June 8, 1937. R. MAYER 2,083,465

CIGARETTE DISPENSER

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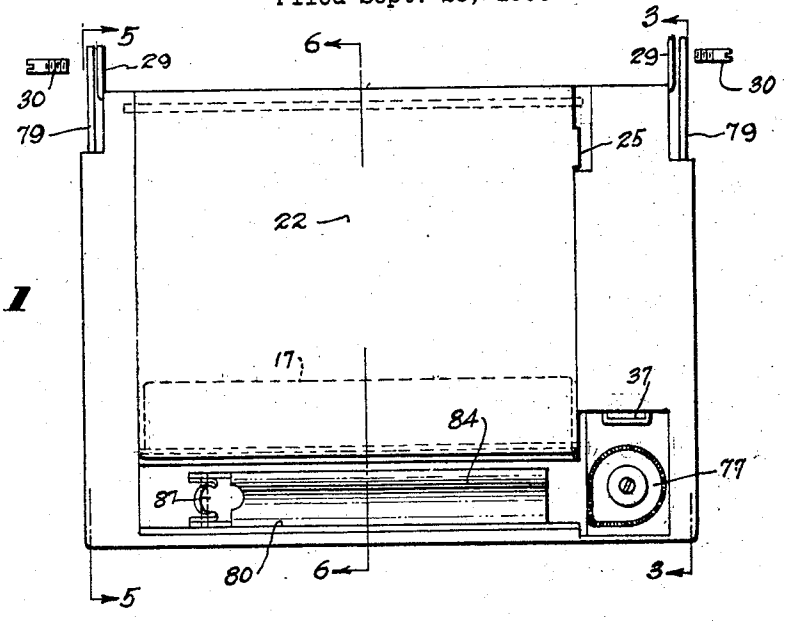


Fig. 1

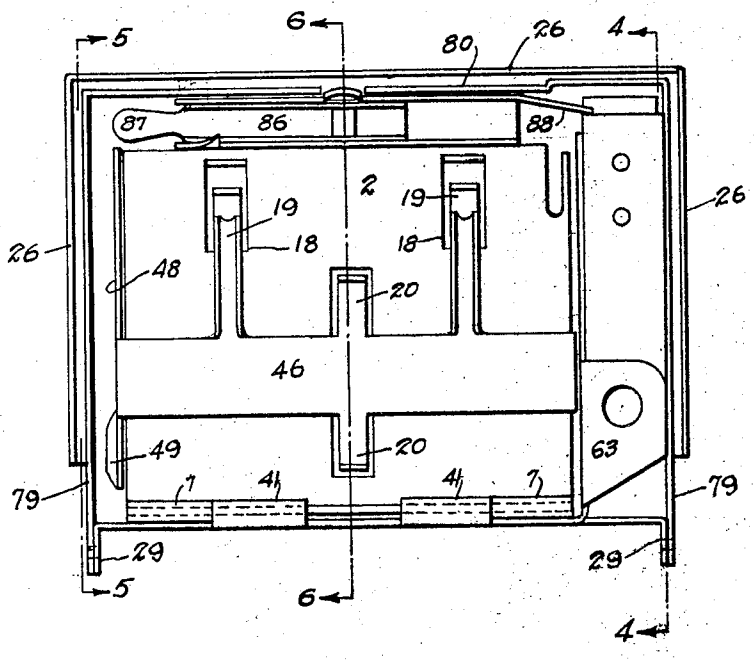


Fig. 2

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June 8, 1937. R. MAYER 2,083,465

CIGARETTE DISPENSER

Filed Sept. 25, 1936 6 Sheets-Sheet 2

Fig. 3

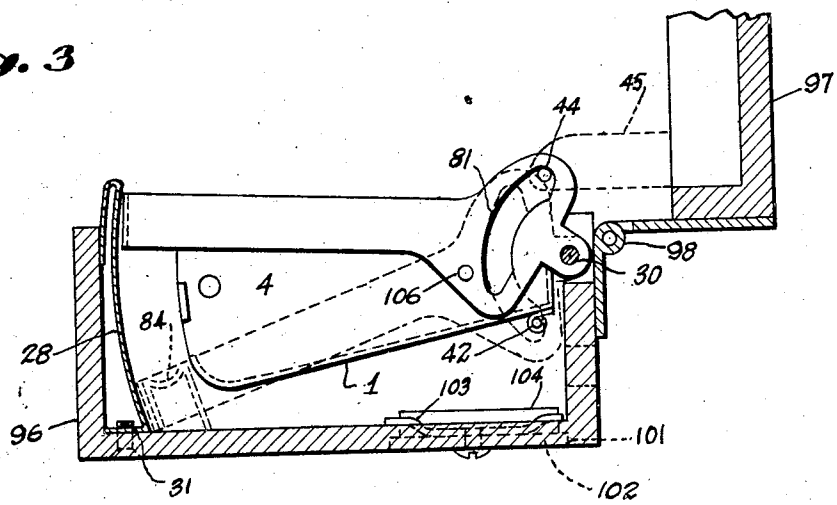


Fig. 4

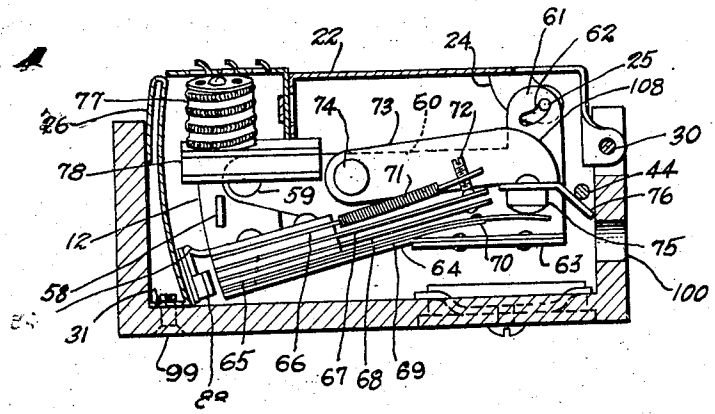
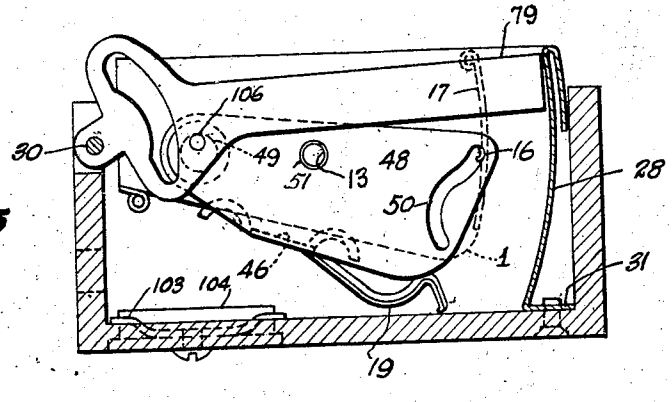


Fig. 5



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June 8, 1937. R. MAYER 2,083,465

