

June 29, 1937.

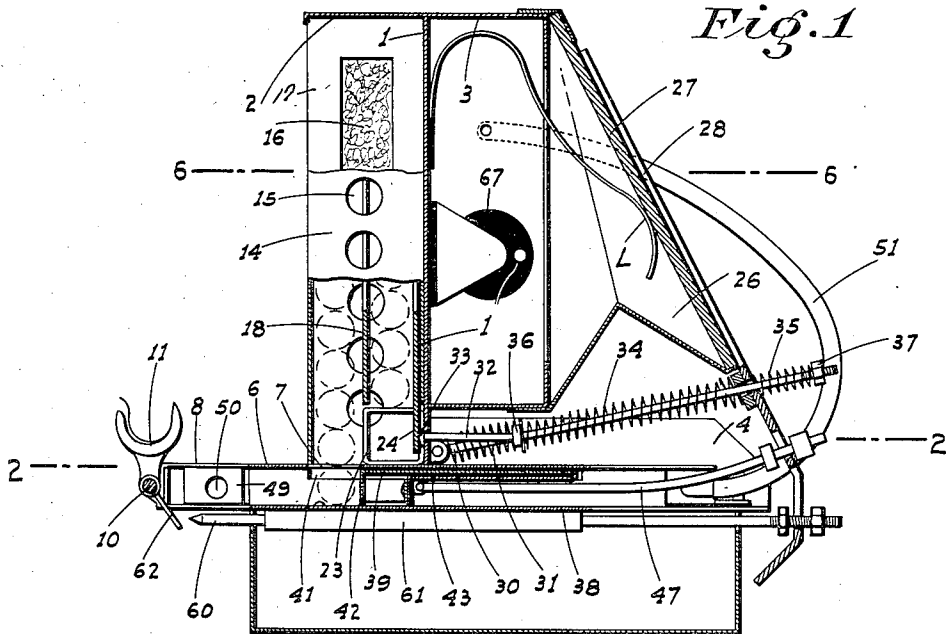
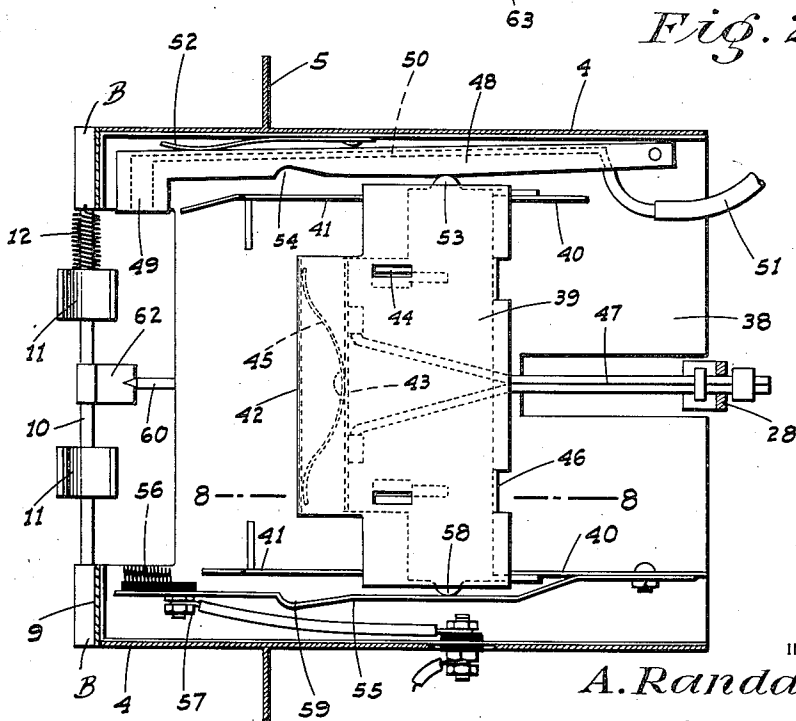
A. RANDAZZO

