

Oct. 13, 1953

C. H. OERDING

2,655,418

AUTOMATIC CIGARETTE DISPENSER

Filed Dec. 11, 1950

3 Sheets-Sheet 1

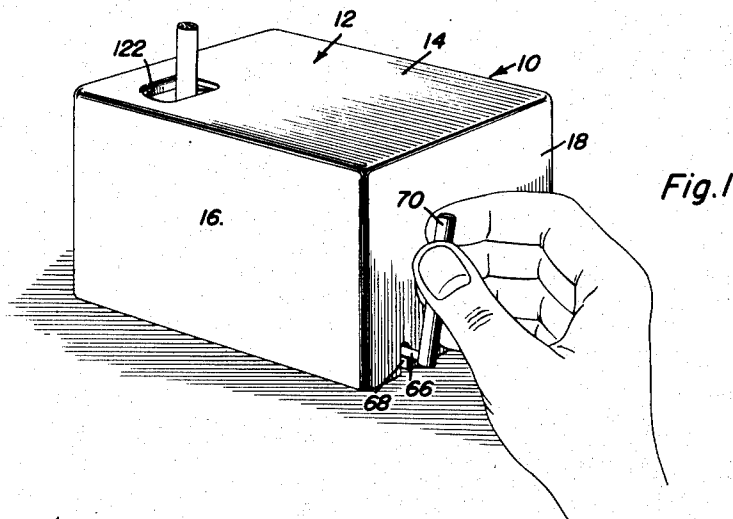


Fig. 10

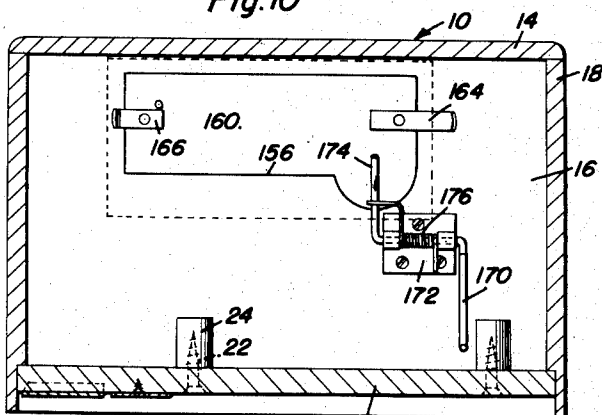


Fig. 11

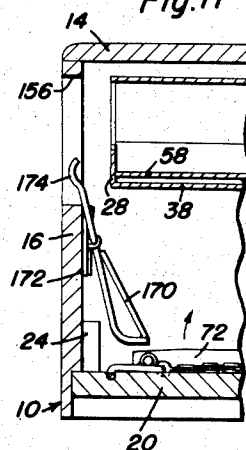
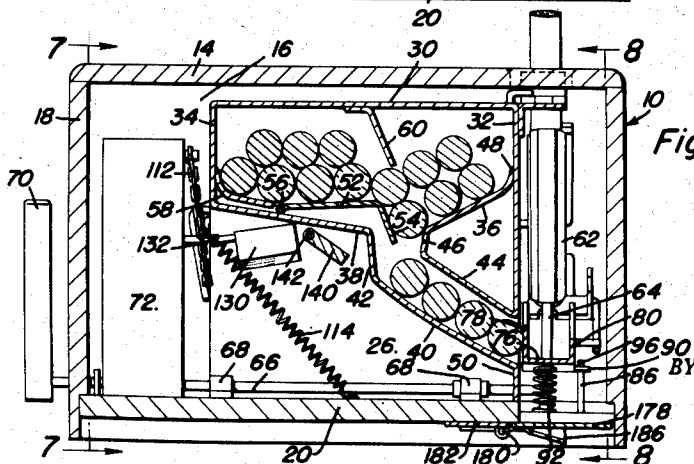