CIGARETTE DISPENSER

Filed Sept. 25, 1936 6 Sheets-Sheet 3

Fig. 6

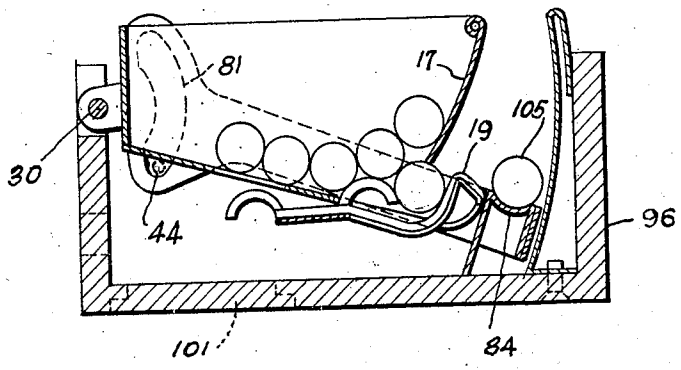
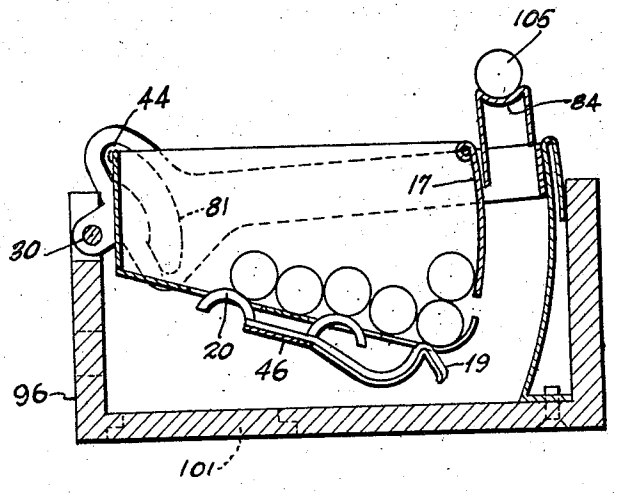


Fig. 7



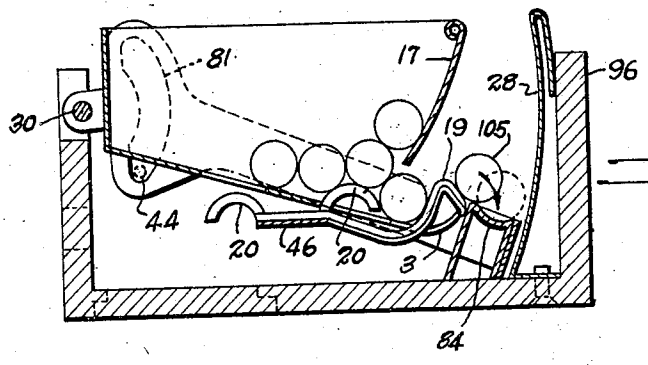


Fig. 8

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June 8, 1937. R. MAYER 2,083,465

CIGARETTE DISPENSER

Filed Sept. 25, 1936 6 Sheets-Sheet 4

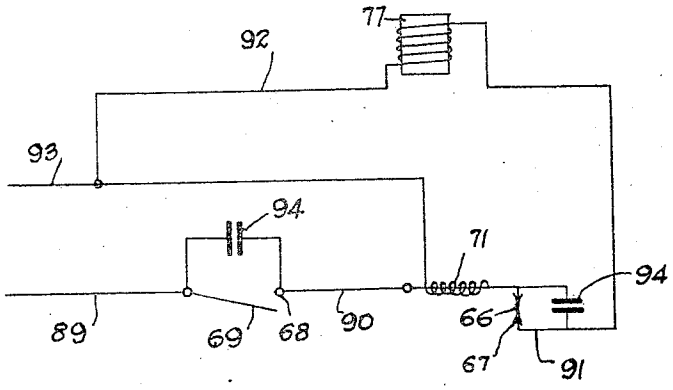


Fig. 21

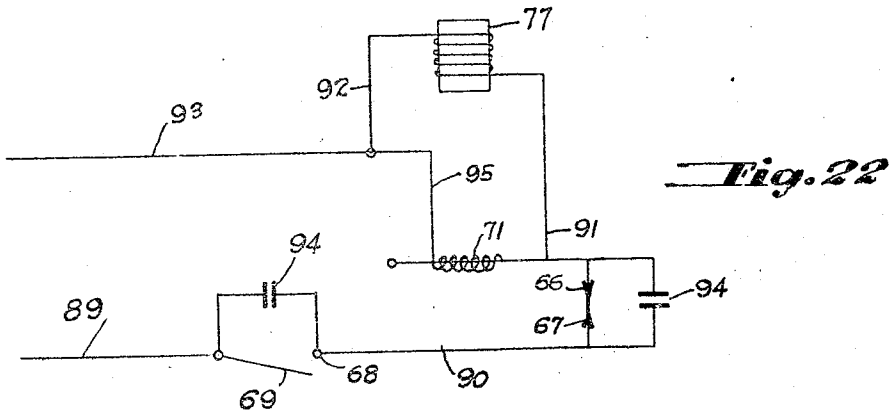


Fig. 22

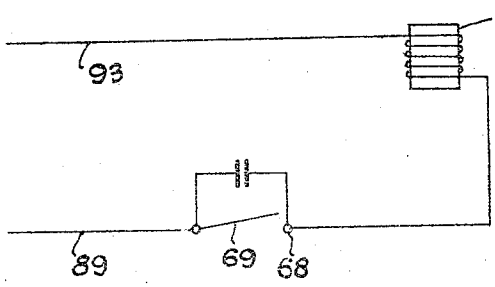


Fig. 23

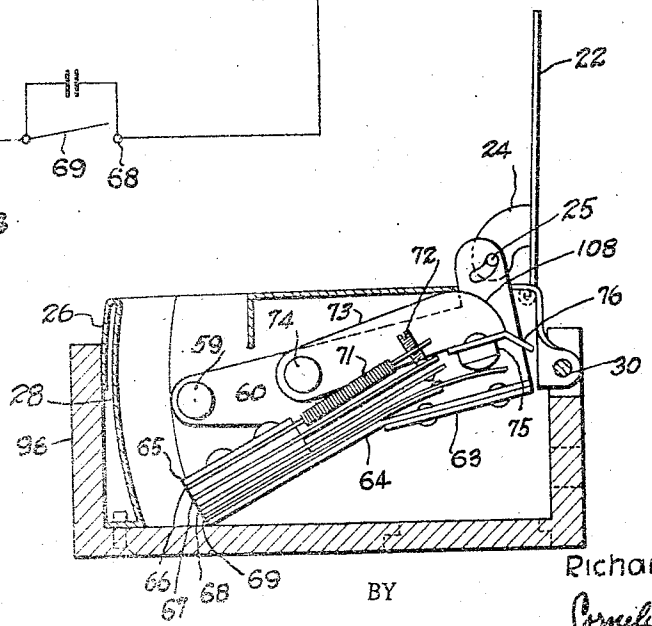


Fig. 9

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June 8, 1937. R. MAYER 2,083,465

