May 23, 1933. J. SINKO 1,910,067

CIGAR LIGHTER

Filed April 25, 1930

Fig. 1.

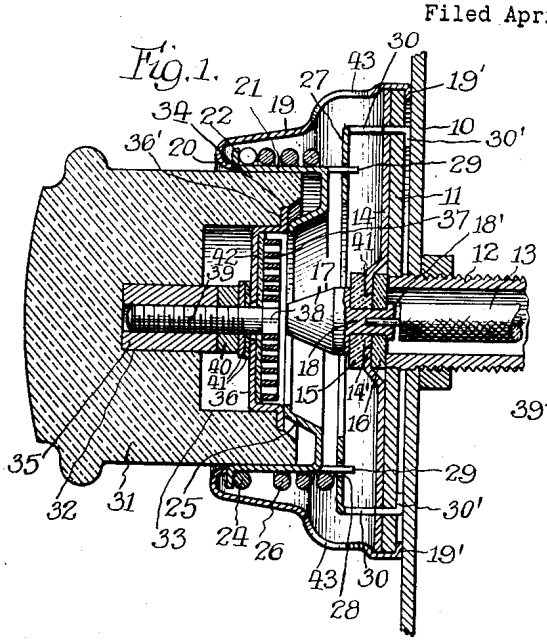


Fig. 2.

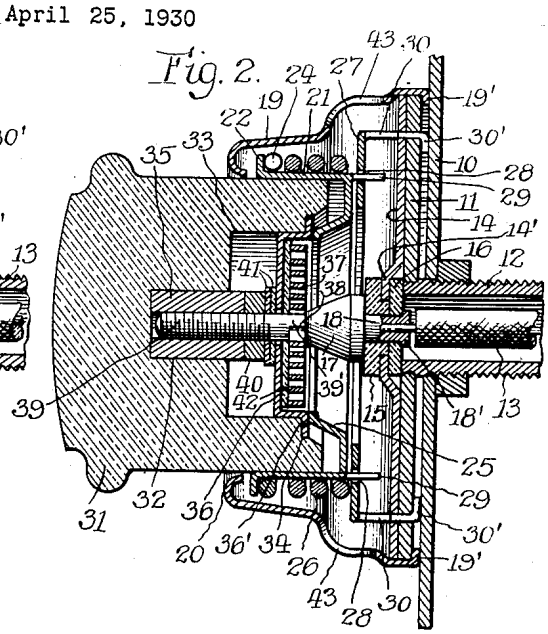


Fig. 3.

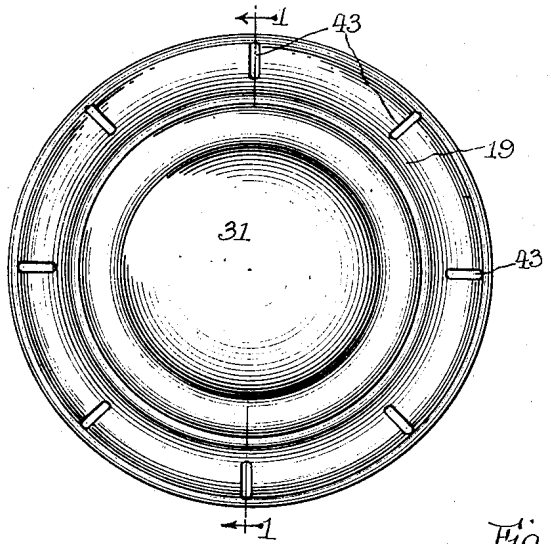


Fig. 4.

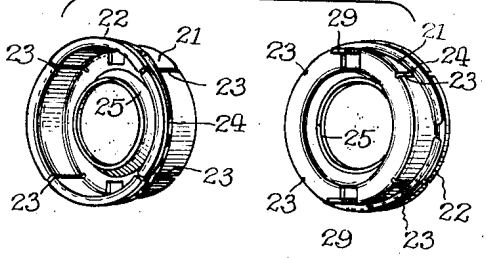


Fig. 5.

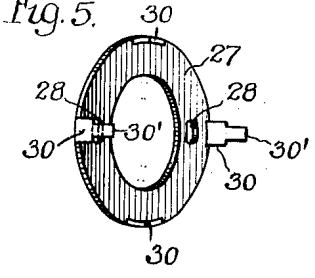


Fig. 6.