Fig. 9



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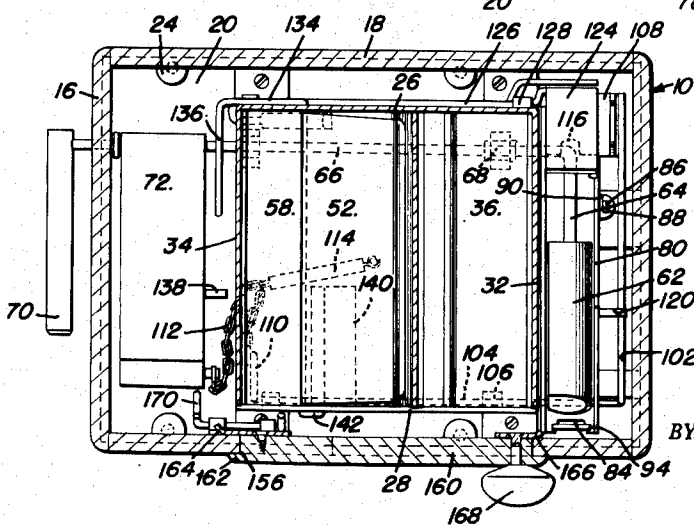
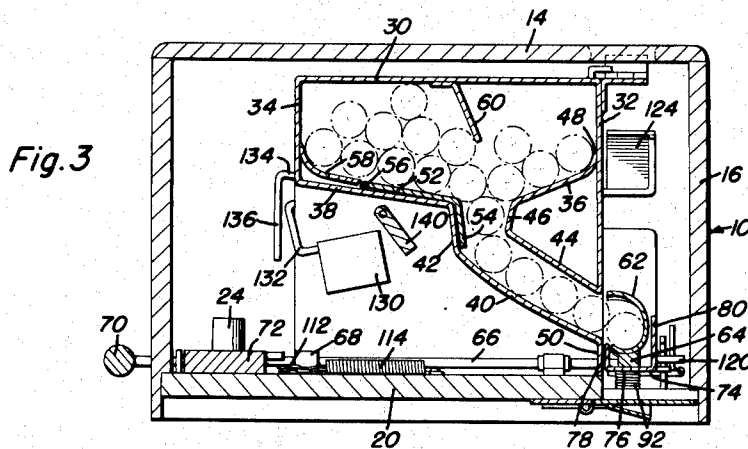
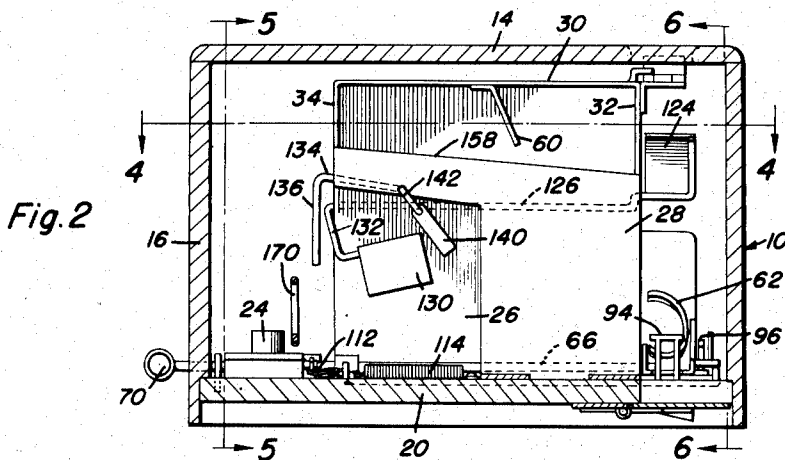
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AUTOMATIC CIGARETTE DISPENSER

