Jan. 29, 1957 J. A. ALFREY 2,779,501

CIGARETTE LIGHTER

Filed July 13, 1953 2 Sheets-Sheet 1

Fig. 1

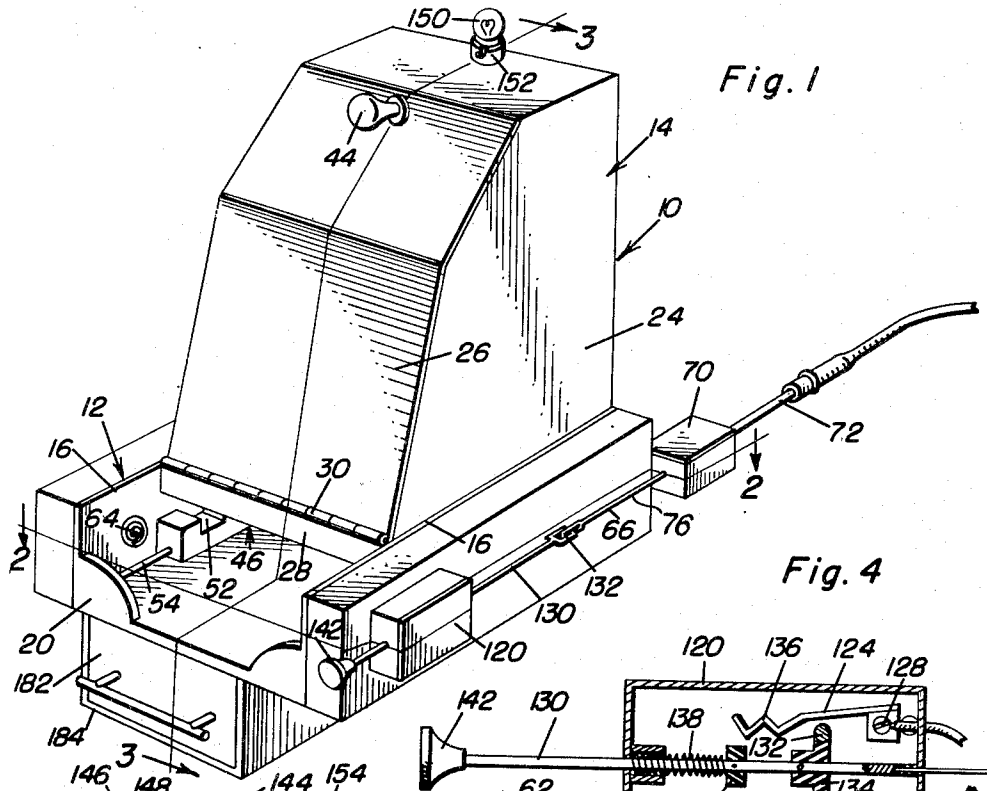


Fig. 4

Fig. 2

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Fig. 3

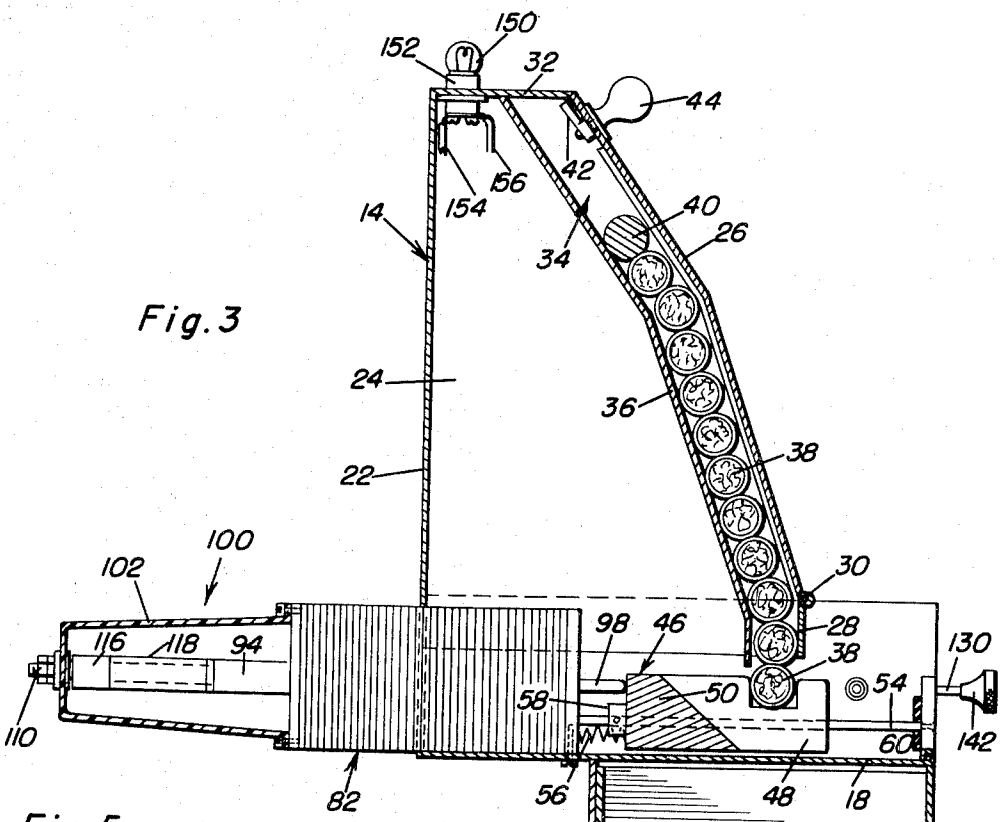
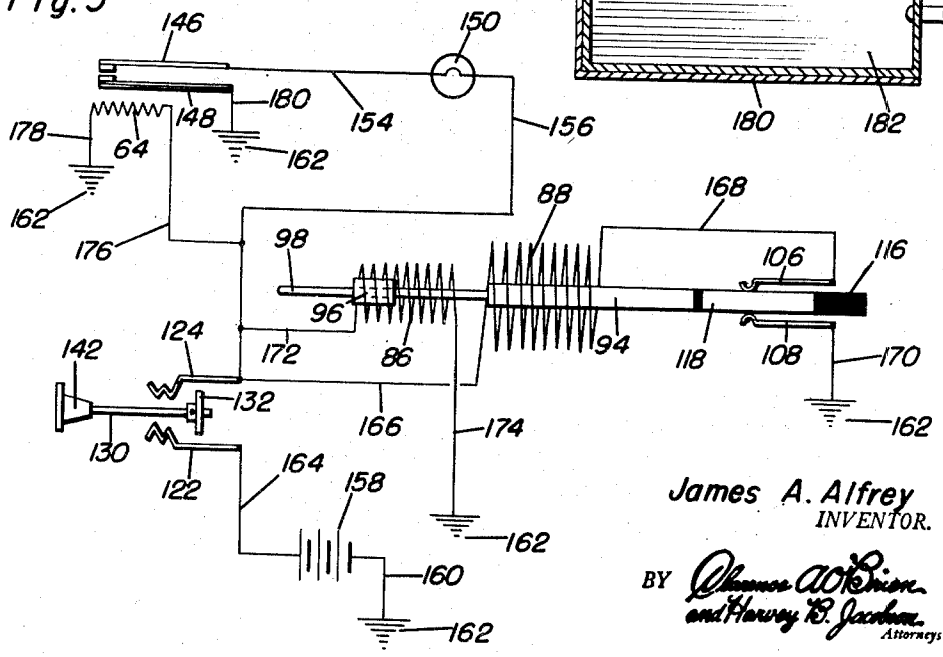


Fig. 5



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CIGARETTE LIGHTER

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2 Claims. (Cl. 221—144)

This invention relates in general to improvements in cigarette lighters, and more particularly to an improved combination of cigarette dispenser and lighter.

The average smoker generally likes to smoke a cigarette while driving a car along the highway. However, inasmuch as the lighting of a cigarette with a conventional cigarette lighter requires that the driver take his mind off of his driving, the lighting of a cigarette while driving may be considered to be dangerous.

Accordingly, it is a primary object of this invention to provide an improved cigarette lighter which may be conveniently mounted within a vehicle and which will automatically dispense a lighted cigarette upon operation of the same.