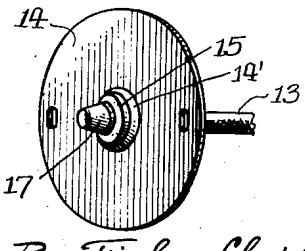
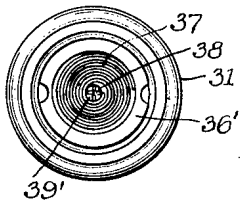


Fig. 7.



Inventor:
John Sinko,

By Fisher, Clapp, Soans & Pond, Attys.

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UNITED STATES PATENT OFFICE

JOHN SINKO, OF CHICAGO, ILLINOIS

CIGAR LIGHTER

Application filed April 25, 1930. Serial No. 447,152.

This invention relates to electric cigar lighters of the class used on automobiles, and has reference more particularly to a type commonly known as "wireless" lighters which are characterized by the provision of a holder member mounted on the dash or other part of the car body and carrying a terminal contact wired to the battery, and a plug member comprising a hand piece carrying an igniter element and a cooperating terminal contact, the plug member being moved on or in the holder member to close the circuit through said contacts and held in such position until the igniter element has become heated to incandescence, and then removed from the holder member for use.

In some more recent developments of this "wireless" type of cigar lighter, it has been proposed to close the outer end of the removable hand piece or plug and mount the igniter element either on the inner end of the plug or within a socket opening through its inner end. This construction has one pronounced advantage over the older construction wherein the igniter element was mounted in the open outer end of the plug, in that it prevents danger of accidentally burning the thumb or finger of the user when the plug is pushed inwardly or otherwise moved to close the circuit and heat the igniter.

Still another improvement in the type of "wireless" lighter last referred to consists in the provision of a window in the outer closed end of the plug which displays a light when the igniter is heated to incandescence, and thus gives a signal to the user when to withdraw the plug.

My present invention relates to that type of "wireless" cigar lighter wherein the igniter element is mounted on the inner end of the plug; and one object of the present invention is to provide a simple and efficient signal device, other than a window in the closed end of the plug, for indicating when the igniter has been heated to incandescence. Another object of the invention is to provide improved air ventilation for both the holder and the plug, which reduces the heating of these parts when the igniter is lighted. A further object is to provide an igniter of very simple and inexpensive construction, and one wherein the circuit opening and closing contacts will always be automatically maintained separated when the device is not in use.

Other objects and attendant advantages of the invention will be apparent to persons familiar with devices of this class from the following detailed description, taken in connection with the accompanying drawing, wherein I have illustrated one practical and approved embodiment of the invention, and in which—

Fig. 1 is a vertical diametric section of the plug and holder, on the line 1—1 of Fig. 3, showing the same mounted on an instrument board, and showing the terminal contacts in their normal separated position.

Fig. 2 is a view similar to Fig. 1, but showing the hand piece or plug pushed inwardly, and the terminal contacts closed to light the igniter.

Fig. 3 is a front elevation.

Fig. 4 is a group view showing in front and rear perspective the transversely elastic plug holder.

Fig. 5 is a perspective detail of a spring abutment member which also fuctions as a guide for the plug holder and locks the latter against rotative movement.

Fig. 6 is a perspective detail of a reflector disc.

Fig. 7 is an inner end elevation of the removable plug.

In some of the structural details, the present invention is similar to the cigar lighter forming the subject matter of Letters Patent No. 1,778,647, granted to me October 14, 1930; but in other respects the present invention departs from the structure of the aforesaid patent to adapt it to the use of a

hand piece or plug wherein the igniter element is mounted on the inner, instead of the outer, end.

Referring to the drawing, 10 designates a fragment of an instrument board of an automobile, on which the improved lighter is mounted. Describing first the parts which are permanently attached to the instrument board, 11 designates a metal disc that is centrally apertured to receive the forward end of an externally threaded tube 12, through which latter the insulated circuit wire 13 from the positive pole of the battery extends. Overlying the inner face of the base disc 11 is a reflector disc 14, the inner surface of which is preferably highly polished for a purpose hereinafter disclosed. The central portion of the reflector 14 is swaged laterally and centrally apertured to form an attaching boss 14′ that is clamped between a pair of washers 15 and 16 of insulating material. 17 designates the head of the stationary terminal contact, integral with which is a stem 18 that extends through the washers 15 and 16 and at its free end is swaged over the washer 16 as shown at 18′. The stem 18 is socketed to receive the terminal wire 13 and is connected to the latter preferably by soldering.