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3 Sheets-Sheet 2



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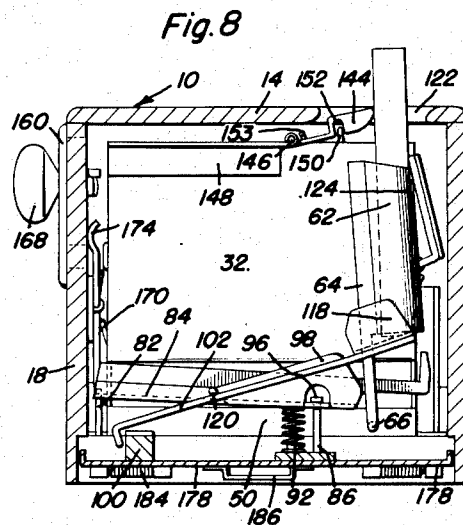
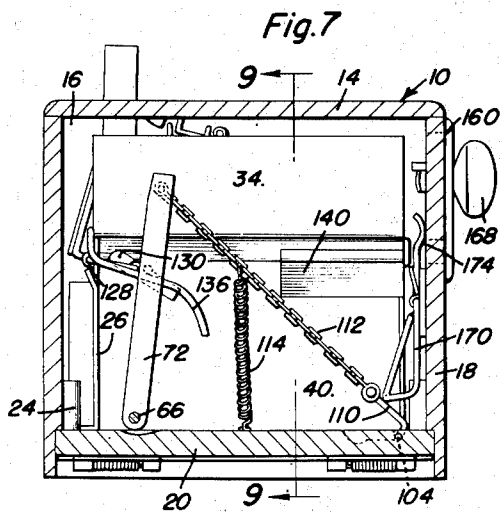
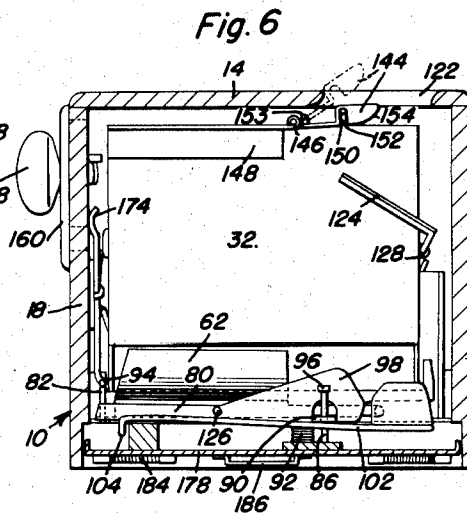
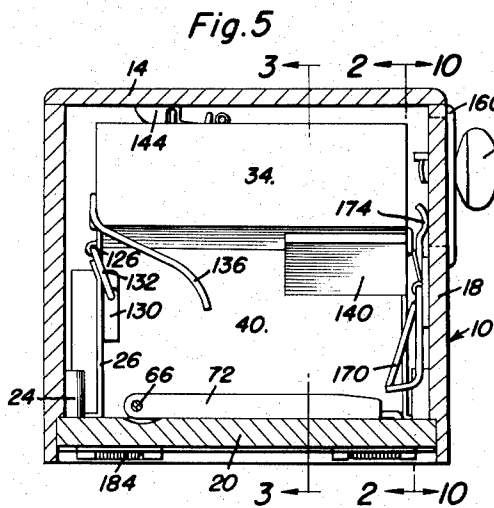
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AUTOMATIC CIGARETTE DISPENSER

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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AUTOMATIC CIGARETTE DISPENSER

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Application December 11, 1950, Serial No. 200,239

7 Claims. (Cl. 312-75)

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This invention comprises novel and useful improvements in dispensers and more particularly pertains to dispensers of relatively elongated articles such as cigarettes.

An important object of this invention is to provide a dispenser for cigarettes and the like which will dispense a single cigarette from a plurality of cigarettes without damaging or mutilating the same.

Another important object of this invention is to provide a dispenser which will receive a plurality of cigarettes in a sidewise aligned horizontally disposed position, which will selectively shift one of the cigarettes to a position transverse the original position thereof and then eject the cigarettes axially from the shifted position thereof.

Another important object of this invention is to provide a cigarette dispenser which dispenses a single cigarette from a plurality of cigarettes in response to tilting of the dispenser in a prescribed manner.

Yet another object of this invention is to provide a cigarette dispenser which will eject a cigarette in response to tilting of the dispenser with a movable door to permit filling of the dispenser with cigarettes, and with a mechanism which will prevent a cigarette from being ejected while the door is open and the dispenser is being filled.

A further object of this invention is to provide a cigarette dispenser having a hopper and a mechanism for selectively dispensing a cigarette from the hopper, with an agitator in the hopper which is actuated by the dispensing mechanism to arrange the cigarettes in proper position in the hopper.

An important feature of this invention resides in the provision of a hopper for the reception of elongated articles in a horizontal position with a chute leading from the hopper, and a carrier mechanism for receiving a single cigarette from the chute and shifting the cigarette into a position transverse its normal position.

Another important feature of this invention resides in the provision of a dispenser in accordance with the foregoing feature together with a mechanism for ejecting the cigarette from the carrier after the latter is in its shifted position.