CIGARETTE DISPENSER

Filed Sept. 25, 1936 6 Sheets-Sheet 5

Fig. 10

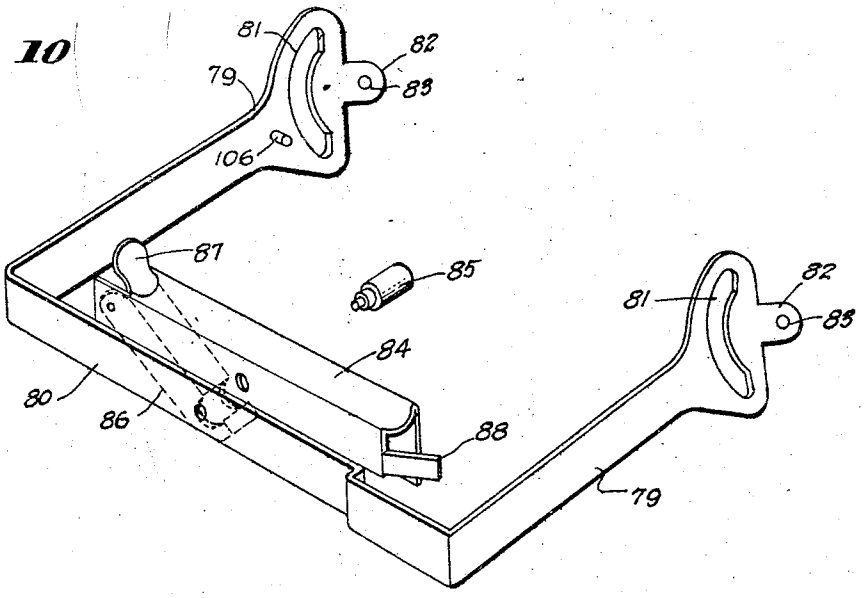
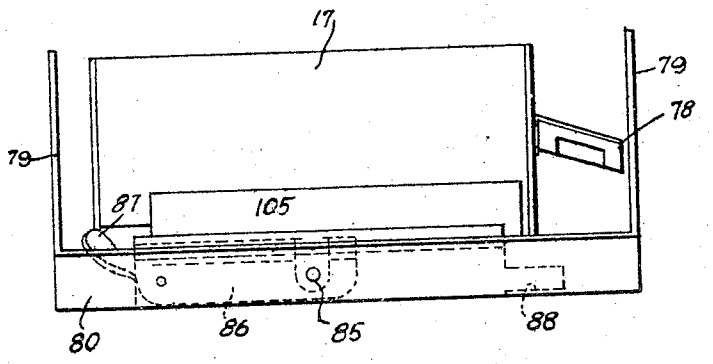


Fig. 11



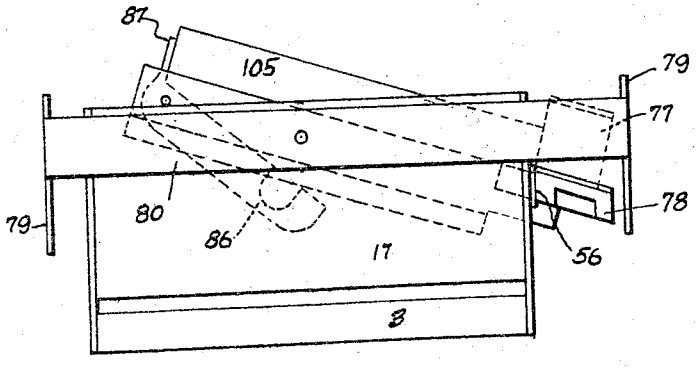


Fig. 12

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June 8, 1937. R. MAYER 2,083,465

CIGARETTE DISPENSER

Filed Sept. 25, 1936 6 Sheets-Sheet 6

Fig. 16

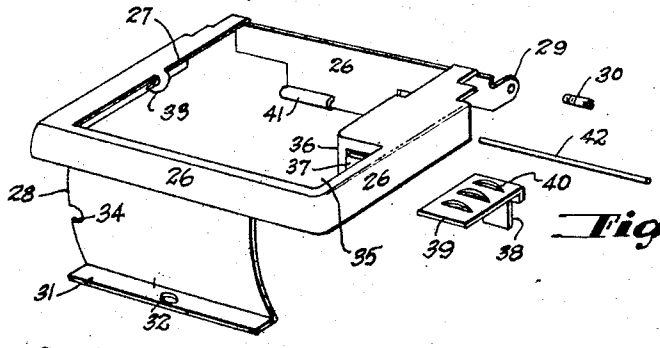


Fig. 20

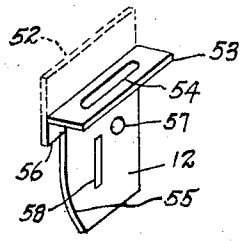


Fig. 19

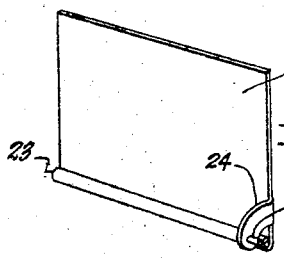


Fig. 15

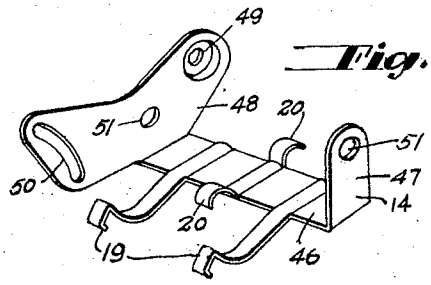


Fig. 18

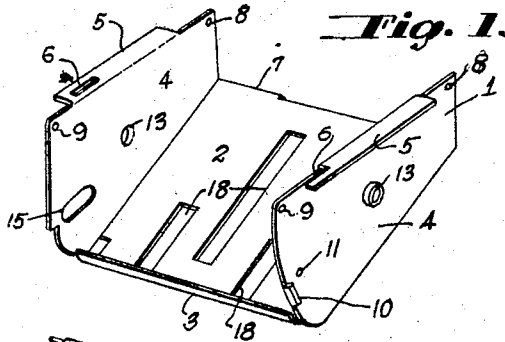


Fig. 13

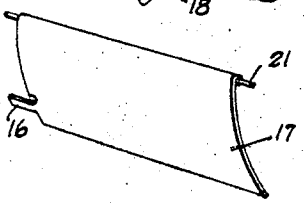


Fig. 14

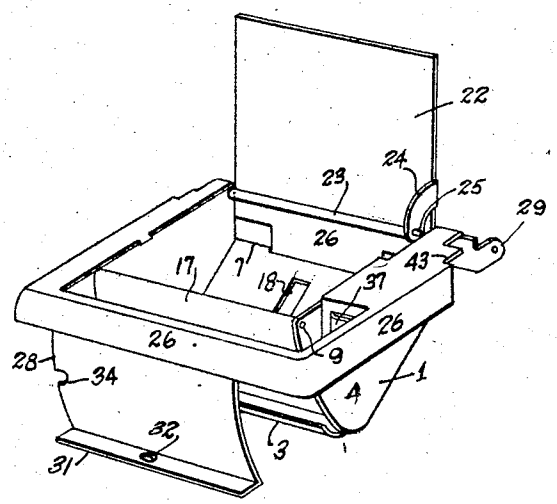


Fig. 17

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Patented June 8, 1937

2,083,465

UNITED STATES PATENT OFFICE

2,083,465

CIGARETTE DISPENSER

Richard Mayer, New Rochelle, N. Y., assignor to Francis C. Copeland, Beverly Hills, Calif.

Application September 25, 1936, Serial No. 102,469

17 Claims. (Cl. 312—75)

This invention relates primarily to cigarette dispensers and, in its preferred, practical form, the dispenser of this invention is so constituted that it will dispense a lighted cigarette.

The present invention may be utilized in conjunction with an appropriate anchorage to hold it in place or it may be used as a dispenser of the portable type wherein no anchorage is employed.

