Aug. 6, 1935. F. H. LEWIS 2,010,675

LIGHTER FOR CIGARETTES AND THE LIKE

Filed Feb. 26, 1934

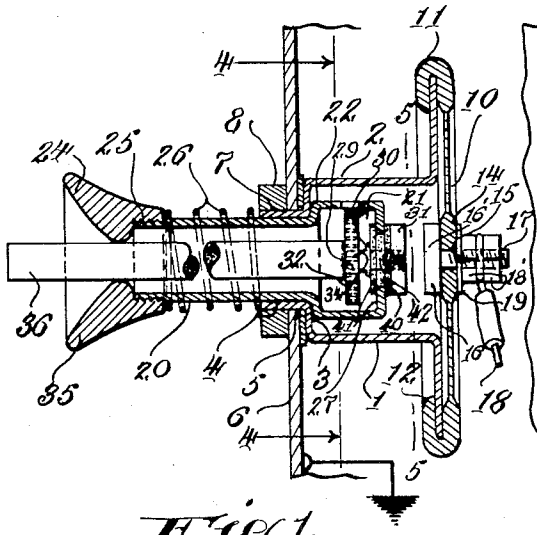


Fig. 1.

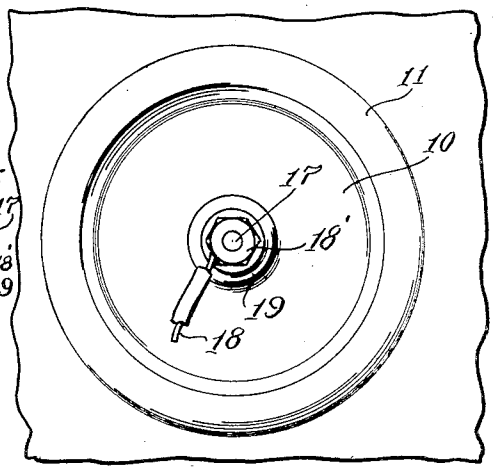


Fig. 2.

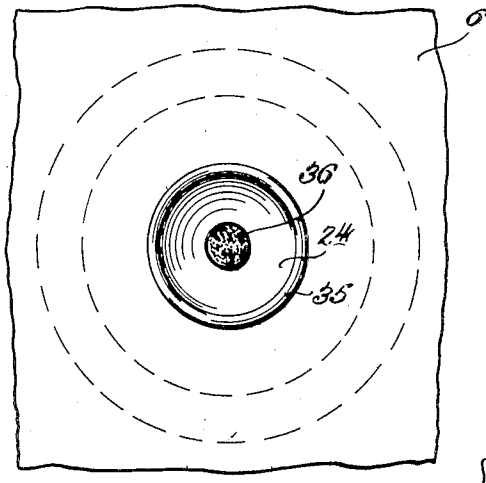


Fig. 3.

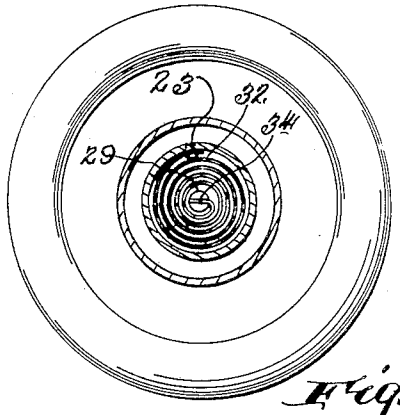


Fig. 4.

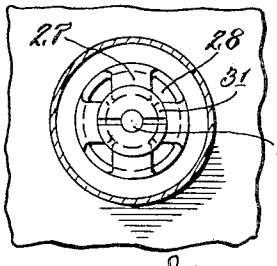


Fig. 5.

Witness

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LIGHTER FOR CIGARETTES AND THE LIKE

Fielding H. Lewis, Towson, Md.

Application February 26, 1934, Serial No. 712,940

3 Claims. (Cl. 219—32)

The invention has reference to a lighter for cigarettes or cigars and the like which is particularly adapted for installation on the instrument board or dash of a motor vehicle, though it is equally capable of use on a smoking stand or table where it will be partially encased in a pedestal or other housing, or it may to advantage be installed in a radio casing.

The lighters now in general use are conspicuously lacking in the factors essential to the convenience of a smoker who is engaged as in driving a motor vehicle or in any other occupation in which the entire attention is completely engrossed, and the use of at least one hand is necessary. The lighters with which many motor vehicles are equipped consist merely of a heating unit mounted in a cup and carried on a cord with an automatic take-up and switch. The use of these lighters requires the full attention of the smoker and the use of both hands for at least a short period.

This is likewise true of the pocket lighters containing a combustible fluid lighted by friction. Lighting by means of matches requires close attention and is objectionable not only in motor vehicles, but under almost all circumstances on account of the fire hazard and on account of the unsightly waste which results.