Yet another feature of this invention resides in the provision of a dispenser including a hopper and a chute leading from the hopper together with a carrier mechanism for receiving a cigarette from the chute and angularly shifting the same into ejecting position, and a mechanism for preventing the discharge of cigarettes from the hopper when the carrier is out of its cigarette receiving position.

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A further feature of this invention resides in the provision of a dispenser constructed in accordance with the foregoing features with a mechanism for supporting the cigarette in its ejected position.

Still a further feature of this invention resides in the provision of a dispenser in accordance with the foregoing features with an agitator in the hopper which is actuated by the carrier moving mechanism to position the cigarettes relative to the chute.

Other important features of this invention reside in the construction of a dispenser in accordance with the foregoing features in which the ejector and carrier are so constructed and arranged that the ejector serves to limit angular shifting movement of the carrier, and in which the carrier and the mechanism for preventing discharge of cigarettes from chute are so constructed and arranged that the carrier moves the chute closing mechanism out of position as the carrier moves into cigarette receiving position.

These, together with various ancillary objects and features are attained by this device, a preferred embodiment of which has been illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective elevational view of the dispenser;

Figure 2 is a longitudinal vertical sectional view of the dispenser taken on the plane 2-2 of Figure 5;

Figure 3 is a longitudinal vertical sectional view of the dispenser taken on the plane 3-3 of Figure 5;

Figure 4 is a horizontal sectional view taken on the plane 4-4 of Figure 2;

Figure 5 is a transverse vertical sectional view taken on the plane 5-5 of Figure 2;

Figure 6 is a transverse vertical sectional view taken on the plane 6-6 of Figure 2;

Figure 7 is a transverse vertical sectional view taken on substantially the plane 7-7 of Figure 9 and showing the dispenser actuator in its ejecting position;

Figure 8 is a transverse vertical sectional view, taken on the plane 8-8 of Figure 9, showing the carrier and ejector in their ejecting position;

Figure 9 is a longitudinal vertical sectional view taken on the plane 9-9 of Figure 7;

Figure 10 is a longitudinal vertical sectional view taken on the plane 10-10 of Figure 5; and

Figure 11 is a fragmentary transverse vertical sectional view showing the mechanism for preventing actuation of the dispenser when the hopper filler door is opened.

Reference is now made more specifically to the

accompanying drawings wherein the dispenser is indicated generally by the numeral 10.

The dispenser includes a casing 12 having a top wall 14, side walls 16, end walls 18 and a bottom wall 20 removably attached by fasteners 22 which are receivable in the bosses 24 on the side and end walls.

The hopper includes upstanding side panels 26 and 28 which are disposed in parallel spaced relation to the casing side walls and secured to the bottom wall of the casing in any desired manner. A horizontally disposed top panel 30, first and second vertically disposed end panels 32 and 34 respectively, and downwardly sloping relatively converging bottom panels 36 and 38 are secured between the side panels, as by welding or the like. The registering edges of the bottom panels 36 and 38 are spaced from each other, and a chute is secured to the bottom panels and is adapted to convey elongated articles, such as cigarettes therefrom, while maintaining the cigarettes in a horizontally disposed position. For reasons which will later become apparent, as the following description proceeds, the bottom 40 of the chute is vertically inclined and includes a relatively angulated upwardly extending portion 42 which is secured to the bottom panel 38 of the hopper. Similarly, the top 44 of the chute is vertically spaced from the bottom 40 so as to define a substantially uniform passage therebetween, the top also including a relatively angulated upwardly extending portion 46 which is secured to the bottom panel 36. In order to obtain satisfactory operation of the dispenser it is necessary that the spacing between the top and bottom of the chute be substantially equal to the diameter of the article being dispensed, and for the purpose of dispensing cigarettes, it has been found that a spacing of $\frac{1}{8}$ inch will permit satisfactory operation.

As is thought apparent, the top 44 and upwardly extending portion 46 thereof may be formed integrally with the end panel 32 and the bottom panel 36 of hopper, the bottom panel 38 being secured by welding, as at 48 to the end panel 32. Additionally, the bottom 40 and upwardly extending portion 42 thereof may be formed integrally with the bottom panel 38 of the hopper. The ends of the top and bottom of the chute are secured to the side panels 26 and 28 whereby the latter limit axial movement of cigarettes in the chute.