Another object of this invention is to provide an improved cigarette lighter which includes a cigarette dispenser and a carriage associated with the cigarette dispenser for removing a cigarette into a lighting position, the carriage being provided with electromagnetic means for moving the same into a cigarette lighting position and to retain the carriage in such position until such time as it is manually released.

Another object of this invention is to provide an improved combined cigarette dispenser and lighter which is of an extremely simple construction and formed of readily obtainable material so as to be economically feasible.

A further object of this invention is to provide an improved combination cigarette dispenser and lighter, the cigarette lighter including an electrical heating element which has associated therewith a signal device for indicating when a cigarette has been properly lighted so that the same may be removed from the combined cigarette dispenser and lighter by the user.

A still further object of this invention is to provide an improved combined cigarette dispenser and lighter, the combined cigarette dispenser and lighter being controllable by a single switch which may be conveniently positioned for ease of operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of the combined cigarette lighter and dispenser which is the subject of this invention and shows the general construction of the same;

Figure 2 is a transverse horizontal sectional view taken substantially upon the plane indicated by the section line 2—2 of Figure 1 and shows the general construction in relationship with the various elements of the combined cigarette dispenser and lighter;

Figure 3 is a longitudinal vertical sectional view taken substantially upon the plane indicated by the section line 3—3 of Figure 1 and shows the relationship of a carriage for delivering a cigarette into a lighting position, the relationship of the carriage with respect to a cigarette receptacle being clearly shown;

Figure 4 is an enlarged fragmentary sectional view taken substantially upon the plane indicated by the section line 4—4 of Figure 2 and shows the construction of the switch for controlling operation of the combined cigarette dispenser and lighter; and

Figure 5 is a wiring diagram for the cigarette dispenser and lighter.

Referring now to the drawings in detail, it will be seen that the combined cigarette dispenser and lighter which is the subject of this invention is referred to in general by the reference numeral 10. The combined cigarette dispenser and lighter 10 includes a generally tray-like support which is referred to in general by reference numeral 12. Carried by the tray-like support 12 is a housing which is referred to in general by reference numeral 14.

The tray-like support 12 includes a pair of spaced parallel longitudinally extending side walls 16 which are connected at their lower edges by a bottom wall 18. The side walls 16 are also connected at their forward edges by a fragmentary front wall 20 and a vertically extending rear wall 22.

The housing 14 is supported by the support 12 with a lower portion thereof disposed between the side walls 16. The housing 14 includes a pair of vertically extending side walls 24 which have their lower portions in face to face engagement with the side walls 16 of the support 12. The housing 14 also includes an angular front wall 26 which is hingedly connected to a lower front portion 28 by a hinge 30. Connecting the upper edges of the side walls 24 and abutting the upper edge of the front wall 26 is a top wall 32. The rear wall of the housing 14 is formed by the rear wall 22 of the support 12 which extends upwardly at the rear edges of the side walls 24.

Mounted within the housing 14 is a cigarette receptacle which is referred to in general by the reference numeral 34. The cigarette receptacle 34 includes an angular partition 36 which is in spaced parallel relation with respect to the front wall 26 and which is secured at its side edges to the inner faces of the side walls 24. The partition wall 36 is also connected at its upper edge to the lower face of the top wall 32. It will be noted that the partition wall 36 extends down slightly below the lower edge of the lower front portion 28 of the housing 14. The partition wall 36, in combination with adjacent portions of the side walls 24 and the front wall 26 form the cigarette receptacle 34, the partition wall 36 being spaced from the front wall 26 a distance substantially equal to the diameter of a cigarette, such as the cigarette 38. In order that the cigarette 38 may be urged downwardly in the cigarette receptacle 34, there is disposed in the upper portion of the cigarette receptacle 34 a weight 40. The weight 40 is of substantially the same configuration as a cigarette 38 but it is solid and heavier than a cigarette.

In order that cigarettes may be conveniently positioned within the cigarette receptacle 34, the front wall 26 is movable to a receptacle opening position due to the hinge connection at the lower end thereof. The front wall 26 is retained in a closed position by a latch arm at 42 carried by a handle 44 disposed adjacently a free edge of the front wall 26.