One object of the invention is to provide such a portable type lighter which may be manipulated efficiently and satisfactorily through the use of one hand of the operator and without necessitating the use of his other hand to hold the dispenser in place. This is accomplished, generally speaking, by providing a simple type of movement of the operating part or prime mover which will not tend to shift the casing of the dispenser. Prior lighters, of the type referred to, have generally been such as require the casing to be held while a drawer is pulled out or levers are operated, whereas with the present invention in its preferred, practical form, the lifting of an appropriate cover to the case will automatically bring about the dispensing of the cigarette and the lighting thereof, if such lighting is desired.

A further object of the invention is to provide a dispenser wherein all operating mechanism, such as gears, levers or the like, is concealed from view by the casing which is in the form of an ornamental housing having a cover so connected with the operating parts that the opening or closing of the cover effects the operation of such parts.

In prior dispensers it has been almost the uniform practice to load the dispenser by the opening of a cover, drawer or the like, the dispensing of the cigarettes being accomplished through another or different opening than that closed by the cover or drawer. In the present invention, in contradistinction, the cigarettes are introduced into the receptacle in which they are normally contained by lifting of the cover and they are also dispensed by lifting the same cover.

Another object of the invention is to provide a dispensing mechanism, with or without an associated ignition mechanism, so constituted that it may be manufactured and assembled as a unit, and thereafter slipped into an appropriate ornamental case of any desired design and readily connected with the cover of such case to render the mechanism thereof operable and controllable by pivotal movement of the cover.

In the lighters of the prior art, it has been universal practice to energize an ignition element either manually or mechanically as the case may be, but the mechanism has been so constituted that the ignition element continues to operate as long as the device is manually operated or mechanically operated. As a result of these constructions, the ignition elements of prior devices were very apt to burn out, unless they were made extremely rugged and, when so made, they heated very slowly and required an undesirable interval to heat up sufficiently to light a cigarette. Furthermore, they were bulky and costly and required too much space. Consequently, an important object of the present invention is to provide ignition means which is adapted to function for a predetermined period only, so as to properly safeguard it against burning out and thus enable me to employ a relatively small element and one which will rapidly heat and permit of expeditious dispensing of lighted cigarettes.

Another object of the invention is to so structurally constitute the device that practically any part thereof may be readily dismantled and removed for the substitution of a new part in the event of breakage or wear and yet provide a mechanism which will operate smoothly to properly deliver cigarettes individually without clogging or damage to the cigarettes and with absolute certainty.

Features of the invention, other than those adverted to will be apparent from the hereinafter detailed description and claims when read in conjunction with the accompanying drawings.

The accompanying drawings illustrate different practical embodiments of the invention, but the constructions therein shown are to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a plan view of the device of this invention removed from the casing which normally houses the same.

Figure 2 is an underneath plan view of the structure shown in Figure 1.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a section on the line 4—4 of Figure 2.

Figure 5 is a section on the line 5—5 of Figures 1 and 2.

Figures 6, 7 and 8 are sections in the plane of the line 6—6 of Figures 1 and 2 illustrating different operating positions of the cigarette dispenser mechanism.

Figure 9 is a view similar to Figure 4, but showing the inner lid open.

Figure 10 is a detailed perspective view of the cigarette lifting device.

Figures 11 and 12 are fragmental views showing the operation of the cigarette lifting and tilting means in different operative positions.

Figures 13 to 20 are perspective views showing different structural parts of the device of this invention in detail and in assembled relation and illustrating the way in which they cooperate with one another to form the finished assembly thereof.

Figures 21, 22 and 23 are wiring diagrams of wiring and current controlling mechanism associated with the ignition device.

Attention is first directed to Figures 13 to 20 of the drawings wherein I have shown certain structural elements of the device of this invention in its preferred practical form, and the manner in which they are made for subsequent assembly. These parts may be conveniently made in the form of stampings through the employment of suitable dies, well adapted for rapid quantity production.

Figure 13 shows the part 1 which I will hereinafter term the tray, for the reason that the cigarettes to be dispensed are normally contained therein. The tray 1 has a sloping or inclined bottom 2, The forward end of which is turned up, as shown at 3. To the opposite ends of the bottom are secured upstanding side walls 4, provided at their upper edges with laterally extending flanges 5 occupying the same horizontal plane and provided with punched slots 6 to facilitate assembly, as presently explained. The tray is open at the back and front and the bottom 2 has a perceptible slope in the direction of the upturned forward end 3. At the back edge of the bottom 2, tongues are provided which are curled downwardly to form hinge members 7 and at the upper rear corners of the side walls are perforations 8. Similar perforations 9 are formed in the forward upper corners of said side walls and at the forward edge of one side wall is a laterally extending tongue 10 with an adjacent perforation 11. These parts 10 and 11 are adapted to assist in attaching the element support 12, shown in Figure 19.

At about substantially the center of the side walls 4 are outwardly punched drawn bosses 13 which act as bearings for the agitator part 14, shown in Figure 18. In the left hand wall of Figure 13 is formed a clearance slot 15 for the passage of a cam follower 16 of a flapper or gate 17, shown in Figure 14, and in the bottom 2 are formed three front-to-rear slots 18 to permit of the operations of the agitator fingers 19 and 20 of said agitator 14.

To the tray 1 is first attached the flapper 17, of Figure 14. This flapper is of vertical arcuate cross section and is provided at its top with a curled edge through which is passed a pin or rod 21 adapted to be received in the perforations 9 of the tray walls 4 to mount the flapper for pivotal movement with respect to the tray. The pin 21 has a pressure fit with the curled end of the flapper, so that it can be readily assembled and dismantled when desired.

After the attachment of the flapper, a lid 22 (Figure 15) is next applied. This lid is in the form of a flat plate large enough to cover the open top of the tray and the rear edge of which plate is curled, at 23, to receive, with a pressed fit, a hinge pin passed therethrough and through the perforations 8 of the tray walls 4 to mount the lid on the tray. The lid carries a rigid bracket 24 having an outwardly extending pin 25, parallel to the hinge pin of the lid to actuate operating parts, as hereinafter explained.

The parts thus assembled are next applied to the top stamping shown in Figure 16 and stamped up from a single piece of sheet metal. It embodies four upright walls 26 arranged in rectangular relation and all of the same height, but, in practice, the upper portions of these walls are drawn in slightly to provide clearance for the cover of the housing and thus eliminate friction or wear.

The upper central portion of the top is stamped out to provide an opening 27 which extends from the back wall to a point adjacent to, but spaced from, the front wall of the top and for the greater portion of the width of the top, but the greater portion of the materal thus stamped out is bent downwardly to form an apron 28 which is curved about the same center as the flapper 17, so that the curvature of the apron 28 and the flapper 17 will be concentric. The center of these curves is in the axis of headless set screws 30, passed through ears 29 formed and bent back from the back wall of the top and which set screws are passed through the outside casing or housing of the box and serve in part to secure the top to the casing. The lower end of the apron 28 is bent forwardly to form a flange 31 adapted to seat on the bottom of the casing and this flange is provided with a tapped hole 32 which assists the screws 30 in securing the top to the casing, as hereinafter explained in detail. During the stamping of the top, tongues 33 are stamped out and leave openings 34 in the apron which serve no useful purpose.

The top is thus formed with flanges overlying its two sides and front, but these flanges are cut away at one corner of the box, as indicated at 35, and the material thus cut out is bent down to form a bracket 36 from which is punched out a transverse keeper 37, provided at its upper and lower edges with transverse slots adapted to receive the depending tongue 38 of an ignition element guard 39, shown in Figure 20. The guard 39 is stamped to provide louvres 40 for ventilation and in assembling or removing the guard, the fingernail of the operator may be engaged with one of the louvres to facilitate the handling thereof.