2,085,121

AUTOMATIC CIGARETTE DISPENSER AND LIGHTER

Filed Aug. 26, 1935

4 Sheets-Sheet 1



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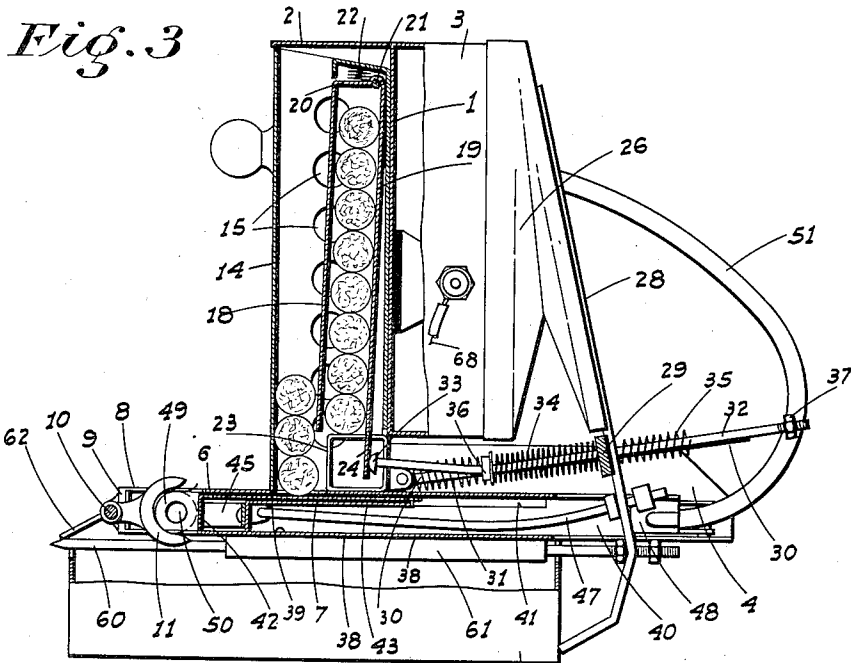
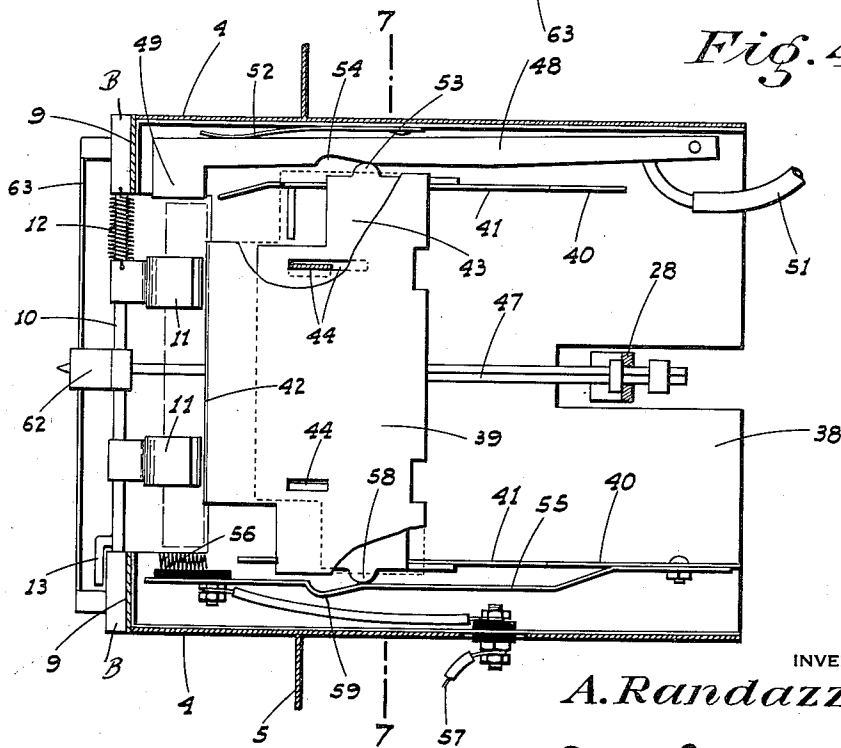
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AUTOMATIC CIGARETTE DISPENSER AND LIGHTER