Mounted within the support 12 and underlying the cigarette receptacle 34 is a carriage which is referred to in general by the reference numeral 46. The carriage 46 is generally U-shaped in outline and includes a pair of spaced parallel legs 48 which are connected at their rear ends by a transversely extending portion 50 whose cross section is best illustrated in Figure 3. The individual legs 48 are provided with transverse notches 52 for reception of ends of cigarettes. It will be noted that

the notches 52 are in transverse alignment for receiving opposite ends of a cigarette 38.

It is intended that the carriage 46 receive a cigarette 38 from the cigarette receptacle 34 when it is in its rearmost position illustrated at Figure 3. The carriage 46 is movable to a selected position to facilitate the lighting of a cigarette 38 in a manner to be explained in more detail hereinafter. In order that the movement of the carriage 46 may be guided, the support 12 is provided with a pair of spaced parallel guides 54 which extend between and are supported by the front wall 20 and the rear wall 22 of the support 12. The guides are in the form of rods which are passed through longitudinally extending bores in the legs 48 of the carriage 46.

It will be noted that connected to the transverse portion 50 adjacent the legs 48 are coil springs 56. The coil springs 56 have their rear ends connected to the rear wall 22 and urge the carriage 46 rearwardly. In order that rearward movement of the carriage 46 in response to the urging of the coil springs 56 may be limited so as to align the notches 52 with the bottom of the cigarette receptacle 34, the guides 54 are provided with adjustable stop members 58 in the form of collars. Inasmuch as the carriage 46 is intended to be propelled forward at a relatively rapid rate in a manner to be explained in more detail hereinafter, the forward ends of the guides 54 are provided with resilient buffers 60 which are disposed in face to face relation with the rear surface of the front wall 20.

Carried by the left side wall 16 of the support 12 is a relatively small housing 62, and the associated side wall 16 forming an inner wall thereof. Mounted within the housing 62 and secured to the associated side wall 16 there is a conventional electric cigarette lighter element 64 which has a portion thereof projecting through the associated side wall 16 in the manner best illustrated in Figure 1.

The support 12 has a second relatively small housing 66 secured to the right side wall 16 thereof. The right side wall 16 forms an inner wall of the housing 66 and has connected thereto one end of a vacuum line 68 disposed therein. The vacuum line 68 pierces through the associated side wall 16 and is in alignment with the cigarette lighting element 64.

Carried at the rear end of the housing 66 is an auxiliary housing 70. The auxiliary housing 70 is in offset relation with respect to the housing 66 and has communicated with the interior thereof the opposite end of the vacuum lines 68. Also communicated with the interior of the auxiliary housing 70 is a vacuum line 72. The vacuum line 72 is connected to an engine (not shown) of a vehicle (not shown) with which the combined cigarette dispenser and lighter 10 is associated.

In order that vacuum in vacuum line 68 may be controlled there is provided a valve member 74. The valve member 74 is carried at the rear end of an elongated valve rod 76 and is in abutting relation with the rear wall of the auxiliary housing 70 closing the vacuum line 72 at its entrance to the interior of the auxiliary housing 70. The valve member 74 is retained in a closed position by a coil spring 78 carried by the valve rod 76. It will be noted that the valve rod 76 is sealed relative to the forward wall of the auxiliary housing 70 by a suitable packing 80 so that there will be no vacuum loss between the vacuum line 72 and the vacuum line 68.

In order that the carriage 46 may be semiautomatically moved to a cigarette lighting position there is provided an electromagnetic device which is generally referred to by the reference numeral 82. The electromagnetic device 82 is carried by the rear wall 22 in alignment with the rear of the carriage 46. The electromagnetic device includes an inner sleeve 84 about which is wound a holding coil 86. Also wound about the sleeve 84 and surrounding the holding coil 86 is a second coil 88 which will be referred to as an impelling coil. The coils 86 and 88 are retained between insulated end members 90 and 92 disposed at the forward and rear ends of the sleeve 84, respectively.

The electromagnetic device 82 also includes a plunger 94 which is movable through the sleeve 84 to a centrally disposed position upon actuation of the electromagnetic device 82. The forward end of the sleeve 84 is provided with a tubular stop 96 which is formed of a magnetizable material. The stop 96 has passed therethrough a rod 98 which is connected to the rear of the carriage 46. The rear end of the rod 98 is connected to the plunger 94 so that movement of the plunger 94 through the sleeve 84 will result in like movement of the carriage 46.