The lower edge of the back wall of the top is curled, as shown at 41, to receive an assembly pin 42 which serves to hold the top stamping of Figure 16 and the tray of Figure 13 in assembled relation. In practice, the tray with associated parts, as hereinbefore described, is brought into cooperation with the top to cause the ears 33 to extend through the slots 6 of the tray and with the curls 7 of the tray in alinement with the curls 41 of the top. The pin 42 is then inserted, with a pressed fit, and the ears 33 are bent over to lock the parts in position.

When the parts have been assembled as stated, they appear as shown in Figure 17, from which it will be noted that the top is provided with a cut out 43 to permit the passage therethrough of a pin 44 mounted on a bracket 45 carried by the cover of the casing, as indicated in Figure 3.

To the parts thus assembled is next added the agitator of Figure 18. This agitator is of substantially U shape cross section. It comprises a bottom bar 46 at one end of which is an upstanding hanger 47 of strap-like form, while at the other end thereof is an upstanding hanger 48 in the form of an elongated plate, in the opposite

ends of which are formed a perforated punched out boss 49 and a cam slot 50. In the hangers 46 and 47 are alined perforations 51 and the parts are so proportioned that these perforations 51 will find bearings on the exterior punched out bosses 13 in the side walls of the tray 1, with the bottom bar 46 extending across beneath the bottom 2 of said tray and with the agitator fingers 19 and 20 cooperating with the openings 18 in the bottom of the tray. When the agitator is in this position, the cam slot 50 will substantially register with the clearance slot 15 in the tray and will receive the cam follower 16 of the flapper, so that, if the agitator is oscillated on the bosses 13, the cam slot 50 will act upon the follower 16 of the flapper to produce pivotal movement of the latter and move the lower edge thereof toward and away from the forward upturned edge 3 of the tray bottom in order to permit or exclude the passage of cigarettes individually between these parts, while the agitator fingers agitate the cigarettes in the tray in order that they may be maintained in proper stacked relation to properly gravitate into dispensing position. The fingers in question have the further function of assisting in the ejection of the cigarette as will be hereinafter more fully explained in connection with the operation of the device.

To the parts thus assembled is next added the supporting element 12 of Figure 19. This element is made in the form of an upright flat plate, the upper end portion 52 of which may be left in upstanding position if unlighted cigarettes are to be dispensed, but if lighted cigarettes are to be dispensed, this upper portion is bent over to form a laterally extending flange 53 which is punched out to provide an opening 54. The forward edge of the plate is cut away at 55 to provide a stop or abutment 56 and the body of the plate has a perforation 57 and a vertical elongated slot 58. In attaching the element support, the slot 58 is brought into position to receive the projection 10 on the tray, so that the hole 57 will register with the hole 11 of the tray. If unlighted cigarettes are to be dispensed a rivet is simply passed through these holes and headed over, but if lighted cigarettes are to be dispensed, there is passed through these holes a stud 59 which also serves as a pivotal mounting for a pivoted bracket 60, as clearly shown in Figure 4. The stud 59 is of the shouldered kind, so as to bind the element support 12 firmly to the tray, but to permit of free pivotal movement of a bracket 60, as shown in Figures 4 and 9. The bracket extends rearwardly from the stud 59 with its greater portion in the form of a flat plate occupying a vertical plane. The plate is provided at its free end with an upstanding tongue 61 having therein a cam slot 62 which receives the pin 25 of the lid 22, so that as the lid 22 is raised, the free end of the pivoted bracket 60 is also raised and, when the lid is again lowered, the bracket is lowered.

The lower edge of the pivoted bracket 60 carries a right angle flange 63 to which is riveted or otherwise attached an angle plate 64 carrying current switching mechanism designated generally by the reference character 65. This switching mechanism is shown as of the leaf spring type and as embodying four leaves 66, 67, 68 and 69. The part 70 is a strip of mica which insulates the leaf 69 from the plate 64 and additional appropriate insulation is positioned between the other leaves to insulate them from one another. The leaf 66 is shown as embraced by a heating element 71, hereinafter more fully described, and carries an adjusting screw 72, bearing against a contact on the leaf 67. The parts 66, 71, 72 and 67 constitute a thermostatic portion of the switch. The leaf 68 is a rigid leaf and with the resilient leaf 69 constitutes the main switch. These two latter leaves carry cooperating contacts which tend to engage one another.

Mounted on the switch bracket 60 is a switch operating arm 73 pivotally attached to the bracket 60 by a headed and shouldered stud 74 which permits of pivotal movement of the switch operating arm 73 on the bracket and independently of the pivotal movement of the latter. Near the free end of said switch operating arm is an insulating button 75 secured to a right angular bend on the operating arm and this bend carries an inclined tail 76 against which the pin 44 (Figure 3) of the cover is adapted to act.

The several leaves of the switch 65 are connected according to wiring diagrams, shown in Figures 21–23, to include in the circuit an ignition element 77 which in practice may be of any suitable construction, but is preferably of substantially circular form comprising a substantially cylindrical core of insulating refractory material encircled by a coil of resistance wire. The ignition element is so constituted that it can be readily changed if replacement is desired. The ignition element is mounted in any appropriate way upon an insulated mounting 78 rigid with the element support 12 and resting on the flange 53 thereof (Figure 19). The insulating element 78 carries two contacts connected to the resistance wire of the ignition element and these contacts are connected to the leaves of the switch as will be presently explained.

After all of the parts thus described are assembled as stated, there is next associated with said assembly an operating yoke shown in detail in Figure 10. This operating yoke is of substantially U-shape section and comprises two forwardy extending arms 79 connected by a transverse front arm 80. The rear end of each arm 79 is shaped like a quadrant and is provided therein with arcuate slots 81 and with rearwardly extending ears 82 having perforations 83.

Against the inner face of the front bar 80 is pivotally mounted a cigarette dispensing trough or receiver 84. This trough is pivoted to the front bar by a shouldered stud 85, the pivoting being accomplished slightly off center, so that the left hand end of the trough in Figure 10 is the heavier end. To this heavier end is pivoted a pusher element 86 having an upstanding pusher 87. The opposite end of the trough carries a finger 88 which is adapted to cooperate with the stop or abutment 56 of the element support 12 (Figure 19). The trough 84 is of inverted channel section and the pusher element is pivoted within the channel in such a way that it will normally gravitate into a position to raise the pusher 87 above the face of the trough, which is concave to receive and hold a cigarette. Nevertheless the pusher element is free to be retracted into the trough, as presently described.

The parts shown in Figure 10 are mounted in such a way that the yoke exteriorly embraces the front and sides of the tray 1 with the screws 30 passing through the holes 83 of the yoke and with the pin 44 of the cover passing through the slot 81.

The parts are so proportioned that, when assembled as described, the apron 28 of the top stamping will be concentric with the front edge of the side walls 4 of the tray and with the cur-

vature of the flapper 17 and will leave a space or arcuate passage between the apron and the said front edges of the tray walls, substantially equal to the front to rear dimension of the trough with sufficient clearance to permit the trough to move up and down through the passage thus provided, about the center of oscillation of the yoke, as clearly shown in Figure 3.

