April 28, 1931. F. C. COPELAND 1,802,629

CIGARETTE DELIVERY AND LIGHTING DEVICE

Filed Nov. 12, 1923

FIG. 1.

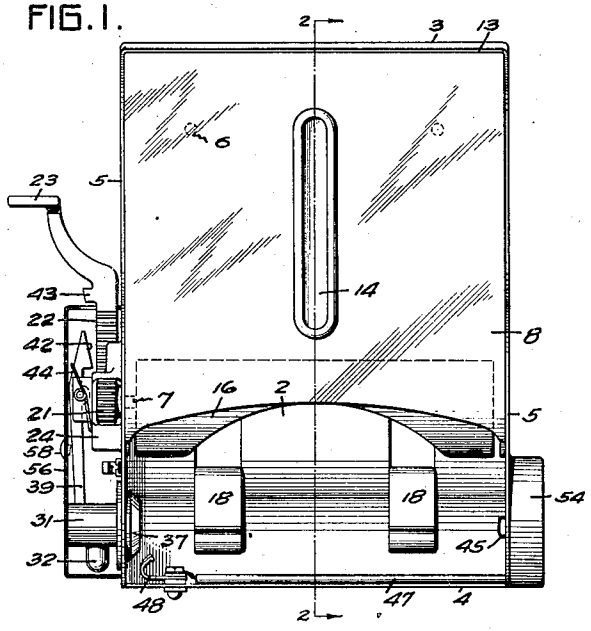


FIG. 2.

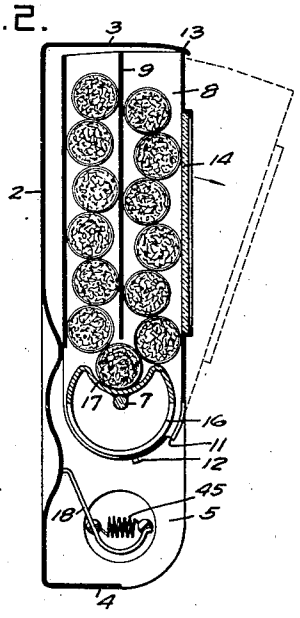


FIG. 3.

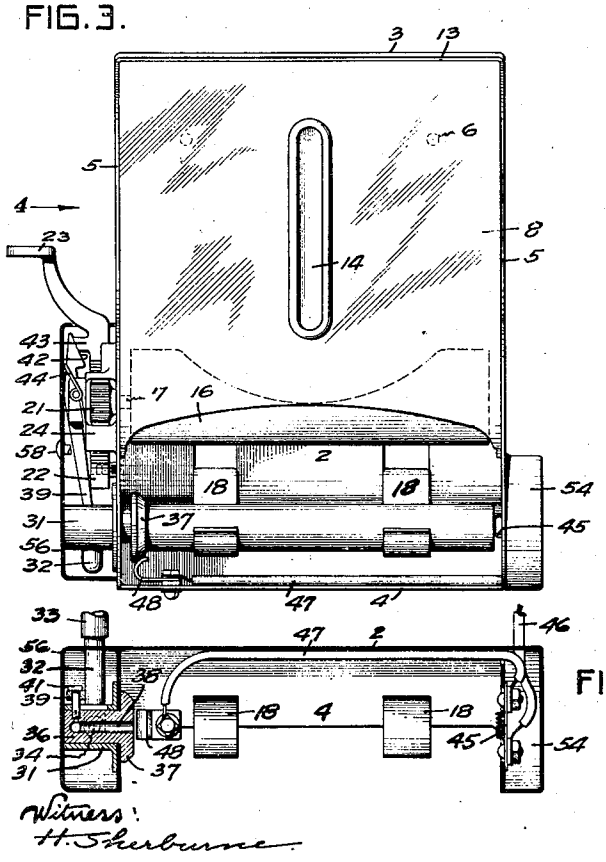


FIG. 4.