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4 Sheets-Sheet 2



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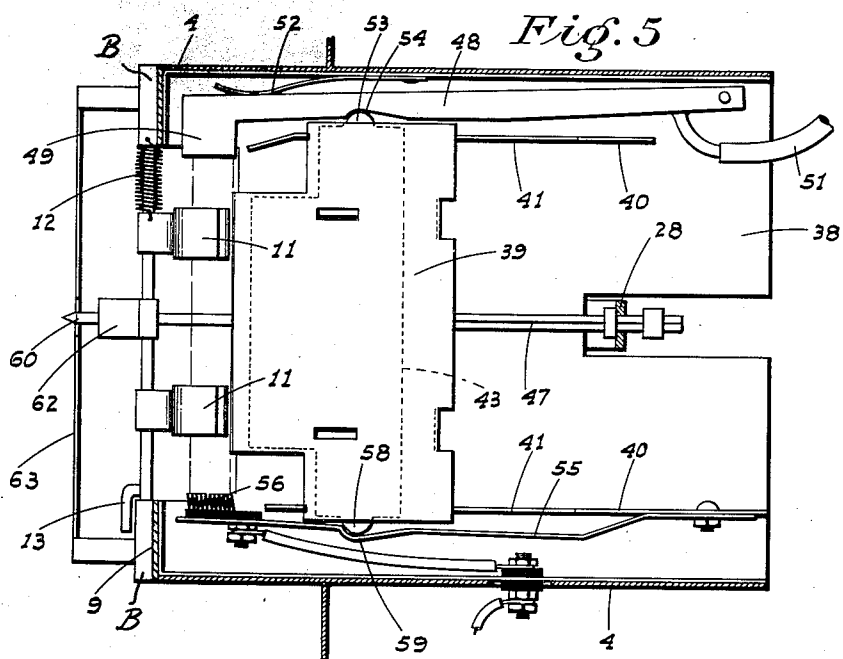
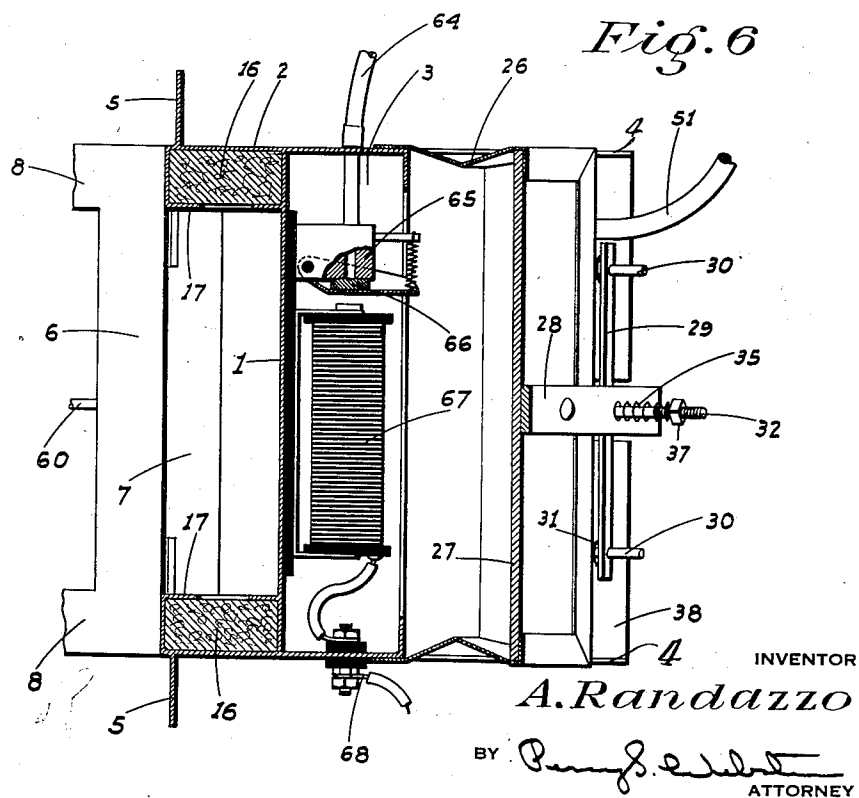
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AUTOMATIC CIGARETTE DISPENSER AND LIGHTER