The ignition element is now wired up in any one of several ways, illustrative forms of wiring diagrams being shown in Figures 21–23, inclusive. Figure 21 shows a multiple circuit. According to this showing, one lead-in wire 89 leads to the leaf spring 69. A wire 90 leads from the rigid leaf 68 to the leaf 66, while a wire 91 leads from leaf 67 to the resistance coil of the ignition element 77 and from thence wire 92 leads to the other lead-in wire 93. A shunt circuit connects with the lead-in wire 93 and includes the heating element 71, the other terminal of said element being connected to the leaf 66. Condensers 94 are shunted about each switch to preclude sparking.

The leaves 66 and 67 are both bimetal and they both have the same physical characteristics and are so constituted as to react to heat in the same direction for reasons presently explained.

In Figure 22, the lead wire 89 passes to leaf 63, while wire 90 leads from leaf 68 to leaf 67. Wire 91 leads to the ignition element 77 and the other terminal of the element is connected by wire 92 to the other lead-in wire 93. Wire 95 shunts the ignition element 77 and includes the heating element 71 and the leaf 66. Condensers are connected across both switches as before and leaves 66 and 67 are bimetal as stated.

In Figure 23, the thermostatic control is entirely omitted and the ignition element 77 is simply arranged in series with the leaves 69 and 68.

While I have described particular switch mechanism in connection with these diagrams, I wish it understood that any other suitable switch mechanism, operable in substantially the same way, may be used without departing from this invention. This is particularly true of the construction of Figure 23, where any kind of switch can be used to control the energizing of the ignition element. The electrical operation of the circuits, which I have described, will be hereinafter more fully explained in connection with the operations of a device as a whole.

After the current switching mechanism and ignition element have been wired up in any of the ways specified or in any other suitable manner, the parts as thus far assembled are ready to be introduced into the casing. I may, in practice, employ casings of widely different shape and materials depending upon the artistic taste of the designer and upon the price at which the device is to sell or the environment in which it is to be used. However, and without intending in anywise to restrict as to materials and shaping, I have shown a simple molded box-like casing. The box body 96 is of rectangular form having four sides and a bottom and this box body is adapted to be closed at its top by a cover 97 hinged to the box body in any appropriate way. For the purpose of illustration, a hinge 98 is shown with two leaves, one of which is secured to the cover and the other to the box body, so that the cover may be opened and closed in the manner of an ordinary hinged cover box. The brackets 45 carrying pins 44 are carried by the cover 97. They may be associated therewith in any appropriate way. For example, they may be cast on the cover or may be made separate and secured thereto or they may be mounted on or form an integral part of the hinge leaf which is secured to the cover. In any event, the brackets 45 should be rigid with the cover to move as the cover is opened and closed.

Into a box of this construction, the assembled metal parts of the structure are adapted to be introduced. They are picked up as a unit and dropped into the box body 96. During this operation, the pins 44 are engaged with the slots 81 and, as the unit comes to rest in the box body, the flange 31 comes to rest on the bottom of the box and is secured in place by one or more screws 99 passed upwardly through the box body and threaded into the tapped hole 32 in flange 31, as shown for example in Figures 3–5. At the same time perforations in the lugs 29 of the top stamping, as well as the perforations 83 in the lugs 82 of the yoke are brought into alinement with tapped holes extending longitudinally into the rear wall of the box body and the screws 30 are thereupon introduced into these several holes and perforations and serve to mount the rear end of the unit rigidly in place. The wiring to the ignition element is carried through a hole 100 in the back of the box and equipped with an appropriate connector to fit a conventional wiring outlet.

The bottom of the box body is shown as provided with an opening 101 adapted to be closed by a plate 102 with which is associated a rotatable flat spring 103 which, through rotation, may be caused to engage or disengage the lateral edges of the opening to hold the plate 102 in position. A series of laminations of blotting paper 104 may be associated with the inside of the plate 102 to serve as a humidifier when moistened. The rivet which holds the spring to the plate 102 has a slotted head adapted to receive the edge of a coin, so as to permit the spring 103 to be rotated at will. The purpose of the plate 102 is to close the bottom of the box, but to permit it to be opened to dump out particles of tobacco or other extraneous matter that may accumulate in the box body. The humidifying blotting paper 104 may be readily moistened by removing the plate 102 and applying a few drops of water thereto.

Having described the structure of the device of this invention, I will now proceed to describe the operation of the parts, it being assumed that the electrical terminals are plugged in to a suitable source of supply and that the tray contains cigarettes.

With the lid closed, the operating parts will partake of the positions shown in figures 4, 6, 8 and 11. By reference to Figure 4, it will be noted that current is broken at the contacts of the leaves 68 and 69, so that the circuit will be dead. This is the normal condition of the parts. A cigarette will be in the position indicated in Figure 6 at 105 and the flapper 17 and the agitator fingers 19 will be in the positions shown in this figure to preclude the exit of any other cigarettes from the tray.

If the prospective smoker now desires to obtain a cigarette, he simply lifts the cover 97 which will result in the following operations. As the cover rises, it carries with it the pins 44 which come into engagement with the upper blind ends of the slots 81 of the yoke 80 and swing said yoke upwardly about the pivots 30 thereby elevating the trough or receiver 84 to the position shown in Figures 7 and 12. As the

trough is lifted, it remains horizontal for a part of its travel and until the projection 88 thereof engages the abutment 56 on the ignition element support (Figures 12 and 19). Further upward movement of the yoke causes the tilting of the trough, as shown in Figure 12, so that the cigarette inclines downwardly in the direction of the ignition element 77. At the same time the pusher member 86 swings down on its pivot causing the pusher 87 to bear against the far end of the cigarette and push it against the ignition element, so that it may be ignited thereby.

During the upward swinging movement of the yoke, a pin 106 on the yoke, which is engaged with the perforated boss 49 of the agitator, oscillates said agitator about the axis of the bosses 13 of the tray, thereby causing the hanger to be oscillated into the position shown in Figure 5 with the result that the flap or gate 17 is moved to bring its lower edge directly adjacent the forward edge of the tray to close the opening therebetween and preclude the passage of any cigarette through such opening. At the same time the agitator fingers 19 are swung downwardly while the rear agitator finger 20 is swung upwardly. This allows the cigarettes to gravitate forwardly against the flap 17 but will permit none to exit from the tray. The parts are so timed, however, with respect to the opening in the boss 49 and the pin 106, together with the shaping of the cam track 50 and the follower 16, that the trough will keep the opening closed until the flapper has been brought into proper position.

At the conclusion of the upward movement of the yoke, the cigarette is in a position (Figures 7 and 12) to be manually removed from the trough and if unlighted cigarettes are desired the operation may be considered as complete. However, since the preferred form of the invention contemplates the dispensing of lighted cigarettes, I will proceed to describe the manner in which this is accomplished.

During the upward swinging movement of the yoke as described, the pin 44, carried by the cover of the box, leaves the position shown in Figure 4 and as soon as pressure on the tail 76 is relieved, the resilient leaf spring 69 elevates and engages with the leaf 68. If the circuit employed is that shown in Figure 21, this will result in a flow of current from the line 89 through contacts 69, 68 and line 90 to contact 66. Here the current will divide, a part of the same passing through the line 91 through the ignition element 77 and from thence through wire 92 back to line 93. The other portion of the current will pass through heater 71 to return to the line 93.

As a result of the completion of these circuits, the resistance coil of the ignition element 73 will be energized and will glow for the purpose of lighting the cigarette resting in inclined relation in the trough 84, with one end thereof held against the ignition element or in close proximity thereto by the pusher 87. After the cigarette is lit, it may be picked up from the trough and smoked in the usual way. The cover 97 should now be closed, but, if, for any reason, it is left open, the resistance coil of the ignition element will not burn out for it is protected by the thermostatic switch to which I have referred.