Carried by the end member 92 is a circuit breaker which is referred to in general by the reference numeral 100. The circuit breaker 100 includes an insulated housing 102 which is removably secured to the end wall 92 by fasteners 104. The rear wall of the housing 102 has secured thereto a pair of forwardly extending contacts 106 and 108 which are in spaced parallel relation and which are secured to the rear wall of the housing 102 by fasteners 110 and 112, respectively, which form terminals for the same.

As is best illustrated in Figure 2, the rear end of the plunger 94 is provided with a reduced rearwardly extension 114. The extension 114 is provided with an insulated sleeve 116 which is in turn provided with a centrally disposed electrically conductive sleeve 118. The relationship of the sleeve 118 with respect to the sleeve 116 is such that when the carriage 46 is in its rearmost position the contacts 106 and 108 will engage the conductive sleeve 118. However, when the carriage 46 is moved to its forwardmost position the contacts 106 move out of engagement with the conductive sleeve 118 and into engagement with the rear portion of the insulated sleeve 116 thereby breaking the circuit between the contacts 106 and 108.

Carried by the housing 66 adjacent the forward edge thereof is a second auxiliary housing 120. Mounted within the housing 120 in insulated relation thereto is a pair of contacts 122 and 124. The contacts 122 and 124 are secured to the housing by insulated fasteners 126 and 128, respectively, which form terminals for the individual contacts 122 and 124.

Carried by the housing 120 for longitudinal movement thereto is a rod 130. The rod 130 has secured thereto an annular contact maker 132 which includes an insulated bushing 134 to insulate the contact maker from the rod 130. The contact maker 132 is movable into engagement with the contacts 122 and 124 to complete the circuit therebetween. In order that the contact maker 132 may be retained in engagement with the contacts 122 and 124, the contacts are provided with angulated forward ends 136 for interlocking engagement with the contact maker 132.

The contact maker 132 is normally retained out of engagement with the contacts 122 and 124 by a coil spring 138 carried by the front wall of the housing 120. The spring 138 is in engagement with a collar 140 on the rod 130 to urge the same rearwardly. The forward end of the rod 130 is provided with a convenient handle 142 to facilitate movement of the rod to a position whereby the contact maker 132 is in engagement with the contacts 122 and 124.

Referring now to Figure 2 is particular, it will be seen that the rear portion of the rod 130 is inalignment with the rod 76. It will also be noted that the rods 130 and 76 are connected together as at 131 to form a composite operating rod. The connection between the rods 130 and 76 allows actuation of the contact mounted within the housing 120 to be simultaneous with the movement of the valve 74 to an open position.

Referring now to Figure 2 in particular, it will be seen that carried by the housing 62 within the interior thereof is a supporting clip 144. The supporting clip 144

has secured thereto a first contact 146. Also secured to the supporting clip 144 is a second contact 148. The second contact 148 is disposed immediately adjacent the cigarette lighting element 64 and is in the form of a bimetal spring contact. The heat of the cigarette lighting element 64 results in the ending of the contact 148 into engagement with the contact 146 to complete a circuit. It will be understood that the contacts 146 and 148 are insulated with respect to the supporting clip 144.

Carried by the top wall 32 of the housing 14 is a signal light 150. The signal light 150 is carried by a socket 152 which has connected to a first terminal thereof a wire 154. The wire 154 is connected to the contact 146 as is best illustrated in Figure 2. Connected to the other terminal of the socket 152 is a second wire 156 which is connected to a battery in a manner to be set forth in more detail hereinafter.

Referring now to the wiring diagram of Figure 5 it will be seen that there is provided a battery 158 which may be the battery of an associated vehicle. The battery 158 is connected by a wire 160 to a suitable ground 162. The other terminal of the battery 158 is connected to the terminal 126 of the contact 122 by a wire 164.

Connected to the terminal 128 of the contact 124 is a wire 166 which is connected to one end of the impelling coil 88. The opposite end of the impelling coil 88 is connected by a wire 168 which is connected to the terminal 110 of the contact 106. Connecting the terminal 112 of the contact 108 to the ground 162 is a wire 170.