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4 Sheets-Sheet 3



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AUTOMATIC CIGARETTE DISPENSER AND LIGHTER

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Fig. 7

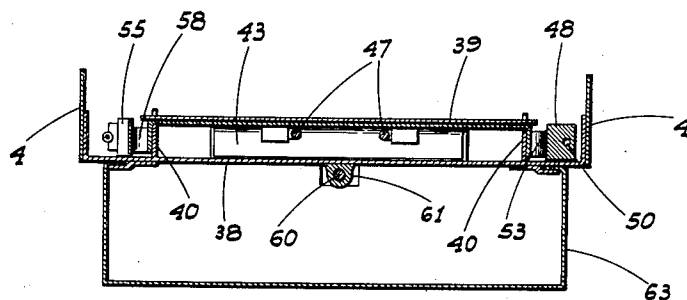


Fig. 8

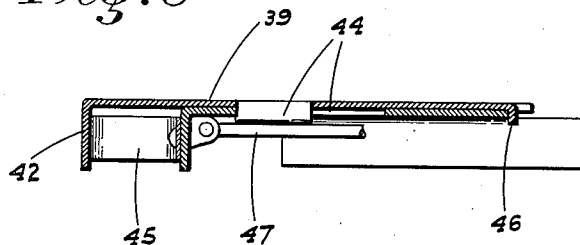
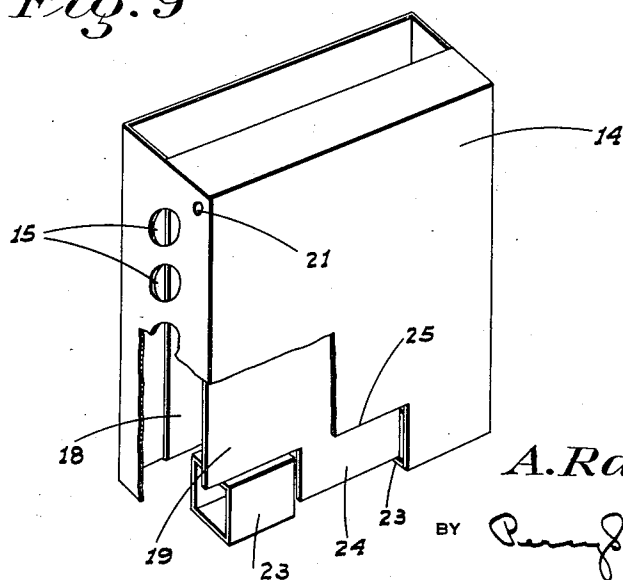


Fig. 9



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AUTOMATIC CIGARETTE DISPENSER AND LIGHTER

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8 Claims. (Cl. 312—86)

This invention relates generally to a cigarette dispenser and lighter, and is directed particularly and specifically to an automatic cigarette dispenser and lighter preferably for use on a motor vehicle.

The principal object of my invention is to provide a device actuated primarily by suction and which will dispense a cigarette from a container and support the cigarette in a position readily accessible to the person desiring to smoke the same. It is also my purpose to provide a device which will automatically light the cigarette which is dispensed from the container.

A further object of my invention is to provide an ash tray which is normally mounted beneath the cigarette dispensing device but which upon actuation of the device will be projected forward to an open or usable position.

Additional objects of my invention are to provide a device in which a relatively large number of cigarettes may be held prior to dispensing and to provide means for humidifying the cigarettes while in the removable container.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a sectional elevation of my automatic cigarette dispenser and lighter.

Figure 2 is a sectional plan view on line 2—2 of Figure 1.

Figure 3 is a sectional elevation illustrating a cigarette as pushed into the receiving or supporting cradles.

Figure 4 is a sectional plan view as in Figure 2 taken when the cigarette pusher is in the same position as in Figure 3.

