position when the slide is returned by the action of the spring, and means actuated by the slide and adapted substantially simultaneously with or prior to the discharging movement of the discharging members to carry out a movement toward the bottom of the container to feed an object into the path of movement of the discharging member.

This and other characteristics features of the invention will be described in more detail below with reference to the accompanying drawings, where:

FIGURE 1 illustrates a perspective "X-ray view" of a cigarette box embodying this invention;

FIGURE 2 shows a longitudinal cross-section of the cigarette box of FIGURE 1;

FIGURE 3 shows a perspective view with parts broken away of box similar to that shown in FIGURE 1 but intended for tablets or the like; and

FIGURE 4 shows an "X-ray view" of a cigarette case embodying the principles of this invention.

The cigarette box shown in FIGURES 1 and 2 comprises a base 1 which supports a box-like container formed of three walls 2, 3 and 4 and the length of which is adjusted to the length of the cigarettes. The two opposed longitudinal walls 2 and 4 are adjacent the base 1 provided with guide members 5 sloping toward the middle of the container and adapted to guide one cigarette at a time to a position in alignment with a discharging member and a discharge opening which will be described more in detail below with reference to the dispensing device of this invention.

In the embodiment according to FIGURES 1 and 2 the dispensing device comprises a U-shaped slide 7 which is mounted vertically displaceable adjacent the outer side of the end-wall 3 and between said wall and a pair of guide pins 6, said slide 7 partly embracing the longitudinal walls 2 and 4. Adjacent the front ends of the parts 7a and 7b which are parallel to the longitudinal walls of the container the slide is formed with a yoke member 8 which interconnects said parts 7a and 7b and is adapted to form an actuating handle. The slide 7 is biased toward a normal upper position, as shown in FIGURES 1 and 2, by a compression spring 11 which is positioned between an abutment 9 on the slide and a bracket 10 on the end-wall 3.

Between the parts 7a and 7b of the slide which are spaced from the adjacent longitudinal walls 2 and 4 of the container there is disposed a discharging member comprising a U-shaped wire 12 the free ends of which are formed as pivots 13 inserted in holes 14 in the opposed longitudinal walls 2 and 4 of the container. To permit a reciprocating swinging movement of the substantially horizontal part of the discharging member which extends above the base 1 and is spaced therefrom, the walls 2 and 4 have relatively large openings 15 for the passage of the wire. Adjacent each of the pivots 13 of the discharge

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member it is formed with a rearwardly directed, relatively wide loop 16 within which projects a pin 17 attached to the adjacent slide part 7a or 7b respectively and offset laterally from the pivot 13. On pressing down the slide 7 by means of the yoke member 8 the pins 17 will engage the lower sides of the loops and cause the U-shaped member 12 to swing forwardly whereby a cigarette positioned in front of the horizontal part thereof will be displaced forwardly toward the open front of the container. In order to better utilize the entire length of the container or to enable the container to be made shorter the horizontal part of the U-shaped member 12 in alignment with the channel defined by the guides 5 has a rearwardly offset portion 18. Return of the U-shaped member to its inactive position is secured by the engagement of the pins 17 with the upper horizontal portions of the loops 16 when the slide is returned by the spring 11.

In the end-walls 19 of one guide 5 a U-shaped member 20 is mounted so that its horizontal portion connecting the legs thereof is parallel to the guide 5 and extends above it at a small distance therefrom. Said member 20 is adapted to be imparted a swinging movement from an upper, substantially vertical position (see FIGURE 1) toward the channel between the guides 5 to ensure that a cigarette will be brought to the discharge position in alignment with the offset portion 18 of the discharging member 12. Thus the U-shaped member prevents overhanging of the cigarettes in the container. To effect the movement of the U-shaped member 20 the pivot 21 thereof which is adjacent the end-wall 3 of the container is provided with a crank arm 22 the crank pin 23 whereof projects into a horizontal slot 24 in the slide 7, the adjacent lower corner of wall 3 being cut away as at 33 to give access to slot 24. To prevent the horizontal active part of the U-shaped member 20 from clamping the cigarettes against the guide 5 the middle portion thereof is slightly offset from the side portions thereof toward the guide so that this middle portion will pass under a cigarette lying on the guide and move this slightly away from the guide before the side portions of the member 20 are caused to act in the downward feed direction.