The holding coil 86 is also connected to the terminal 128 of the contact 124 by a wire 172. The opposite end of the holding coil 86 is connected to the ground 162 by a wire 174.

Further connected to the terminal 128 of the contact 124 is a wire 176 whose opposite end is connected to the cigarette lighting element 64. The opposite end of the cigarette lighting element 64 is connected to the ground 162 by a wire 178.

Still further connected to the terminal 128 of the contact 124 is the wire 156. In order that the circuit to the signal light 150 may be completed, the contact 148 is connected to the ground 162 by a wire 180.

In the operation of the combined cigarette dispenser and lighter 10, the rod 130 is pulled forwardly through the use of a handle 142. This results in the annular contact maker 132 completing the circuit between the contacts 122 and 124. The completion of this circuit results in the energization of both the holding coil 86 and the impelling coil 88. This results in the plunger 94 moving the carriage 46 forward against the rearward urging of the coil springs 56. As the plunger 94 moves forwardly, the contacts 106 and 108 engage the insulated sleeve 116 to break the circuit to the impelling coil 88 when the plunger 94 is at the forward end of a stroke. It will be understood that the holding coil 86 has sufficient strength to retain the carriage 46 in its forward position against the rearward urging of the coil springs 56.

The completion of the circuit between the contacts 122 and 124 also results in the energization of the cigarette lighting element 64. The energization of the cigarette lighting element 64 results in the application of sufficient heat to one end of a cigarette 38 now retained in a cigarette lighting position at the forward end of the support 12.

In order that the cigarette 38 disposed adjacent the cigarette lighting element 64 may be properly ignited, it is necessary to draw air through the same. This is accomplished through the use of the vacuum line 68 which is communicated with the vacuum line 72 by the forward movement of the valve member 74 in response to the forward movement of the rod 130.

After the cigarette lighting element 64 has been energized a sufficient time to properly ignite the cigarette

38 disposed adjacent the same, the bimetal spring has received sufficient heat to bend toward the contact 146 and complete the circuit therebetween to light the signal light 150. The lighted cigarette 38 may then be removed from the carriage 46 and the rod 130 moved rearwardly. This will deenergize the holding coil 86 and permit the springs 56 to move the carriage 46 to its normal position for the reception of a next cigarette 38.

The combined cigarette dispenser and lighter 10 is also provided with a suitable ash tray 182. The ash tray 182 is mounted in a housing 184 carried by the bottom wall 18 of the support in the manifesto illustrated in Figure 3.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A dispenser for lighted cigarettes comprising a support, a cigarette receptacle carried by said support, cigarette lighting means including an electric heating element disposed adjacent said cigarette receptacle, a carriage for moving a cigarette from said cigarette receptacle into operative position relative to said cigarette lighting means, electromagnetic means for moving said carriage, switch means controlling the movement of said carriage and actuation of said cigarette lighting means, said switch means including a fixed contact carried by said support, an operating rod having a movable contact mounted thereon engageable with said fixed contact, said cigarette lighting means including a vacuum line for drawing air through a cigarette, a valve including a movable valve controlling said vacuum line, said valve body being carried by said support, said movable valve member being mounted on said operating rod whereby actuation of said operating rod will excite said electric heating element and said electromagnetic means while opening said valve.

2. A dispenser for lighted cigarettes comprising a support, a cigarette receptacle carried by said support, cigarette lighting means including an electric heating element disposed adjacent said cigarette receptacle, a carriage for moving a cigarette from said cigarette receptacle into operative position relative to said cigarette lighting means, electromagnetic means for moving said carriage, switch means controlling the movement of said carriage and actuation of said cigarette lighting means, said switch means including a fixed contact carried by said support, an operating rod having a movable contact mounted thereon engageable with said fixed contact, said cigarette lighting means including a vacuum line for drawing air through a cigarette, a valve including a movable valve controlling said vacuum line, said valve body being carried by said support, said movable valve member being mounted on said operating rod whereby actuation of said operating rod will excite said electric heating element and said electromagnetic means while opening said valve, said electromagnetic device including a carriage propelling coil and a carriage holding coil, a circuit breaker connected to said electromagnetic device for rendering said propelling coil inoperative upon movement of said carriage to a cigarette lighting position.

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