Figure 5 is a similar view but with the heater and suction elements engaging the ends of the cigarette in the cradles.

Figure 6 is a sectional plan view taken on the line 6—6 of Figure 1, but with the cigarette container removed.

Figure 7 is a cross sectional view of the base portion of the device taken on line 7—7 of Figure 4.

Figure 8 is an enlarged section of the cigarette pushing unit, taken on line 8—8 of Figure 2.

Figure 9 is a perspective view partially cut away of the removable cigarette container.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 denotes a rectangular metal wall which forms the back wall of a rectangular forwardly opening housing 2 and a rectangular rearwardly opening suction chamber 3 which terminates short of the lower edge of the back wall. Depending from the side walls of the housing 2 and projecting rearwardly therefrom are supporting flanges 4. Projecting laterally from the housing 2 are vertical flanges 5 adapted to be secured to the instrument panel of a motor vehicle and through an opening in which panel the device projects.

Secured between the flanges 4 is a plate 6 which forms a floor for the housing 2 as well as projecting forwardly and rearwardly therefrom. This floor plate 6 has a transverse slot 7 cut therethrough just back of the front face of the housing 2, said slot being of sufficient length and width to permit a single cigarette to pass through the same. The floor plate 6 extends forwardly a short distance from the slot and extensions 8 extend forwardly from the plate at its sides, terminating in down turned flanges 9. The flanges 4 extend forwardly along and below the outer edges of the extensions, as shown, so as to form housings for the heater and suction elements, as will hereinafter appear.

Extending between and in front of the flanges 9 and turnably supported therefrom in bearings B is a shaft 10 upon which spaced cigarette receiving cradles 11 are mounted. A torque spring 12 on the shaft between one cradle and the adjacent extension acts to rotate the shaft, such movement being limited by a stop element 13 which permits the shaft to rotate only until the cradles reach an upright position, as illustrated in Figure 1.

A rectangular cigarette container 14 is removably secured in the housing 2. This cigarette container is formed with a series of holes 15 along each side in order that the cigarettes in the container may receive moisture from humidifying elements 16 supported in vertical slotted cases 17 formed within the housing 2 on each side thereof.

The cigarette container 15 is divided into front and back compartments by walls 18 and 19 mounted within the container and secured together in unitary parallel relation by a top cross member 20, and forming the back compartment. This wall unit is pivoted in the container by a shaft 21 adjacent the upper end of wall 19. A

compression spring 22 between the top of the container and the cross member 20 acts on the wall unit to move the same towards the back of the container. Two spaced cigarette supporting platforms 23 are mounted within the container at the bottom and just below the movable wall unit. The back wall 19 has a tongue 24 depending between these platforms, while the back wall of the container is cut away between the platforms as at 25 in order to expose the tongue for engagement with a pusher as will hereinafter appear.

Secured to the suction chamber 3, which is open towards the back of the device, is a bellows 26 having a rigid back plate 27. An arm 28 extends centrally down the back plate of the bellows and projects some distance below the same. Secured to this arm 28 immediately below the back plate 27 is a cross member 29 orificed at each end to slidably receive one end of rods 30 which extend from the cross member below the suction chamber 3 and are swivelly secured at their other end to the back wall 1 under the suction chamber. Compression springs 31 on rods 30 normally keep the bellows in an extended position.

Another rod 32 slidably projects at one end through an opening in the cross member 29 and arm 28 intermediate the rods 30. The other end of rod 32 passes through an opening in the back wall 1 and terminates in a pusher head 33 of greater diameter than the opening in the wall through which the rod projects and positioned to engage tongue 24 of wall 19. Compression springs 34 and 35 are held on the rod on opposite sides of the arm 28 by means of a collar 36 and a nut 37 which is threaded on the rod.

A rectangular base plate 38 is supported from the flanges 4 below and in spaced relation to the floor plate 6 of the device, and terminating in line with the front edge of said floor plate. This base plate 38 is also extended forward along its side edges beyond the front edge thereof in order to provide a bottom closure for the heater and suction element housings, open on only adjacent sides.