The bottom 40 of the chute is provided with a depending flange 50 which is disposed substantially coplanar with the end panel 32, which flange is secured to the bottom wall 20 of the casing.

An agitator plate 52, having a depending lip 54 is vertically pivotally attached to the bottom panel 38, as by pivot pin 56, and, as is best shown in Figure 3, is formed complementary to the bottom panel 38 and the upwardly extending portion 42 of the bottom 40 of the chute. An arcuate deflector plate 58 is secured to the end panel 34 and overlies the bottom panel 38 to guide the cigarettes onto the agitator plate 52. A baffle 60 depends from the top panel 30 and overlies the bottom of the hopper above the chute to aid in positioning the cigarettes relative to the chute.

It will be seen that when the agitator is raised to the position shown in Figure 9, by a mechanism to be described hereinafter, that the lip 54 engages the cigarette disposed adjacent the portions 42 and 46 of the chute and moves the same up-

wardly relative thereto, the cigarettes on the agitator and those abutted thereby, will also be moved. Thus those cigarettes which are disposed in the chute will be permitted to move in the chute by gravity and not be jammed by an improperly positioned cigarette in the hopper which would bear against those in the chute if the agitator were not provided to shift the cigarettes in the manner set forth above. When the agitator is permitted to return to its normal position shown in Figure 3, the cigarette engaged by the lip 54 will be permitted to fall freely in the space between the portions 42 and 46 whereby the same may become properly aligned with the cigarettes in the chute.

In order to selectively dispense a single cigarette in an upright position, there is provided an elongated carrier 62 which is substantially C-shaped in cross section, and an operating lever 64 is attached longitudinally of the carrier, the other end of the lever being attached to the shaft 66 which is rotatably mounted in journals 68 carried by the bottom wall 20 of the casing. As is apparent from a consideration of Figure 3, the open face of the carrier is disposed in registry with the orifice of the chute, and that the end panel 32 will serve to retain the cigarettes in the chute as the carrier is pivoted about the shaft 66 into an upright position.

The shaft 66 extends through a slot 68 in the end wall 18 of the casing, and an operating handle 70 is attached to the externally projecting end of the shaft, to permit manual actuation of the latter. In order to permit the dispenser to be actuated in response to tilting of the dispenser in a predetermined direction relative to the axis of the shaft 66, an elongated weight 72 is non-rotatably attached to the shaft and extends from the shaft in substantially the same direction as the carrier 62 extends therefrom, so that when the weight is disposed horizontally on the bottom wall 20 of the casing, the carrier will be disposed in registry with the orifice of the chute. Obviously, other relative angular positions of the weight 72 on the shaft 66 may be utilized without departing from the scope of the invention, but it is thought apparent that the specific construction recited is such that the weight 72 will also serve to return the carrier into registry with the orifice, when the bottom wall 20 of the casing is disposed horizontally. Thus the weight will serve to return the carrier when the shaft is rotated either manually by the handle 70, or by tilting of the dispenser casing.

A carriage 74, which includes an elongated channel shaped member having a web 76 and legs 78 and 80 is mounted on the bottom wall 20 and is vertically movable to selectively block the orifice of the chute, and prevent discharge of a cigarette therefrom. An upwardly extending guide member 82 is attached to the bottom wall 20 adjacent one end of the carriage, and is guidably received in a slot 84 (see Figure 4) in the web 76 of the carriage, a second guide rod 86 is secured to the bottom wall 20 adjacent the other end of the carriage, and is guidably received in an aperture 88 in the ear 90 carried by the leg 80 of the carriage. A compression spring 92 is disposed between the bottom wall and the web 76 of the carriage, intermediate the guide member 82 and the guide pin 86 whereby the carriage is yieldingly biased upwardly into a position in which the leg 78 thereof overlies the orifice and prevents discharging of a cigarette therefrom. Obviously, stops 94 and 96 are carried by the

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upper end of the guide member and guide pin respectively to limit upward movement of the carriage. The leg 80 of the carriage includes an enlarged portion 98, best shown in Figure 8, which overlies the guide pin and prevents the cigarette from contacting the same. A portion 100 of the bottom wall 20 underlies the carriage and limits downward movement thereof.