The periphery of the base disc 11 is embraced by the inner end portion of a circular shell or casing designated as an entirety by 19 and formed with a circumferential wall that tapers inwardly toward its front end, the rear end of this wall being swaged over the disc 11 as shown at 19′ to lock the disc in the casing. The casing 19 is also formed with an inwardly curled front marginal stop flange 20. Within the casing 19 and abutting at its outer end against the flange 20 is a cup-shaped socket member 21, shown in isolated detail in Fig. 4, formed on its front end with an outwardly directed marginal flange 22 that normally abuts against the marginal stop flange 20 of the casing 19. By reference to Fig. 4 it will be observed that the circular wall and marginal flange of the socket member 21 are formed with spaced transverse slits or kerfs 23, four of which, spaced ninety degrees apart, are herein shown; but a greater or less number may be employed. The inner or rear ends of the kerfs 23 are also preferably extended for a slight distance into the bottom wall of the cup-shaped socket member. The purpose of these slits or kerfs is to give to the circular wall a limited capacity for contracting and expanding. To increase the contracting tendency of the circular wall I preferably employ a circular spring wire 24 that hugs the wall just under the flange 22, this spring tending to draw inwardly the sections of the wall formed between the slits or kerfs 23. The bottom wall of the socket member 21 is formed with an inwardly pressed low annular boss 25 for a purpose hereinafter described.

Encircling the socket member 21 is a coil spring 26, the forward end of which abuts against the flange 22 or the spring ring 24 where the latter is employed. The inner end of the spring 26 is footed on an annular spring abutment plate 27, shown in isolated detail in Fig. 5; said abutment plate also functioning as a support and guide for the socket member 21, for which latter purpose the abutment plate 27 is formed with a pair of opposed slots 28 through which slidingly extend a pair of opposed lugs 29 cut and pressed outwardly from the bottom wall of the socket member 21. On the periphery of the abutment plate are four rearwardly extending lugs 30 that abut against the reflector disc 14 and thus hold the abutment plate 27 spaced sufficiently from the reflector disc to permit the inward movement of the socket member 21 when closing the circuit through the igniter. To lock the abutment plate 27 to the base disc 11 and reflector disc 14, two opposite lugs 30 are formed with reduced extensions 30′ (see Fig. 5) that are passed through registering holes in the discs 11 and 14 and their ends swaged over the rear side of the disc 11 as clearly shown in Figs. 1 and 2. This construction also prevents any relative turning movement of the members 11, 14, 27 and 21.

Describing now the movable hand piece or plug which carries the igniter element, 31 designates this plug as an entirety, which is preferably made of bakelite, hard rubber, or other like material. This plug or hand piece is formed with a stepped recess or socket comprising an inner narrow portion or hole 32, an intermediate wider and shallower portion 33, and an outer wider and shallower portion 34. Tightly fitted in the hole 32 is a tapped plug 35. 36 designates a shallow cup-shaped igniter carrier that telescopes into the intermediate portion 33 of the plug recess and is formed with a marginal flange 36′ that seats on the shoulder forming the bottom wall of the shallow recess section 34. Lying within the igniter carrier 36 is the spiral igniter element 37, the outer edge of which is soldered to or hooked in the wall of the igniter carrier 36, and the inner end of which, as shown in Fig. 7, is engaged with a kerf 38 in the head of a screw 39. The screw 39 is locked to the igniter carrier 36 by a nut 40 on the screw and one or more washers 41 bearing against the outer side of the igniter carrier 36. Between the igniter element 37 and the bottom of the carrier 36 is inserted a thin disc 42 of isinglass, mica, or other suitable insulating material, which insulates the igniter coil 37 from the bottom plate of the igniter carrier 36. The screw 39 is screwed into the tapped plug 36 until the flange 36′ of the igniter carrier is firmly seated, as shown in Figs. 1 and 2; the head 39′ of the screw functioning as a contact member

in connection with the fixed contact member 17.