Mounted between the floor plate 6 and base plate 38 is a cigarette pushing slide 39 which is slidably supported on parallel upstanding guides 40 mounted on the base plate and spaced from the sides thereof. This slide rides in slots 41 cut in the upper edges of these guides, said slots limiting the relative forward movement of the slide. The slide 39 adjacent the forward portion thereof is offset inwardly from the sides while the front edge of the slide is turned down to form a cigarette engaging face 42, normally disposed just back of slot 7, as shown in Figure 1.

An auxiliary slide 43 is mounted beneath slide 39 and is of the same general configuration. The two slides are held together in proper relative slidable relation to each other by cooperating finger and slot units 44 on the horizontal members of the slides. A leaf spring 45 mounted between the forward vertical faces of the slides normally holds said faces separated and in the relative positions indicated in Figure 4, the separating movement being limited by stops 46 on the slide 39.

A rod unit 47 has loose-play connection at one end with the arm 28; its forward end diverging laterally to the vertical face of the auxiliary slide, to which it is swivelly connected as shown.

Both the floor plate 6 and base plate 38 are

slotted adjacent the back edges thereof as shown for the purpose of permitting free movement of the arm 28 in a forward direction.

An arm 48 is pivoted at its rear end to the base plate 38 between one side thereof and the adjacent guide 40. This arm extends along the base plate under the adjacent extension 8 where the arm is formed with a laterally facing suction head 49 disposed in a transverse plane just in front of plate 6. This arm and head has a suction passage 50 therethrough, which passage connects at the pivotal end of the arm with a flexible suction tube 51 leading from a connection with the suction chamber 3.

A leaf spring 52 urges the arm 48 laterally or toward the opposite side of the device, such inward movement being normally restricted by a protrusion 53 on the auxiliary slide 43 and which constantly engages the adjacent face of arm 48. A depression 54 formed in said face of the arm adjacent its forward end is adapted to receive this protrusion, when the auxiliary slide moves forward to a predetermined point, so as to then allow the spring 52 to move the arm laterally.

Secured along the opposite side of the base plate between said side and the adjacent guide 40 is a relatively long laterally movable leaf spring 55 having its forward end projecting under the adjacent extension 8. A heater element 56 facing and aligned with the suction head is mounted on the forward end of the spring in insulated relation thereto. An electric current supply wire 57 leads to one terminal of the heater, the other terminal being grounded to the spring. A protrusion 58 on the lower slide normally engages and holds the spring against lateral movement except when the slide moves forwardly a sufficient distance to permit the protrusion 58 to engage in a depression 59 in the spring.

A rod 60 projects at one end through arm 28 below the base plate and has loose-play connection with said arm. The rod 60 is slidable through a sleeve 61 formed on the bottom of the base plate and terminates adjacent a strike plate 62 secured on and depending from shaft 10.

An ash tray 63 is slidably suspended from the base plate, the upper edges of said tray at front and back being notched to miss rod 60. The arm 28 is bent forwardly at its lower end in order to engage against the back end of the ash tray when said arm begins to move forward.

The suction in chamber 3 is controlled by the following mechanism:

A tube 64 leads directly from the intake manifold of the engine of the vehicle to a valve block 65 in chamber 3. A pivoted spring-closed valve 66 normally closes the opening in the valve block. An electro-magnet 67 is mounted within the chamber 3 with the core of the magnet adjacent the metallic arm of the valve so as to open the valve whenever the magnet is energized by means of electric supply wire 68. Wire 68 as well as wire 57 are connected in circuit with a switch (not shown) mounted on the instrument panel of the vehicle and which switch is employed to control the passage of electricity through the circuit.

The tube 64 is larger in cross sectional passage area than tube 51 whereby a partial vacuum can be created in the bellows to collapse the same even though tube 51 leads from chamber 3 to suction passage 50 and an atmospheric opening.