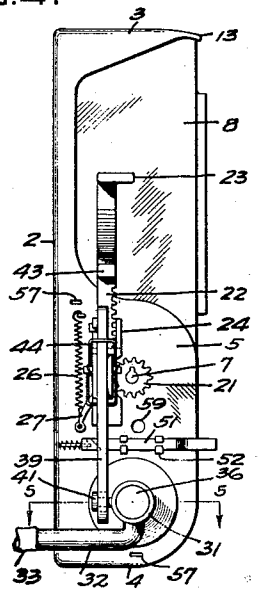


FIG. 5

Witness:
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UNITED STATES PATENT OFFICE

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CIGARETTE DELIVERY AND LIGHTING DEVICE

Application filed November 12, 1923. Serial No. 674,381.

My invention relates to devices for feeding cigarettes from a magazine and for lighting the cigarettes. One of the objects of the invention is the provision of means particularly useful as an attachment for automobiles, and with which cigarettes may be removed, one at a time, as desired, from a magazine, and simultaneously and automatically ignited.

My invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of my invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood that I do not limit myself to the showing made by the said drawings and description, as I may adopt variations of the preferred form within the scope of my invention as set forth in the claims.

Referring to the drawings:

Figure is an elevation of the device, parts being shown in section. The parts are shown in their normally inoperative position.

Figure 2 is a vertical sectional view thru the device, the plane of section being indicated by the line 2—2 of Figure 1.

Figure 3 is an elevation similar to that of Figure 1, but showing a cigarette in the act of being ignited.

Figure 4 is a side elevation, a portion of the cover plate being omitted. The direction of the view is indicated by the arrow 4, in Figure 3.

Figure 5 is a horizontal sectional view thru the device, the plane of section being indicated by the line 5—5 of Figure 4.

In terms of broad inclusion, my invention comprises a casing which is adapted to be fastened, preferably, on the dash of an automobile. A magazine adapted to hold a quantity of cigarettes is arranged within the casing, and a feeding device delivers cigarettes, one at a time, to a bracket arranged in the casing so that the cigarette thereon is readily accessible to the fingers. A resistance element adapted to be rendered incandescent is arranged at one end of the bracket, and a suction head is slidably disposed at the opposite end of the bracket in a socket or cylinder, connected with the intake manifold of the engine. Suitable ports are arranged in the suction head and cylinder so that the suction head is vacuumized simultaneously with its extension into contact with the cigarette. Suitable mechanism operatively connects the suction head with the feed roll, so that when the feed roll is operated by the depression of a suitable key, the suction head is extended immediately following the deposit of a cigarette in the bracket. The suction head contacts with one end of the cigarette and moves it so that the opposite end contacts with the resistance element, simultaneously closing an electric circuit thru the resistance element. With the incandescent element at one end of the cigarette, and suction being exerted at the opposite end, the cigarette is ignited in exactly the same manner as it is between the lips of the smoker. In order to delay the operation sufficiently to insure the lighting of the cigarette, recovery movement of the parts is prevented by a latch. With the release of the latch, all the parts return to first position and the lighted cigarette may be lifted from the bracket.

In detail, my device comprises a casing formed with a back 2, top flange 3, bottom flange 4, and side flanges 5 of the general contour best shown in Figure 4. Holes 6 in the back are provided thru which fastening screws pass into the dash to hold the device thereon. Pivotally mounted on the shaft 7 journaled in the side flanges 5, is a magazine 8, divided longitudinally, by the partition wall 9, into two compartments, each of which is adapted to hold a quantity of cigarettes, as shown in Figure 2. To permit loading of the magazine it may be swung outwardly about its pivot to the position shown in the dotted lines of Figure 2, in which position it is held by the engagement of the shoulder 11 on the side of the magazine against the tongue 12, formed from the side flange 5 of the casing. The magazine is retained in position within the casing by the frictional engagement of the lip 13 on the top flange of the casing, with the front wall of the magazine.

Preferably, a glass window 14 is arranged in the front wall of the magazine so that the condition of the magazine may be readily ascertained by a glance.

Fixed upon the shaft 7 is a feed roller 16, having a portion 17 depressed, as shown, to form a longitudinal groove in the face of the roller, sufficiently large to accommodate a cigarette. Immediately behind the feed roller, the back of the casing is curved, as shown best in Figure 2, so as to permit the feed roller to carry a cigarette around and drop it in the bracket formed by the two arms 18, which conveniently may be formed by striking out tongues from the back of the casing.