As will be noted from a consideration of Figures 3 and 6, the operating lever 64 on carrier 62 engages the web 76 of the carriage and moves the carriage out of chute closing position as the carrier moves into registry with the chute orifice. Since the carriage is movable independently on the guide member 82 and guide pin 86, it will be noted that the end of the carriage adjacent the shaft 66 will be depressed first as the carrier is lowered, and that the end of the carriage remote from the shaft will be elevated first as the carrier is raised. Consequently either the carrier or the carriage at all times controls the discharge of cigarettes from the chute.

In order to move the cigarettes axially out of the carrier 62 there is provided an ejector arm 102, disposed parallel to the carrier, and vertically pivotally mounted on the rocker shaft 104 which is journaled in bearings 106 carried by the bottom wall 20. A finger 108 extends from the free end of the arm 102 and is adapted to underlie the lower end of the cigarette disposed in the carrier 62, when the latter is in an upright position. It is contemplated that the arm 102 and finger 108 carried thereby be moved to engage the lower end of the cigarette disposed in the carrier, when the latter is in a substantially upright position, and for this purpose the rocker shaft 104 is provided with a crank arm 110 on the end thereof remote from the arm, and a flexible element 112, such as a chain or the like is attached to the crank arm and to the weight 72, so that when the weight is moved into a substantially upright position as is shown in Figure 7, the element 112 will be tensioned, causing the crank arm to oscillate the rocker shaft and elevate the arm 102. Obviously by suitable adjustment of the length of the chain 112, and the point on the weight to which it is attached, the extent of movement of the arm 102 may be regulated. A spring 114 or similar resilient element is attached to the bottom wall 20 and to the element 112 intermediate the ends thereof, to prevent the latter from becoming lodged below the weight 72.

It is contemplated that the finger 108 carried by the arm 102 have a recess 116 (see Figure 4) therein which is engageable with the operating arm 64 when the latter is in a substantially upright position, whereby the finger will serve to limit further pivotal movement of the arm 64 and the carrier 62 attached thereto. A flange plate 118 is also attached to the ejector arm 102 adjacent the finger 108. A pin 120 extends from the carriage and engages the ejector arm 102 to urge the latter into its inoperative position as the carrier 62 moves the carriage 74 out of chute closing position.

It will be noted that the top wall 14 of the casing has an opening 122 therein (see Figures 1, 6 and 8) through which the cigarette is ejected, and in order to prevent cigarettes from falling back through the opening into the dispenser mechanism, there is provided a flap 124 carried by the shaft 126 which is journaled as at 128 on the side panel 26. The flap 124 normally is disposed in the position best shown in Figure 6,

below the opening 122, the flap being yieldingly biased into that position by the weight 130 disposed on the crank arm 132 which is carried by the end of the shaft 126 remote from the flap, the weight abutting the side panel 26 (see Figure 5) to limit further downward swinging movement of the flap. When the carrier 62 is moved into its upright ejecting position, as is shown in Figure 8, the carrier engages the flap 124 and moves the same out of its opening blocking position. Obviously, a spring may be substituted for the weight 130 without departing from the scope of the invention.

It is also contemplated that the agitator 52 be actuated by the dispenser mechanism, and in timed relation thereto, and for this purpose the pivot pin 56, by means of which the agitator is pivoted, is provided with an arm 134 which extends transverse the axis of the pivot pin and which terminates in an arcuate cam member 136, disposed in a plane parallel to the path of movement of the weight 72. A cam follower 138 is carried by the weight 72 and engages the cam member 136 to cause the same to pivot about the axis of the pivot pin 56, thereby vertically oscillating the agitator 52. The cam member 136 is so designed that the agitator is elevated when the weight is disposed substantially normal to the bottom wall 20, at which time the carrier is also in its upright position, and when the weight is in the position shown in Figure 5, the agitator is in the position shown in Figure 3. A suitable weight 140 is attached by an arm 142 to the end of the pivot pin 56 remote from that from which the arm 134 extends, to bias the agitator into its inoperative position, shown in Figure 3. Obviously, a spring may also be substituted for the weight 140.