The container and its associated parts are closed by a hood 25 the lower edges of which are caused to sealingly engage the base 1. The top of the hood is provided with an opening 26 for the yoke member 8 and the lower edges thereof are suitably provided with one or more downwardly directed projections 27 which are intended to snap into corresponding openings in the base in order to keep the hood in position. Furthermore, in alignment with the channel defined by the two guides 5 the hood has a discharge opening 28 of a size substantially corresponding to the cross-section of the cigarettes.

In order to prevent the cigarettes from unintentionally dropping out through the discharge opening 28 and also to provide a certain pretensioning of the discharging member 12 before discharge of a cigarette, the discharge opening is normally closed by a swinging plate 29 which by an arm 30 is rigidly connected to that leg of the U-shaped member 20 which is adjacent the discharge opening, as clearly seen in FIGURE 1. Below the plate 29 and the arm 30 the base 1 has a slot 31 which permits the plate to be swung down when the U-shaped member 20 moves downwardly. Since on pressing down the slide 7, the discharging member will act for a brief moment on the cigarette before the plate 29 uncovers the opening 28 the discharging member is imparted a certain pretension so that when the opening is free the cigarette will be thrown out through the opening. By varying the time when the plate uncovers the opening it is possible to control the force of ejection as desired.

The embodiment shown in FIGURE 3 differs from that described only in that the active part of the discharg-

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ing member is adapted to discharge tablets, lozenges and similar objects. Corresponding members have the same reference numerals as in FIGURE 1.

As seen in FIGURE 3, the horizontal portion of the discharging member 12 cooperates with a block 32 which is slidable between the guides 5 and 2 and the upper side of which slopes downwardly toward the discharge opening 28. Thus, when the slide 7 is pressed down by means of the yoke member 8 the block 32 is imparted a forward movement and discharges a tablet through the simultaneously uncovered opening 28.

The embodiment shown in FIGURE 4 of a cigarette case according to this invention is in principle similar to that described in FIGURES 1 and 2 and comprises a substantially rectangular container 35 with arcuate bottom. Inside and somewhat spaced from one end-wall 36 of the container there is disposed a partition 37 parallel thereto, between which and the end-wall 36 a slide 38 is displaceably disposed. The slide is acted upon by a spring 39 and extends above the upper edge of the container. The spring 39, which partly projects into a bore in an enlarged portion 40 of the slide and abuts with its upper end on the bottom of the bore and with its lower end on a bracket 41 on the partition 37, biases the slide toward an upper normal position, as shown in FIGURE 4.

The slide 38 cooperates with a discharging member 42 in the form of a substantially U-shaped wire which by means of its free ends which are formed as pivots 43 is pivotally mounted in the side-walls of the container. The U-shaped discharging member is formed with rearwardly directed projections 44 extending from the pivots and inserted into slots 45 in the slide 38. By this arrangement the discharging member 42 is imparted a forward or backward swinging movement on up and down movement of the slide. In order to reduce the length of the container the active portion 46 of the discharging member 42 which is bent up to strike a cigarette lying centrally on the bottom is also offset rearwardly so that in its inactive position it projects into a recess in the lower portion of the partition 37. For positioning a cigarette lying on the bottom of the container in alignment with the active portion 46 of the discharging member and to ensure that only one cigarette at a time can be acted on by the discharging member, a pair of guides 47 are provided at the side-walls of the container, said guides defining a channel in alignment with which the front end-wall 48 of the container has a discharge opening 49.

To prevent the cigarettes from overhanging in the container, there is disposed a feed member in the form of a U-shaped member 50 the horizontal part of which is substantially parallel to the side-walls of the container. The free ends of the legs of the U-shaped member 50 are mounted in the end-wall 48 and in the bracket 41. The leg mounted in the bracket 41 is formed with a crank arm 51 the crank pin 52 of which projects into a slot 53 in the slide 38, the lower marginal portion along one side of partition 37 being cut away as at 58 to accommodate the bight 59 connecting the end of crank arm 51 to the end of U-shaped member 50.

Similar to the embodiments of FIGURES 1, 2 and 3 the discharge opening 49 is normally closed by a plate 54 to prevent unintentional dropping out of the cigarettes and to ensure a certain pretensioning of the discharging member before the cigarette is permitted to pass through the opening. The plate 54 is carried by an arm 55 which is rigidly connected to the adjacent leg of the U-shaped member 50 so that the plate is swung away on pressing down the slide.