More specifically, the current passing through the heater 71 will, after a predetermined duration of time, depending upon the adjustment of the screw 72 (Figures 4 and 9), be shut off by an upward warping of the bi-metallic leaf 66 to carry it free from contact with the leaf 67. As soon as this occurs, the circuit through the ignition element will be broken until the thermostatic leaf 66 cools off and re-engages the leaf 67. This cannot, however, occur until the cover is closed to move the leaf 69 out of contact with the leaf 68 because the circuit through the heater 71 will remain energized as long as the leaves 68 and 69 are in contact. As soon as the cover is closed, however, the leaf 69 will be forced away from the leaf 68 to break the circuit through the heater 71 and allow the thermostatic leaf 66 to cool off and re-engage with the leaf 67. I have hereinbefore stated that the leaf 67 is also bi-metallic and has a thermostatic operation. The reason for this is that the operation of the cover at short intervals by several persons for the dispensing of cigarettes in succession may tend to cause the interior of the structure to heat up considerably and thus slow up the operation of the leaf 66, so that it would close too slowly. By making both leaves 66 and 67 of thermostatic, bi-metallic material, arranged to operate in the same direction under heat, the leaf 67 will compensate for the slow closing of the switch and permit of successive operations at short intervals.

If the circuit employed is that shown in Figure 22, the opening of the cover will bring the leaf 69 into engagement with the leaf 68 and the leaves 66 and 67 being in contact, the circuit will be closed through the ignition element 77 and simultaneously through the heater 71. After a sufficient period of operation of the ignition element to properly light a cigarette, the heater 71 will cause breaking of the circuit by warping the leaf 66 out of contact with the leaf 67 and thus protect the ignition element from burning out. If the cover is closed promptly, the current will be broken again at 69—68, but if the cover is left open until the bi-metal leaf 66 again contacts with 67, the element 77 will again be ignited for a period. The leaves 66 and 67 are both bi-metal as hereinbefore described for the purpose stated.

If the circuit of Figure 23 is used, the opening of the cover will close the circuit at 68—69 and the element 77 will be energized until the cover is closed. This circuit does not include the thermostatic protection embodied in the two previous wiring diagrams.

Irrespective as to the circuit employed to light a cigarette, it will be apparent that the cigarette is delivered from the tray into accessible position on the trough or receiver, so that it may be manually picked up and smoked. After the cigarette has been removed the cover should be closed and, when this is done, the following operations take place.

As the cover swings into closed position, it carries with it the pins 44 which traverse the slots 81 of the yoke and cause the yoke to be depressed from the position shown in Figures 3, 5, 7 and 12 to the position of Figures 4, 6, 8 and 11. As the yoke descends the pin 106 thereon cooperates with the perforated boss 49 to oscillate the agitator, but the holes in this boss are made large enough to permit of considerable lost motion, so that the yoke has substantially reached its lowermost position by the time the pin 106 (Figure 5) engages with the lower edge of the perforations 49. When it does, it tilts the agitator about the axis of the pivots 13, so that it moves from the position shown in Figure 7 to the position of Figure 8. This brings about the following operations.

During the initial tilting movement, the cam slot 48 (Figure 5) swings the cam follower 16 to

the left in this figure to move the flapper 17 in a clockwise direction from the position of Figures 5 and 6, so as to clear away all but one cigarette from the lower forward end of the tray, and upon further movement of the agitator, the tongues 19 swing forcibly upward engaging with this single cigarette and projecting it upwardly and outwardly, so as to, in effect, throw it into the trough 84, as indicated in Figure 8. At the same time, the lower end of the flapper or gate precludes other cigarettes from following, while the fingers 20 of the agitator agitate the remaining cigarettes to keep them in proper parallel relation to be fed in succession. The parts are left in the position shown in Figure 6 with a cigarette 105 in the trough ready to be dispensed when the cover is next lifted. When the cover is lifted, the flapper 17 is moved into the position of Figure 7 before the trough clears the space between the outlet of the tray and the flapper, so that a cigarette cannot be inadvertently thrown out of the tray into the box body below the trough.

In practice, I have found that the operations which have been described occur with smooth precision to dispense cigarettes individually in a thoroughly satisfactory manner. If lighted cigarettes are desired, the ignition element is employed, but if unlighted cigarettes only are wanted, all the ignition means to which I have referred may be eliminated. The structure described lends itself admirably to quantity production, practically all the parts are assembled in a way to permit them to be readily dismantled for replacements if necessary and in every case wherein the thermostatic switch is employed, the ignition element is thoroughly safeguarded against burning out through automatic limitation of its period of active operation. By utilizing such a control, it is possible for me to use a relatively light resistance coil which heats up with great rapidity and effects a quick lighting of the cigarette, so that the recipient need not wait for a protracted period, as has generally been the case in prior constructions. Furthermore, it will be noted that the cigarettes are forcibly ejected. In other words, they do not depend upon gravity for their operation, as the finger 19 actually kicks them out of the tray into the dispensing trough, while the flapper and the remaining parts of the agitator retain other cigarettes from following except at such times as proper under the conditions. All parts of the structure are positively operated and are absolutely dependable.

After all the cigarettes have been dispensed from the tray, it is of course necessary to replenish the supply and this necessitates the lifting of the cover which will of course cause energizing of the ignition element if some means were not provided to compensate for this. This function is performed by the switch arm 73 for it is necessary to lift the lid 22 in order to put the cigarettes into the tray and when the lid is so lifted, it carries with it the pin 25 (Figures 4 and 9) causing the bracket 60 to be elevated sufficiently to bring the edge 108 of the arm 73 into engagement with the under side of the top stamping as shown in Figure 9, so that, when the cover is lifted the arm 73 is swung downwardly on its pivot 74 to cause the insulating button 75 to force the leaf 69 out of engagement with the leaf 68 and open the circuit to the ignition element. Thus, when the lid is lifted, the current is cut off and the ignition element is de-energized during the period of introducing cigarettes into the tray. There is thus no tendency to burn the hands nor is there any waste of current during this period.

With the arrangement described, it will be noted that the cigarettes are introduced into the casing through a top opening thereof and through the same top opening as that through which said cigarettes are individually dispensed.

Having thus fully described the invention, what I claim as new and desire to secure by Letters Patent is:

1. A cigarette dispenser and lighter comprising a casing adapted to contain cigarettes, an ignition element, a movable dispenser adapted to receive cigarettes individually from the casing and move them into juxtaposition with the ignition element, said dispenser having a tiltable support for the individual cigarettes, and means for tilting said support to incline a cigarette supported thereon in the direction of the ignition element as the receiver approaches cigarette dispensing position to permit the cigarette to gravitate into cooperative relation with the ignition element.

2. A cigarette dispenser and lighter comprising a receptacle having a movable cover and provided with a dispensing opening, an ignition element mounted on the receptacle adjacent the dispensing opening, a receiver adapted to convey cigarettes individually from the interior of the receptacle to the dispensing opening and into juxtaposition with said ignition element, and operating connections between the receiver and the cover to render the receiver responsive to the operations of the cover, said receiver being adapted to present the cigarettes to the ignition element in downwardly inclined relation to the ignition element, whereby the cigarette is caused to gravitate into cooperative relation with the ignition element.