A second flap 144 is hingedly connected as at 146 to a mounting bracket 148 carried by the end panel 32, the flap 144 being weighted so as to be gravity urged into the position shown in full lines in Figure 6. A stop pin 150 carried by the end panel 32 is receivable in the seat 152 in the second flap to limit downward pivotal movement thereof and a stop 153 overlies the second flap, to limit upward movement thereof. The second flap 144 also has a smooth arcuate under-surface 154 which is engaged by the upper end of the cigarette as it is ejected from the carrier, whereby the second flap pivots sufficiently to permit the cigarette to pass thereby. However, return of the cigarette is prevented since the second flap engages the side thereof, as is shown in Figure 8, and binds the same in the carrier 62 and against the flap 124.

The side wall 16 of the casing is provided with an opening 156, in registry with the opening 158 in the side panel 28 of the hopper, to permit filling of the latter. It is to be noted, however, that the exact positioning of the registering filler openings in the hopper and casing may be other than that specifically described herein, without departing from the scope of the invention. A door 160 is attached to the side wall of the casing and overlies the opening 156 therein, the door having a peripheral flange 162, which overlies the outer face of the side wall, and a finger 164 on the inner side thereof. A latch 166 is attached to the rotatable knob 168 for detachably securing the door in position.

Since, as previously stated, the dispenser may be actuated by tilting the same, there is provided a locking member 170 which is vertically pivotally mounted by bracket 172 on the inner

face of the side wall 16 adjacent the opening 156 therein, a finger 174 being attached to the locking member for engagement with the door 160. A spring 176 yieldingly urges the finger 174 into engagement with the door, and when the latter is not in position, the member 170 is disposed in the path of movement of the weight 72 to prevent pivoting of the same (see Figure 11). However, when the door is in position, the member 170 is pivoted out of the path of movement of the weight, as is shown in Figure 5.

A trap door 178 is hingedly connected to the bottom wall 20 as by pin 180 and hinge plate 182, the trap door underlying the apertured portion of the bottom wall 20 which underlies the carrier and carriage, to facilitate the removal of waste tobacco dropped by the cigarettes as they are being ejected, a spring 184 biases the trap door into its closed position, and a fingernail receiving detent 186 is carried by the trap door to permit opening of the latter.

In operation, it will be noted that the door 160 may be removed by rotation of the knob 168, and the hopper then filled, care being taken to provide clearance between the topmost row of cigarettes and the top panel 30 of the hopper. Since the locking member 170 is disposed in the path of movement of the weight 72, it will be appreciated that the dispenser will not be actuated, even if the same is tilted about the axis of the shaft 66.

Whenever the shaft 66 is oscillated, either manually by the handle 70, or by the weight 72, when the casing is tilted, the carrier 62, which receives a single cigarette at a time from the chute, will also be vertically pivoted into the position shown in Figures 8 and 9. As the weight moves upward it engages the cam member 136 thereby elevating the agitator into the position shown in Figure 9, further movement of the weight tensioning the element 112 which actuates the ejector arm 102 to move the finger 108 carried thereby into engagement with the lower end of a cigarette disposed in carrier 62. The recess 116 (see Figure 4) in the finger 108 engages the operating lever 64 of the carrier, and limits further upward vertical pivotal movement thereof.

The flap 124 is engaged by the carrier 62, when the latter is in its upright position, whereby the flap is moved out of registry with the opening 122 in the top wall 14, thereby permitting a cigarette to be ejected. It may be noted, at this time, that the carrier, when in its ejecting position, shown in Figure 8, is inclined slightly to the vertical, whereby the weight 72 may serve to pivot the carrier into its cigarette receiving position, shown in Figures 2, 3 and 6.

When the cigarette is partially ejected from the carrier 62, as is shown in Figure 8, the second flap 144 engages the side of the cigarette and prevents the same from sliding back into the carrier.

As the carrier 62 moves into the position shown in Figures 2, 3 and 6, the operating arm 64 engages the carriage 74 and moves the latter out of chute closing position, the pin 120 carried by the carriage engaging the ejector arm 102 (see Figures 6 and 8) to urge the latter into its inoperative position, the spring 92 opposing downward movement of carriage 74.

Having described the invention, what is claimed as new is:

1. A cigarette dispenser comprising a casing, a hopper adapted to receive cigarettes in a horizontal position, a chute extending from said hop-

per, carrier means disposed horizontally adjacent the orifice of said chute for receiving a cigarette from said chute, means for moving said carrier means into an ejecting position transverse its cigarette receiving position, and means for ejecting a cigarette from said carrier means, said casing having a door therein adjacent said hopper to permit filling of said hopper, means responsive to opening of said door for preventing actuation of said carrier moving means.