Operation

The cigarette container is first filled with cigarettes. The back compartment is filled before the container is inserted in the housing, this being done by inverting the container, and tilting said back compartment clear of the platforms 23. When said compartment is filled, it is released and the container uprighted, the platforms 23 preventing the cigarettes dropping down. The container is then inserted into the housing, being temporarily held forwardly tilted at the top to allow the front compartment to be loaded from the top, which is open. The lowest cigarette in the front row actually drops clear of the container through slot 7 and rests on base plate 38 immediately in front of the cigarette engaging face 42 of the upper slide. This is illustrated in Figure 1. The figure also illustrates the respective positions of the elements of the device in a normal or inoperative position.

To automatically dispense and light a cigarette the electric switch (not shown) is closed. This energizes the electro-magnet as well as the heater element 56. When the electro-magnet becomes energized valve 56 is pulled away from the valve block and subjects the entire chamber 3 to the action of the suction causing bellows 26 to be collapsed and arm 28 to be moved forwardly.

This causes rods 47 and 60 to move forward. As rods 47 move the cigarette engaging face of the upper slide engages and pushes the cigarette forward, the resistance of spring 45 being greater than that of the cigarette. At the same time rod 60 engages the strike plate 62 and turns the cradles 11 down to a cigarette receiving position, in line with the suction head and heater. Due to the fact that the slide must move a greater distance while rod 60 acts to turn the cradles down, the cradles are in a cigarette receiving position before the slide pushes the cigarette into the down turned cradles as illustrated in Figure 3.

After the upper slide has pushed the cigarette into the cradles said upper slide comes to a stop against the end of the slots 41 in guides 40. However the lower slide continues to move ahead beneath the upper slide and against the resistance of spring 45 until protrusions 53 and 58 engage in depressions 54 and 59 respectively which permits suction head 52 and heater element 59 to move toward each other by reason of their springs and engage against opposite ends of the cigarette in the down turned cradles.

As the arm 28 moves forward rod 32 tends to also move forward due to the action of the compression spring 34 but when cigarettes remain in the container between wall 18 and the front wall of the container pusher head 33 on the end of rod 32 cannot move wall 19 of the pivoted wall unit ahead. This results in the spring 34 merely being compressed; the rod 32 sliding through the arm 23. However should all the cigarettes in the front compartment of the container be exhausted, wall 19 would be pushed ahead into the front compartment, allowing a cigarette from the back compartment to drop through slot 7. Thus the device will automatically feed first from one row of cigarettes and then from the other row of cigarettes.

When the arm 28 initially moves forward with the collapse of the bellows the lower end of the arm engages against the back end of ash tray 63 and slides the same forward to an open position as indicated in Figure 3, where it will catch any ash dropping from the cigarette being lighted.

When the cigarette has been pushed into the cradles and suction applied at one end and the heater element at the other end for a sufficient time to properly ignite the cigarette, the electric switch is opened, causing the heater to be disconnected from the circuit and the electro-magnet to be de-energized closing valve 56. The suction in the chamber 3 is immediately lost due to atmospheric pressure entering the bellows through the suction head and a leaf spring L within the chamber 3 on wall 1 and engaging the back plate 27 of the bellows causes the same to expand and return to a clear normal expanded position. This moves arm 28 rearwardly retracting rod unit 47 which in turn draws the slides back and forces the suction head and heater away from the ends of the cigarette. The rod 60 is also retracted from engagement with strike plate 62 which permits torque spring 12 to rotate the cradles to an upright position; the stop element 13 preventing any further movement. The lighted cigarette may then be readily removed from the cradles. As soon as slide 39 moves back clear of slot 7, another cigarette drops onto plate 38, ready for a succeeding dispensing operation.

The ash tray of course is not retracted and remains in a forward open position where it is usable by the operator while he is smoking and must be manually slid back under the device when it is no longer needed.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. A cigarette igniter and dispenser comprising a support for a single cigarette, a cradle unit for a supported cigarette disposed in front of the support, a heater element disposed in alignment with one end of a cigarette on the cradle unit and normally spaced from said end, a spring urged member supporting the element and tending to move the same toward said end of the cigarette, a pusher slide to engage and advance a cigarette from the support onto the cradle unit, an auxiliary slide connected to and forwardly movable relative to the pusher slide, a spring between the slides to resist such forward movement of the auxiliary slide, whereby both slides normally move as a unit, means applied to the auxiliary slide to advance the same, means to limit the advancing movement of the pusher slide to a position at which a cigarette is received in the cradle unit, and means functioning with a further advancing movement of the auxiliary slide to cause the element supporting member to move to bring the element into contact with the cigarette.