3. A cigarette dispenser comprising a casing having a box body and a pivoted cover, a cigarette container provided with a cigarette outlet within the box body, a receiver movable about an axis of pivotal movement from a position adjacent said outlet to accessible position at the top of the box body and adapted to transport cigarettes individually from the container into accessible dispensing position, and operating connections between the receiver and the cover to operate the receiver when the cover is opened and closed, an ignition device positioned in proximity to one end of a cigarette supported by the receiver when in such dispensing position, to ignite the cigarette, and operating connections between the cover and the ignition device to control the latter.

4. A cigarette dispenser comprising a casing having a box body and a pivoted cover, a cigarette container provided with a cigarette outlet within the box body, a receiver movable about an axis of pivotal movement from a position adjacent said outlet to accessible position at the top of the box body and adapted to transport cigarettes individually from the container into accessible dispensing position, and operating connections between the receiver and the cover to operate the recever when the cover is opened and closed and an ignition device positioned in proximity to one end of a cigarette supported by the receiver when in such dispensing position, to ignite the cigarette, and means, operable upon movement of the receiver into cigarette dispensing position to move a cigarette longitudinally into cooperative relation with the ignition device.

5. A cigarette dispenser comprising a casing having a box body and a pivoted cover, a ciga-

rette container provided with a cigarette outlet within the box body, a receiver movable about an axis of pivotal movement from a position adjacent said outlet to accessible position at the top of the box body and adapted to transport cigarettes individually from the container into accessible dispensing position, and operating connections between the receiver and the cover to operate the receiver when the cover is opened and closed and an ignition device positioned in proximity to one end of a cigarette supported by the receiver when in such dispensing position, to ignite the cigarette, and means operable upon movement of the receiver into dispensing position to tilt said receiver into inclined relation with respect to the ignition device and facilitate the gravitation of the cigarette into cooperative relation with the ignition device.

6. A cigarette dispenser and lighter comprising a receptacle having a movable cover and provided with a dispensing opening, an ignition element mounted on the receptacle adjacent the dispensing opening, a receiver adapted to convey cigarettes individually from the interior of the receptacle to the dispensing opening and into juxtaposition with said ignition element, operating connections between the receiver and the cover to render the receiver responsive to the operations of the cover, said receiver being adapted to present the cigarettes to the ignition element in downwardly inclined relation to the ignition element, whereby the cigarette is caused to gravitate into cooperative relation with the ignition element, and means also controlled by movement of the cover for energizing and de-energizing the ignition element.

7. A cigarette dispenser comprising a casing having a body and a pivoted cover and provided within the body with a cigarette container having a lid, cigarette dispensing means, operable upon opening of the cover, to convey cigarettes individually from the container into an accessible dispensing position above the body, an ignition device positioned to register with one end of a cigarette when in dispensing position, means controlled by the pivoted cover to energize the ignition device when the cover is opened, and means operable by the opening of the lid of the container to de-energize the ignition device so long as the lid is open.

8. A cigarette dispenser comprising a casing having a body and a pivoted cover and provided within the body with a cigarette container having a lid, dispensing means for transporting cigarettes individually from the container into convenient dispensing position, and an ignition element juxtaposed with one end of a cigarette when in dispensing position, said ignition element being responsive to the operations of both the cover and the lid.

9. A cigarette dispenser comprising a casing having a pivoted cover and provided therein with a cigarette container, a receiver adapted to individually receive cigarettes from the container and deliver them individually into accessible dispensing position at the top of the container, an ignition device juxtaposed with one end of a cigarette in such dispensing position, an electric circuit including the ignition device, and thermostatic current switching means, controlled by the cover, to energize the ignition device when the cover is opened and to automatically de-energize said device after a predetermined period of operation, a lid on said container, and operative connections between the lid and the thermostatic current switching means to also de-energize the ignition device when the lid is opened.

10. A cigarette dispenser comprising a casing having a pivoted cover and provided therein with a cigarette container having an outlet, a receiver movable from a point adjacent the outlet of the container into convenient dispensing position at the top of the casing, operative connections between the receiver and the cover to operate the receiver through pivotal movement of the cover, and means also operable through pivotal movement of the cover to forcibly eject a cigarette from the container and deposit the same upon the receiver.

11. A cigarette dispenser comprising a casing having a pivoted cover and provided therein with a cigarette container having an outlet, a receiver movable from a point adjacent the outlet of the container into convenient dispensing position at the top of the casing, operative connections between the receiver and the cover to operate the receiver through pivotal movement of the cover, and means also operable through pivotal movement of the cover to forcibly eject a cigarette from the container and deposit the same upon the receiver, and simultaneously close the outlet of the container against the passage of other cigarettes.

12. A cigarette dispenser comprising a casing having a pivoted cover and provided therein with a cigarette container having an outlet, a receiver movable from a point adjacent the outlet of the container into convenient dispensing position at the top of the casing, operative connections between the receiver and the cover to operate the receiver through pivotal movement of the cover, an agitator cooperating with the container and mounted for oscillating movement with respect thereto, said agitator being operatively connected with the cover to be movable when the cover is opened and closed and having ejector fingers adapted to engage with and forcibly eject a single cigarette from the container into the receiver, when the cover is closed.

13. A cigarette dispenser comprising a casing having a pivoted cover and provided therein with a cigarette container having an outlet adapted to be closed when the cover is closed, a receiver movable from a point adjacent the outlet of the container into convenient dispensing position at the outlet, operative connections between the receiver and the cover to operate the receiver through pivotal movement of the cover, an agitator cooperating with the container and mounted for oscillating movement with respect thereto, said agitator being operatively connected with the cover to be movable when the cover is opened and closed and having ejector fingers adapted to engage with and forcibly eject a single cigarette from the container into the receiver, when the cover is opened, and a gate also operable by movement of the cover to control the passage of cigarettes individually through the outlet of the container.

14. A cigarette dispenser comprising a casing having a movable cover and provided with a cigarette container having an outlet, there being an arcuate passage from a point adjacent the outlet of the container to a point exterior of the casing and at the top thereof beneath the cover, a yoke pivotally mounted concentric with said arcuate passage and carrying a receiver adapted, through pivotal movement of the yoke, to traverse said passage for the purpose of trans-

porting a cigarette from said outlet into convenient dispensing position, and operative connections between the cover and the yoke to pivotally move the yoke when the cover is moved from closed to opened position and vice versa, a gate cooperating with the outlet of the container, said gate being operable by the yoke to close the gate when the yoke is moved into cigarette dispensing position.

15. A cigarette dispenser and lighter comprising a casing adapted to contain cigarettes and having a discharge outlet and a movable cover, a tiltable receiver adapted to individually transport the said cigarettes to the discharge outlet, an ignition element adjacent the discharge outlet, and means for tilting the receiver as it approaches the ignition element to cause a cigarette supported thereon to gravitate into cooperative relation with the ignition element.

16. A cigarette dispenser comprising a casing having a discharge outlet for individual cigarettes, a receiver adapted to receive cigarettes from the casing and transport them to the discharge outlet in horizontal position, and means for tilting said receiver as the cigarettes approach the discharge outlet into inclined relation to said outlet.

17. A cigarette dispenser comprising a casing having a cigarette container therein, movable means to receive a cigarette from said casing and deliver it into accessible dispensing position, said means including a tiltable receiver, an ignition element mounted in a position juxtaposed to one end of the receiver when in dispensing position, a relatively stationary abutment in the path of the receiver to be engaged thereby to tilt the said receiver as it approaches dispensing position, and a gravity operated pusher mounted on the receiver and adapted to engage with the far end of the cigarette to impel the same into cooperative relation with the ignition element.

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