2. A cigarette dispenser comprising a casing, a hopper adapted to receive cigarettes in a horizontal position, a chute extending from said hopper, carrier means disposed horizontally adjacent the orifice of said chute for receiving a cigarette from said chute, means for moving said carrier means into an ejecting position transverse its cigarette receiving position, and means for ejecting a cigarette from said carrier means, agitator means disposed in said hopper, and common means for actuating said carrier moving means, said ejecting means and said agitator means, said casing having a door therein adjacent said hopper to permit filling of said hopper, means responsive to opening of said door for preventing actuation of said common actuating means.

3. A cigarette dispenser comprising a casing, a hopper adapted to receive cigarettes in a horizontal position, a chute extending from said hopper, carrier means disposed horizontally adjacent the orifice of said chute for receiving a cigarette from said chute, means for moving said carrier means into an ejecting position transverse its cigarette receiving position, and means for ejecting a cigarette from said carrier means, common means responsive to tilting of said dispenser for actuating said carrier moving means and said ejecting means in timed relation to each other, said casing having a door therein adjacent said hopper to permit filling of said hopper, means responsive to opening of said door for preventing actuation of said common actuating means.

4. A cigarette dispenser comprising a hopper adapted to receive cigarettes in a horizontal position, a chute extending from said hopper, carrier means disposed horizontally adjacent the orifice of said chute for receiving a cigarette from said chute, means for moving said carrier means into an ejecting position transverse its cigarette receiving position, and means for ejecting a cigarette from said carrier means, agitator means disposed in said hopper, and common means for actuating said carrier moving means, said ejecting means and said agitator means, chute closing means disposed adjacent the orifice of said chute and underlying said carrier means for selectively closing said chute to prevent the discharge of cigarettes therefrom, said carrier means engaging said chute closing means to move said chute closing means into its inoperative position when said carrier means is disposed in cigarette receiving position, means on said carrier means for moving said ejecting means into its inoperative position as said carrier means is moved into cigarette receiving position.

5. A cigarette dispenser comprising a casing, a hopper adapted to receive cigarettes in a horizontal position, a chute extending from said hopper, carrier means disposed horizontally adjacent the orifice of said chute for receiving a cigarette from said chute, means for moving said carrier means into an ejecting position transverse its cigarette receiving position, and means for ejecting a cigarette from said carrier means, an agita-

tor vertically pivotally mounted in said hopper, said agitator having a depending lip extending into said chute, common means responsive to tilting of said dispenser for selectively elevating said agitator and for actuating said carrier moving means and said ejector means, said casing having a door therein adjacent said hopper to permit filling of said hopper, means responsive to opening of said door for preventing actuation of said common actuating means.

6. A cigarette dispenser comprising a casing, a hopper in said casing, a chute extending from said hopper, carrier means disposed horizontally adjacent the orifice of said chute for receiving a cigarette therefrom, means responsive to tilting of said dispenser for moving said carrier means into an ejecting position transverse said cigarette receiving position of said carrier means, said casing having a door therein adjacent said hopper to permit filling of said hopper, means responsive to opening of said door for preventing actuation of said carrier moving means.

7. A cigarette dispenser comprising a casing, hopper means in said casing, a chute extending

from said hopper, means for receiving a cigarette from said chute and ejecting same, said casing having a door therein adjacent said hopper to permit filling of said hopper, means responsive to opening of said door for preventing actuation of said cigarette receiving means.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
640,112	Dennis	Dec. 26, 1899
697,245	Greenland	Apr. 8, 1902
977,441	Fleming et al.	Dec. 6, 1910
1,113,425	Flinder	Oct. 13, 1914
1,972,591	Hnath	Sept. 4, 1934
2,182,955	Allen	Dec. 12, 1939
2,425,553	Musselman et al.	Aug. 12, 1947
2,554,746	Laichee	May 29, 1951
2,560,907	Thomas et al.	July 17, 1951

FOREIGN PATENTS

Number	Country	Date
389,104	Germany	Jan. 26, 1924