The lighter of the invention overcomes practically all of the objections to the previously existing equipment, both of the electrical type and those depending on actual combustion for the lighting of the cigarette, being operable with one hand and without any necessity for diverting the attention of the smoker from other occupations, the lighting and kindling of the cigarette being fully accomplished by automatic means when the cigarette or other smokable is thrust into the lighter and withdrawn therefrom, the lighter being operated solely by the pressure of the hand as the cigarette is advanced and prior to the insertion of the cigarette in the mouth of the smoker.

The equipment comprises a movably mounted tube having a flanged opening or mouth for the insertion of the cigarette and connected to a diaphragm or other equivalent type of pump which is operated by the pressure of the fingers on the tube, thrusting it forward as the cigarette is inserted. The forward end of the cigarette engages a heating unit which is in the tube and is thus placed in circuit and energized to kindling temperature contact being closed by the motion of the tube as it advances. The same motion of the tube serves to draw air into the pump which on the withdrawal of the cigarette and the retraction of the tube passes a draft of air through the cigarette as in smoking, serving to kindle the end of the cigarette which has been heated to the temperature of combustion by contact with the heating unit.

In the accompanying drawing I have illustrated a lighter for cigarettes embodying the features of my invention in the preferred form.

In the drawing:

Figure 1 is a longitudinal central section, the plane of the section being regarded as either horizontal or vertical, the apparatus being preferably of circular cross section.

Figure 2 is an elevation looking at the apparatus from the rear.

Figure 3 is a front view of the same as installed in the dash or other similar support.

Figure 4 is a section through the apparatus on line 4, 4 in Figure 1 looking to the right in Figure 1.

Figure 5 is a section on line 5, 5 in Figure 1, looking toward the left in said figure.

Referring to the drawing by numerals, each of which is used to indicate the same or similar parts in the different figures, the construction shown includes a casing 1 which in the form shown serves as a diaphragm chamber. This casing has a chamber 2 which may be of cylindrical or other suitable form. This chamber is reduced at its forward end, having shoulder 3 surrounding a relatively small cylindrical neck 4 at the front. This is passed through a hole 5 in the dash or instrument board 6 provided for the installation of the lighter. The neck 4 is preferably threaded at 7 to engage a nut 8 by which the apparatus is held in installed position in the dash, the latter being clamped between the nut 8 on one side and by the shoulder 3 on the other side. At the end opposite to the neck or shank 4 which from the point of view of the smoker using the apparatus may properly be termed the rear, the casing 1 has an opening surrounded by an outwardly disposed circular flange 9 at right angles to the axis. This flange carries secured to its outer edge around the entire periphery, a flexible rubber diaphragm 10 which in the preferred form of the invention shown constitutes the moving or operative element of the pump, it being understood that other equivalent pumping apparatus adapted to be similarly operated may be substituted.

In the construction shown the diaphragm 10 is provided with a peripherally arranged thickened portion 11, having a rim 12 turned over parallel to the main body of the diaphragm so that the

diaphragm 10 may be secured by stretching the rim 12 over the edge of the flange 9, causing the rim or inturned portion 12 to engage the front side of the flange 9 at the edge so that the diaphragm proper overlies the flange at the rear closing the rear opening of the cylindrical body 2 of the casing 1. In this position the diaphragm 10 is preferably under sufficient tension to hold it normally flat and it is sufficiently elastic to permit it to be repeatedly deflected and to fully recover from this deflection, as hereinafter described in the pumping and igniting operation.

The diaphragm 10 is provided at its center with a thickened portion 14 having a central opening 15 to receive the contact member 16 which is shown in the form of a stud, flanged at one end at 16 and having a rearwardly disposed screw shank 17. A wire 18 connected to a battery or other suitable source of elasticity, is engaged with this screw shank 17 between the nuts 18 thereon and the inner nut is shown as holding a washer 19 which bears against the thickened portion 14 of the diaphragm 10 oppositely to the flange 16.

The tube 20 is mounted to slide freely in the neck 4, and has at its rear end an enlarged chamber 21 which provides a shoulder 22 which in the forward position of the tube as shown bears against the shoulder 3 of the casing. This shoulder may be formed in any suitable manner. The forward end of the tube carries a flanged or belled mouthpiece or nipple 24 which is preferably of insulating material as hard rubber or bakelite, the same being threaded at 25 to engage a corresponding thread on the end of the tube or it may be otherwise suitably affixed thereto. Between the rear end of the mouthpiece or nipple 24 and the dash a helical spring 26 encloses the tube 20 bearing at one end against the rear end of said mouthpiece or nipple and at the other end against the casing or other suitable abutment.

As thus mounted, the tube is adapted to yield inwardly to the pressure of the fingers holding the cigarette, against the mouthpiece or nipple 24 and it is also automatically retracted by said spring.