Means are provided for rotating the feed roller to deliver a cigarette from the magazine into the bracket. Fixed on the end of the shaft 7, on the outside of the casing wall 5, is a pinion 21 in mesh with the rack bar 22, which terminates at its upper end in a key 23, adapted to be pressed by the finger. The rack bar is slidably mounted in a guide 24, and a spring 26 secured at one end to the casing and at the other end to an arm 27, extending from the rack bar, effects the recovery movement of the rack, pinion and feed roller.

Means are also provided for engaging the cigarette in the bracket between an incandescent element at one end and a suction head at the other end, so that the cigarette is ignited. These devices are so correlated with the feed roller that they act automatically upon the delivery of a cigarette upon the bracket. Arranged on the side of the casing is a cylinder 31, connected by the tube 32 and flexible hose 33, with the intake manifold of the motor. The passage from the intake manifold opens in the side of the cylinder, in a port 34, which is normally covered by the piston 36, slidably disposed in the cylinder, and forming part of the suction head 37. The suction head is also provided with a passage 38 which opens on the side of the piston in such a position that when the suction head is extended (to the right of Figure 5) into contact with the cigarette, the port 34 is uncovered and the suction caused by the vacuumized condition of the intake manifold is felt on the end of the suction head.

Movement of the suction head in time with the movement of the feed roller is secured by a lever 39 pivoted on the guide 24, and pivotally connected by the pin 41 with the piston 36. The opposite end of the lever is formed with a cam face 42, adapted to be engaged by the stud 43, on the rack bar so that when the rack bar is depressed by finger pressure on the key 23, the lever 39 is moved to push the suction head 37 inwardly into contact with the cigarette. A spring 44 effects the recovery movement of the lever and suction head.

Such inward movement of the suction head also carries the cigarette to the right a short distance and into contact with the resistance element 45, one side of which is connected by the conductor 46 with the battery of the car, and the other side of which is connected by the conductor 47, to a spring contact arm 48, mounted on the flange 4 of the casing and insulated therefrom. When the suction head is extended it comes into contact with the arm 48 and grounds the circuit thru the resistance element which thereupon becomes incandescent and ignites the end of the cigarette pressed against it.

Since cigarettes vary in dryness and in the density of the pack, some require a longer period in which to become ignited than others, and I therefore prefer to provide means for preventing the recovery movement of the parts, after the cigarette has been deposited in the bracket, and the suction head extended to effect the lighting of the cigarette, until released by a finger operated latch. I therefore provide a spring pressed latch pin 51 slidable in guides 52, preferably formed as tongues stamped from the body of the casing. The rear end of the pin is hooked or offset to adapt it to engage the rear of the rack, as best shown in Figure 4. As the rack bar is depressed, the pin snaps into a suitable recess therein and holds it and its related mechanism in this position, until pressure of the finger on the exposed end of the pin releases the rack bar, whereupon all of the parts return to first position.

The connections for the resistance element on one side of the casing are protected by a housing 54, and the rack, pinion and lever mechanism on the opposite side is protected by a housing 56. The housing 56 is retained in position by suitable tongues formed on the edges thereof, engaging in apertures 57 formed in the casing. A single screw 58 threaded into the casing in the hole 59, holds the housing securely. The housing 54 is retained in a similar manner.

Operation: Depression of the key 23 operates thru the rack and pinion to oscillate the feed roll 16, which turns in the direction of the arrow, Figure 2, and drops the cigarette in the groove into the bracket. As the rack bar approaches the lower portion of its movement, the lever 39 is rocked to extend the suction head into contact with the cigarette and press the cigarette over against the resistance element, which contact occurs simultaneously with the uncovering of the port 34, and the application of suction to the adjacent end of the cigarette. The parts are held in this position by the latch 51, which upon being released, permits the rack to return to first position carrying the feed roller with it, whereupon another cigarette drops into the groove in the roller, ready for the next operation. The recovery movement of

the suction head covers the port 34 and releases the cigarette so that it may be taken from the bracket.