The container 35 is closed by a lid 56 which is pivotally mounted on a shaft 57 provided adjacent the end opposite to the slide. The other end of the lid lies loosely on the top end of the slide 38, so that by pressing down the lid the slide is actuated to effect a discharging movement.

While specific embodiments of the invention have been

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shown and described in detail, the invention is not restricted to them since various modifications and variations obvious to those skilled in the art can be made within the spirit and scope of the invention as defined by the appended claims.

I claim:

1. A dispensing device for dispensing objects from a container including spaced-apart side walls and a base arranged in fixed relationship, said device comprising a slide disposed adjacent one end of said container and adapted for displacement relative to said fixed walls, a spring in engagement with said slide and opposing displacement thereof, pivotally mounted discharging means having a portion thereof within said container adjacent said base, said means being engaged by said slide whereby displacement of the slide pivots said means, said portion upon pivotal movement of said means swinging along a path generally parallel to said base and being adapted to contact an object resting upon said base and project the object from the container; and additional means mounted within said container for swinging movement from and to a locus spaced from said base to and from a locus adjacent said base to thereby feed an object into the path of movement of said discharging means at least substantially simultaneously with the effective discharging movement of said discharging means, said additional means being moved upon displacement of said slide.

2. A dispensing device as claimed in claim 1 in which said discharging means comprises a generally U-shaped member having its leg portions pivotally mounted adjacent the upper edges of the container and its bight portion adjacent the base of the container, each of said leg portions adjacent their pivots being provided with projections extending substantially horizontally toward said slide and adapted to be engaged by said slide to effect the swinging movement of the U-shaped member.

3. A dispensing device as claimed in claim 2 in which the projection of each leg portion of the U-shaped member consists of a loop and said slide has pins projecting into each loop, the loops and the pins being so constructed and arranged that the discharging means is unaffected during the initial part of the movement of the slide.

4. Dispensing device as in claim 2 in which the projection of each leg portion of the U-shaped member is a rearwardly directed arm and a slot is provided in said slide for receiving each arm, the arm and the slide being such that the discharging means is unaffected during the initial part of the movement of the slide.

5. A dispensing device as in claim 1 in which the container side walls are parallel to the path of movement of said portion of said discharging means adjacent the container base and are provided with guides sloping down toward the middle of the container and adapted to guide one object at a time to a position in front of the discharging means.

6. A dispensing device as in claim 5 in which said means for feeding an object into the path of movement of the discharging means comprises a U-shaped member having its free ends pivotally mounted in the end-walls of one of said guides and its bight portion substantially parallel to and disposed immediately above said one guide, said U-shaped member being adapted on actuation of the slide to carry out a swinging movement from an upper position down toward the space between the guides to feed down an object.

7. A dispensing device as in claim 6, in which one of the pivoted ends of the U-shaped members is disposed adjacent the slide and is provided with a crank arm the crank pin of which projects into a slot in the slide so that on movement of the slide the crank arm is actuated and thereby the U-shaped member is swung.

8. A dispensing device as in claim 6 in which the middle section of the bight portion of the U-shaped member is slightly offset from the end portions thereof toward

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said one guide to prevent clamping of the objects on the guide.

9. A dispensing device as in claim 1 in which the container is closed by a hood.

10. A dispensing device as in claim 1 in which one of said side walls is provided with a discharge opening in alignment with the discharging means, said opening being closed when the slide is in its non-displaced position by a plate which is adapted to be swung away when the slide is actuated to uncover said opening.

11. A dispensing device as in claim 10, in which the plate closing the discharge opening is connected to and is imparted its movement by the means for feeding an object into the path of movement of said discharging means.

12. Dispensing device as in claim 10 in which the discharging means is associated with a slidable block adapted to push an object toward the discharge opening.

13. Dispensing device as in claim 12 in which the upper face of said block slopes downwardly toward the discharge opening.

14. Dispensing device as in claim 1 in which the container has a lid which at one end is pivotally connected to the container adjacent the side wall opposite to the slide and at its other end engages the upper end of the slide so that on pressing the lid toward the container the slide is actuated and causes a discharging movement of said discharging means.

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