The tube 20 may to advantage be slotted at its rear end forming tongues or strips 27 which are turned inwardly forming a rear wall having openings 28 between said strips, see Figure 5. The inner ends of the strips or tongues 27 as thus turned inwardly provide a support for the heater stud 29 which is flanged at the forward end at 30 and threaded as to its shank to engage a nut 31. This stud is insulated from the tube by means of a suitable fiber washer 40 between the stud shank and the tongues 27 and mica washers 41 and 42, also between the lateral surfaces of said tongues and the flange 30 and nut 31 so that the stud 29 as hereinafter described serves as a conductor for leading current to the heater 32 which is in turn grounded through the tube 20, the casing 1 and the dash 6. The heater 32 is shown as consisting of a spiral coil, the inner end of which is seated in a slot 34 in the end of the stud 29, the outer end of said heater soil at 23 being secured to the outer peripheral wall of the chamber 21 of the tube 20 either by spot welding or in any suitable manner.

In the operation of lighting, a cigarette 36 is inserted in the tube until it comes in contact with the heater 32 which may be located at any suitable point in the tube. The fingers of the hand holding the cigarette bearing against the outer edge 35 of the mouthpiece or nipple 24 are caused to press against this mouthpiece sufficiently to overcome the slight tension of the spring 26 advancing the tube through the neck 4 and bringing the nut 31 on the stud 29 into contact with the head or flange of the stud 16. In this way current is led from the wire 18 to the center terminal of the heater 32 which as already described is connected at 31 to the tube on which it is grounded through said tube, the casing 2 and the dash 6. In this way the heater is brought to the temperature of ignition, which is communicated to the end of the cigarette. Further pressure by the fingers on the nipple 24 serves to still further advance the tube 20 deflecting the diaphragm 10 sufficiently to cause the entrance of air through the tube 20 and opening 28, through and around the cigarette and into the main chamber 2 of the casing 1. When the end of the cigarette has been suitably heated, causing initial ignition of the tobacco and wrapping, relaxation of the pressure of the fingers on the mouthpiece 24 permits the tube to be withdrawn by the spring 26, whereupon the diaphragm 10 recovers from the deflection expelling the air impended through the tube 20 and through the cigarette. This gives a full and satisfactory kindling of the cigarette with the use of but one hand and without in any way distracting the attention of the smoker from driving or other occupations in which he may be engaged.

I have thus described specifically and in detail a preferred embodiment of my invention in order that the manner of constructing, applying, operating and using the invention may be fully understood, however, the specific terms herein are used descriptively rather than in a limiting sense, the scope of the invention being defined in the claims.

What I claim as new and desire to secure by Letters Patent is:

1. In a lighter for cigarettes and the like a tube mounted to move in the direction of its length, the tube being open at one end for the insertion of a cigarette, and a heating unit carried therein in alignment with the opening, the tube being open for the admission of air near said heater, a diaphragm chamber connected to said tube oppositely to the first mentioned opening, and a diaphragm forming one wall of said chamber, the heater having a contact member connected thereto and the diaphragm having a cooperating contact in alignment with the heater contact in the direction of motion of the tube, to be engaged thereby as the tube is advanced, and means connecting the diaphragm contact to a source of electricity, the heater being oppositely connected to said source and means for automatically retracting the tube to break the circuit whereby when a cigarette or the like is inserted in the tube into contact with said heater and the tube is advanced by pressure from the front, the heater is energized and the diaphragm is deflected admitting air to said diaphragm chamber, and as the tube is released, it is automatically withdrawn, the diaphragm being permitted to recover its normal position, ejecting air from the diaphragm chamber through said tube, passing a kindling draft through the cigarette.

2. In a lighter for cigarettes and the like, a tube adapted to receive a cigarette and mounted to move in the direction of its length and having a heater therein and a contact for said heater, the tube being open at one end to receive a cigarette and having an opening adjacent the heater for the admission of air to the tube, a diaphragm chamber having a diaphragm forming one wall of the same with the diaphragm having an electrical

contact carried there by means connecting the diaphragm contact to a source of electricity, the heater being oppositely connected to said source and means for automatically retracting the tube when it is advanced toward said diaphragm and means for engagement by the hand for advancing the tube to bring the heater contact into engagement with the diaphragm contact energizing the heater and deflecting the diaphragm and admitting air to the diaphragm chamber which is expelled through said openings and through the tube when the diaphragm is released by relaxation of the pressure of the fingers against the end of the tube.

3. In a lighter for cigarettes and the like an electric heater, a tube adapted to receive a cigarette and mounted to move in the direction of its length, the tube being open at one end to receive a cigarette and having openings adjacent the heater for the admission of air, a diaphragm chamber having a neck surrounding said tube, same being screw threaded for attachment to a panel through which the neck is inserted, the diaphragm chamber having a diaphragm forming one wall of the same opposite said heater in alignment with the heater contact, the diaphragm having an electrical contact, the heater having a contact disposed toward the diaphragm, and moving with said tube, means connecting the diaphragm contact to a source of electricity, the heater being oppositely connected to said source and means for automatically retracting the tube when it is advanced toward said diaphragm and means adjacent the open end of the tube for engagement by the fingers for advancing the tube to bring the heater contact into engagement with the diaphragm contact and deflecting the diaphragm, energizing the heater and admitting air to the diaphragm chamber which is expelled through said openings and through the tube when the diaphragm is released by relaxation of the pressure of the fingers against the end of the tube.

FIELDING H. LEWIS.