I claim:

1. A cigarette delivery and lighting device comprising a casing, a magazine for cigarettes pivoted in said casing, a bracket below said magazine, a grooved roller in the bottom of said magazine for delivering cigarettes from said magazine to said bracket, finger operated devices for oscillating said roller, means for lighting the cigarette on the bracket, and means operated by said finger operated devices for activating said lighting means.

2. A cigarette delivery and lighting device comprising a casing, a magazine for cigarettes arranged in said casing, a bracket below said magazine, a grooved roller in the bottom of said magazine for feeding cigarettes from said magazine to said bracket, means for oscillating said roller, and means activated by said oscillating means for lighting the cigarette on the bracket.

3. A cigarette delivery and lighting device comprising a bracket, means for feeding a cigarette to said bracket, a resistance element at one end of said bracket, a cylinder at the opposite end of said bracket connected thru a port to a vacuumized chamber, a suction head comprising a piston arranged in said cylinder and having a passage therethru adapted to register with said port when the suction head is extended, and means operatively connected to said feeding means for extending the suction head to engage the cigarette between the suction head and the resistance element and for closing a circuit thru the resistance element.

4. A cigarette delivery and lighting device comprising a casing, a magazine for cigarettes arranged in said casing, a bracket below said magazine, a grooved roller in the bottom of said magazine for feeding cigarettes from said magazine to said bracket, a rack and pinion mechanism for oscillating said roller, a spring for effecting the recovery movement of said rack, a resistance element at one end of said bracket, a cylinder at the opposite end of said bracket connected thru a port to a vacuumized chamber, a suction head comprising a piston arranged in said cylinder and having a passage therethru adapted to register with said port when the suction head is extended, a lever pivotally connected to said suction head and having a cam face adapted to be engaged by said rack to extend the suction head when the rack is operated to actuate the feed roller, and means operative when the suction head is extended for closing the circuit thru said resistance element.

5. In a device of the class described, a container for cigarettes; a movable receiver beneath said container having a chamber adapted to receive from said container a single cigarette; and a lighting device at one end of said chamber adapted to be placed in commission by the movement of said receiver.

6. In a device of the class described, a container for cigarettes; an oscillating receiver beneath said container having a chamber adapted to receive from said container a single cigarette; a lighting device at one end of said chamber adapted to be placed in commission by the oscillation of said receiver; and automatic means at the opposite end of said chamber rendered effective by movement of said receiver for forcing the end of the cigarette against said lighting device.

7. A holder and igniter for cigarettes and the like comprising a receptacle, a rotary cylinder closing the bottom of the receptacle and having a longitudinal groove in its periphery, and igniting means normally inoperative but adapted to function by a partial delivery turn of said cylinder.

8. A cigarette dispensing and lighting case comprising a normally inactive igniting element; a dispensing element arranged to move a cigarette to a dispensing position adjacent the igniting element; means for moving one end of the cigarette into engaging relation with said igniting element; means associated with the dispensing element and the igniting element for energizing the igniting element when the dispensing element is moved to dispensing position; and means actuated by the movement of the dispensing element to dispensing position to direct a draft upon the igniting element and the end of the cigarette for conveying heat into the cigarette for lighting the same.

9. A cigarette dispensing and lighting case comprising a cigarette container adapted to receive a plurality of cigarettes; a normally inactive igniting element; a dispensing element pivotally mounted in connection with the container and adapted to be moved to carry cigarettes singly from the container to a dispensing position with one end of the cigarette in engagement with the igniting element; and means associated with the dispensing element and the igniting element for energizing the igniting element when the dispensing element is moved to the dispensing position; and means actuated by the movement of the dispensing element to dispensing position to direct a draft upon the igniting element and the adjacent end of the cigarette for conveying heat into the end of the cigarette for lighting the same.

10. A cigarette dispensing and lighting case comprising a normally inactive igniting element; a dispensing element arranged to move a cigarette to a dispensing position adjacent the igniting element; means associated with the dispensing element and the igniting element for energizing said igniting element through operation of said dispensing element; and draft producing means for con-

veying heat from the igniting element into a cigarette for igniting the same when moved to said dispensing position.