The tapered circumferential wall of the casing or shell 19 is formed with a circular group of uniformly spaced slots or holes 43 therein which have a double function. One function is to serve as windows to show when the igniter element has reached the incandescent stage; the light emitted by the igniter element filling the hollow chamber within the casing or shell and showing through the windows 43. This is facilitated by the provision of the reflector disc 14 with its highly polished surface. The other function of the holes or windows 43 is to promote the free circulation of air through the interior of the casing or shell, and thus prevent the latter from becoming too hot before the hand piece or plug is withdrawn.

Briefly describing the operation, the spring 26 normally maintains the contacts 17 and 39′ separated by forcing the hand piece through its socket member outwardly, as shown in Fig. 1. To heat the ignition coil, the hand piece 31 is pressed inwardly, compressing spring 26 and closing the circuit between contacts 17 and 39′, the circuit being grounded on the instrument board 10 through the igniter coil 37, the igniter carrier 36, the plug holder or socket member 21, the spring 26, and the spring abutment plate 27 and its lugs 30, 30′; it being noted that when the hand piece is fully entered in the socket member, the ground circuit is closed by contact of the igniter carrier 36 with the annular boss 25 of the socket member 21. As the hand piece is pushed inwardly, the circumferential wall of the socket member 21 is slightly expanded, so that it grips the hand piece with considerable force and prevents danger of the latter being accidentally dislodged through vibration and jolting of the car.

In the use of the device the hand piece is held in inwardly pushed position until light shows through the windows 43, which constitutes a signal for its withdrawal. By reason of the window openings 43, outside air can circulate freely through the casing 19 and the parts within said casing, thus opposing the heating effect thereon of the incandescent igniter.

I have herein shown and described one satisfactory embodiment of the invention, but manifestly many of the structural details may be modified without departing from the principle or sacrificing any of the advantages of the invention. Hence, I do not limit the invention to the exact structure shown but reserve such variations and modifications as fall within the spirit and purview of the claims.

I claim:

1. In a wireless cigar lighter, the combination of a hollow plug holder formed with a circumferential wall tapering inwardly toward its front end and with an annular group of spaced windows in said wall, a central circuit contact member in said holder, a reflector disc surrounding said contact member, a plug insertible in said holder formed with a closed outer end, and an igniter element and cooperating central circuit contact member mounted on the inner end of said plug, said reflector disc serving to deflect light rays from said igniter element through said windows.

2. In a wireless cigar lighter, the combination of an annular casing formed with a circular row of openings in its circumferential wall and an internal annular stop flange on its front end, a disc closing the rear end of said casing, a circuit wire extending through said disc, a contact member on the inner end of said wire, a movable socket member within said casing having its outer end abutting against said stop flange, a thrust spring in said casing urging said socket member outwardly, a plug telescopically engaged with said socket member and formed with a closed outer end, and an igniter element and cooperating contact member mounted on the inner end of said plug, said socket member having an opening opposite said igniter element whereby light rays from the latter may pass through said row of openings.

3. In a wireless cigar lighter, the combination of an annular casing formed with a circular row of openings in its circumferential wall and an internal annular stop flange on its front end, a disc closing the rear end of said casing, a reflector overlying the inner face of said disc, a circuit wire extending through said disc and reflector, a contact member on the inner end of said wire, a movable socket member within said casing having its outer end abutting against said stop flange, a thrust spring in said casing urging said socket member outwardly, a plug telescopically engaged with said socket member and formed with a closed outer end, and an igniter element and cooperating contact member mounted on the inner end of said plug, said socket member having an opening opposite said igniter element whereby light rays from the latter may strike said reflector and be deflected thereby through said row of openings.

4. In a wireless cigar lighter, the combination of an annular casing formed with a circular row of openings in its circumferential wall and an internal annular stop flange on its front end, a disc closing the rear end of said casing, an apertured spring abutment plate attached to and spaced from said disc, a circuit wire extending through said disc, a contact member on the inner end of said wire, a movable socket member within said casing having on its outer end an external

flange abutting against the stop flange of said casing and having guide lugs on its inner end slidingly engaged with the apertures of said abutment plate, a thrust spring encircling said socket member and footed at one end against the flange of the latter and at its other end against said abutment plate, a plug telescopically engaged with said socket member and formed with a closed outer end, and an igniter element and cooperating contact member mounted on the inner end of said plug, said abutment plate and socket member having openings opposite said igniter element whereby light rays from the latter may pass through said row of openings.

JOHN SINKO.