2. A device as in claim 1, in which said last named means comprises a lateral protrusion on the auxiliary slide, engaging said member; the protrusion engaged face of said member extending parallel to the direction of movement of the slide and having a depression positioned to receive said protrusion when the auxiliary slide has advanced relative to the pusher slide a predetermined distance.

3. A cigarette igniter and dispenser comprising a support for a single cigarette, a cradle unit for a supported cigarette disposed in front of the support, a heater element disposed in alignment with one end of a cigarette on the cradle unit and normally spaced from said end, a slide unit movable to engage and advance a cigarette from the support into the cradle unit, said slide unit comprising relatively movable elements and means normally resisting such relative movement, means applied to one element of the slide unit to advance the same bodily to push a cigarette from the support onto the cradle unit, means to limit the advance of said one element after a movement sufficient to place a cigarette on the cradle unit, and means controlled by a further advancing movement of the other slide unit element to move the heater element into contact with the cigarette.

4. A cigarette igniter and dispenser comprising a support for a single cigarette, a cradle unit for a supported cigarette disposed in front of the support, suction and heater elements disposed in alignment with the opposite ends of a cigarette on the cradle unit to engage such ends, means to engage and advance a cigarette from the support onto the cradle unit, a normally expanded bellows mounted in connection with and behind the support, means between a movable part of the bellows and said cigarette advancing means to actuate the latter with the contraction of the bellows, a main suction line connected to the bellows, and a suction line between the bellows and the suction element.

5. A cigarette igniter and dispenser comprising a support for a single cigarette, a cradle unit for a supported cigarette disposed in front of the support, suction and heater elements disposed in alignment with the opposite ends of a cigarette on the cradle unit to engage such ends, means to engage and advance a cigarette from the support onto the cradle unit, a normally expanded bellows mounted in connection with and behind the support, means between a movable part of the bellows and said cigarette advancing means to actuate the latter with the contraction of the bellows, a suction passage between the bellows and the suction element, a main suction

line connected to the bellows, a valve normally closing said line, an electrical device to open the valve, and a circuit in which said device and the heater element are interposed.

6. A cigarette igniter and dispenser comprising a support for a single cigarette, a cradle unit for a supported cigarette disposed in front of the support, suction and heater elements disposed in alignment with the opposite ends of a cigarette on the cradle unit to engage such ends, means to engage and advance a cigarette from the support onto the cradle unit, a normally expanded bellows mounted in connection with and behind the support, means between a movable part of the bellows and said cigarette advancing means to actuate the latter with the contraction of the bellows, suction means to contract the bellows, a passage between the bellows and the suction element, and electrical means to control the actuation of the suction means.

7. A cigarette dispenser comprising a cigarette support, a cradle unit disposed in front of the support to receive a cigarette therefrom, means to advance a cigarette from said support onto the cradle unit, means to ignite a cigarette on the cradle unit, an ash tray slidably mounted under and normally disposed rearwardly of the support, and means functioning with the advance of the cigarette to shift the tray forwardly to a position such as to catch any ash dropping from the cigarette being ignited.

8. A cigarette dispenser comprising a horizontal support for a single cigarette, a cradle unit to receive such cigarette, means turnably mounting the unit in front of the support for movement from an upwardly facing position to one facing rearwardly and in horizontal alignment with the support to receive a cigarette, means to advance a cigarette on the support onto the cradle unit, means normally maintaining the unit in said upwardly facing position, means functioning with the cigarette advancing means to turn the unit to a cigarette receiving position before the advancing cigarette has reached the same and means to ignite a cigarette on the cradle unit while the latter is disposed in said cigarette receiving position.

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