11. A cigarette dispensing and lighting case comprising a container adapted to receive a plurality of cigarettes; a dispensing element pivotally mounted in connection with the container and provided with a longitudinal recess adapted to receive a single cigarette from the container; a normally inactive igniting element mounted adjacent the end of the dispensing element; means for moving the cigarette to force one end of said cigarette against the igniting element when the dispensing element is moved to a dispensing position; means for energizing the igniting element thru operation of said dispensing means; and draft producing means for directing a draft upon the igniting element and the adjacent end of the cigarette.

12. In a device of the class described, a container for cigarettes; an oscillating receiver beneath said container having a chamber adapted to receive from said container a single cigarette; a lighting device at one end of said chamber adapted to be placed in commission by the oscillation of said receiver; and means at the opposite end of said chamber for forcing the end of the cigarette against said lighting device.

13. In combination, a container for cigarettes, opposed suction and ignition members mounted in connection with but below the container, means for dispensing cigarettes one by one from the container, cradles receiving a cigarette as dispensed and supporting the same in alinement with and between the suction and ignition members, one of the latter being movable to and from the other to enable the supported cigarette to be engaged with said members, and means controlled by the operation of the dispensing means for moving said one member toward the other.

14. In combination, a container for cigarettes, opposed suction and ignition members mounted in connection with but below the container, means for dispensing cigarettes one by one from the container, cradles receiving a cigarette as dispensed and supporting the same in alinement with and between the suction and ignition members, one of the latter being movable to and from the other to enable the supported cigarette to be engaged with said members, means controlled by the operation of the dispensing means for moving said one member toward the other, normally closed passage means to the suction element, and means controlled by the operation of the dispensing means for opening said passage means.

15. In combination, a container for cigarettes, ignition means arranged in connection therewith, a movable dispensing element, means whereby a certain movement of said element will cause a cigarette to be dispensed, means then causing the cigarette to be alined with the ignition means, and means whereby with a further movement of said element the ignition means will be caused to function.

16. In combination, a container for cigarettes, a dispensing means, supports for a cigarette as dispensed, an ignition means with which the cigarette is then alined, and a common means for operating the dispenser to move a cigarette into said alined position and for subsequently causing the ignition means to function.

17. In combination, a container for cigarettes, opposed suction and ignition members mounted below the container, one of said members being movable toward the other, means including a movable element for dispensing cigarettes from the container, supporting means for a cigarette thus dispensed to maintain the same in alinement with and between the suction and ignition elements, and means between said movable member and the dispensing means for causing the movable member to be moved with a speed proportionate to that of the movable dispensing element and only after a cigarette has been dispensed.

18. In combination, a container for cigarettes, a dispensing means, supports for a cigarette as dispensed, a normally inactive ignition means with which the cigarette is then aligned, and a common means to move a cigarette into said aligned position and for subsequently causing the ignition means to function.

19. In combination, a container for cigarettes, a dispensing means, supports for a cigarette as dispensed, suction means in alignment with said supports, a normally inactive ignition means in alignment with said supports, and a common means for actuating said suction and ignition means, whereby to light a cigarette.

20. A cigarette delivery and lighting device comprising a container for cigarettes, means for delivering a single cigarette from said container upon each actuation, a support outside of the container to receive the cigarette so delivered, a normally inactive ignition device co-operating with said support, and means for aligning the cigarette with the igniting device and activating the latter.

21. A cigarette dispensing and lighting device comprising a container for cigarettes, means to deliver a single cigarette at a time from said container, exposed supporting means in position to receive the cigarette dispensed from said container, normally inactive igniting means associated with the supporting means, adapted to be engaged with one end of the cigarette while the latter is

carried by said supporting means, and means to actuate the igniting means.

22. A device of the character described, comprising a container for cigarettes, means for segregating and delivering a single cigarette from the container, a normally inactive igniting means and a single control means, and capable upon each actuation of segregating a single cigarette from the container and actuating the igniting means.

In testimony whereof, I have hereunto set my hand.

FRANCIS C. COPELAND.