Jan. 30, 1934. J. H. COHEN 1,944,922

IGNITING DEVICE FOR CIGAR LIGHTERS

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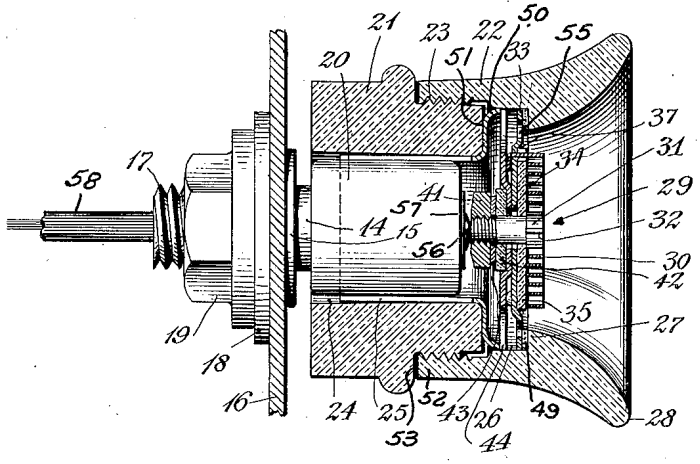


Fig. 1.

Fig. 2.

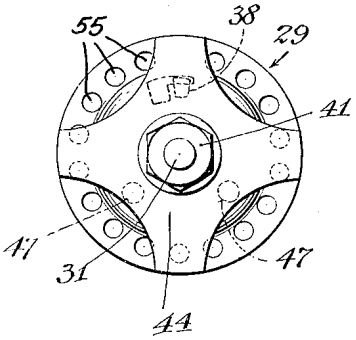


Fig. 3.

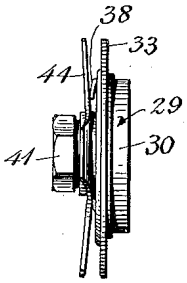
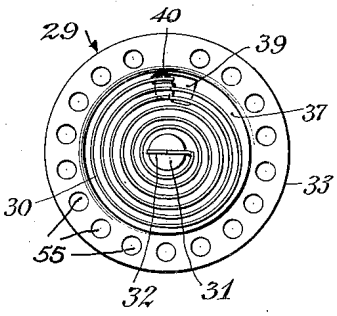


Fig. 4.



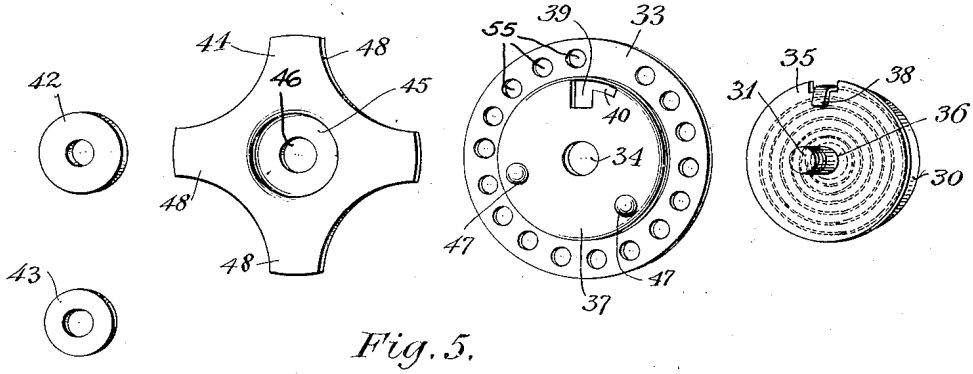
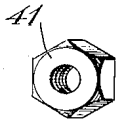


Fig. 5.



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IGNITING DEVICE FOR CIGAR-LIGHTERS

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8 Claims. (Cl. 219—32)

This invention relates to electric igniters for cigars and other tobacco products commonly termed cigar-lighters, and more particularly to the general type of cigar-lighter which fits in or on a holding device from which it may be taken for use.

Although the kind of device now commonly in use is connected to an electric cable, this invention is concerned with the slightly different kind in which the igniting unit is removed from a holder bodily and electrically for use.

An object of this invention is to provide an improved heating element for such a device which will be sturdy in construction, economically made and easily assembled.

In the accompanying drawing, which illustrates one form of this invention, that at present preferred—

Figure 1 is a sectional view through the igniting unit, showing the holding device therefor in elevation.

Fig. 2 is a bottom plan view of the heating element.

Fig. 3 is a side view of the heating device.

Fig. 4 is a top plan view of the heating device.

Fig. 5 is a disassembled perspective view, showing the several parts which make up the heating device.

The device of the present invention as illustrated is particularly adapted for use on motor vehicles and comprises a holding device and a removable igniting unit. The former, in the form shown herein, comprises a post 14 which has a flange 15 and a screw-threaded rod 17 which, after passing through a hole provided in the instrument board 16 to receive it, is adapted to receive a washer 18 and a nut 19 by the tightening of which the shoulder 15 is drawn firmly against the instrument board 16 to securely fasten the holding device thereto. The holding device also comprises a cap 20 on which the removable igniting unit is adapted to be supported.

The igniting unit in the form shown comprises a body having two parts 21 and 22 connected together by screw threads 23. The part 21 is provided with a central bore 24 in which the cap 20 is adapted to extend when the removable igniting unit is supported on the holding device. Within the bore 24 there is provided a slit sleeve 25, the opposite portions of which are normally biased inwardly so as to produce a sufficient friction upon the cap 20 to hold the igniting unit thereon against accidental removal, yet permit quick and easy application and removal of the igniting unit to and from the holding device. The part 22 of the body has a cavity 26 open at the front of the device, the walls of which diverge outwardly from a shouldered portion 27 to a lip 28 so as to form an ash-guard and cigar-guide to assist in the placing of the end of a cigar or cigarette against the heating element 29 which is located at the bottom of the cavity 26.

The heating element of this invention comprises a coil of high resistance ribbon-like wire 30 wound in a spiral. The wire 30 is secured on a pin 31 having a slot 32 into which the inner end of the wire is placed. Instead of brazing the wire to the pin so as to be an electrical and permanent connection, the top of the pin, according to this invention, is merely squeezed or pressed over so as to tightly embrace the wire-end.

The coil of wire 30 with its pin 31 is supported on a disk 33 which has a central aperture 34 substantially larger than the pin 31. To hold the pin and coil in fixed position in the disk 33 so that the pin does not make electrical engagement therewith, there is provided a disk 35 of insulating material, preferably of mica, which has a central hole 36 fitting the pin 31 and having a periphery which fits snugly in a dished portion 37 in the disk 33. This disk 35 and dished portion 37 holds the pin 31 centralized in the aperture 34 of the disk 33. In addition, the disk 35, when made of mica, reflects the heat generated by the coil or wire 30 back against the wire of the end of a cigar or cigarette held thereagainst, thus effectively reducing the heating of the body parts 21 and 22.

The other or outer end of the wire 30 is intended to be in electrically contact with the disk 33 and other parts metalically connected thereto. This is accomplished, according to this invention, by bending over the other end of the wire to form a hook 38 adapted to be passed through a slot 39 in the dished portion 37 of the disk 33 and engage the underside of the disk when moved sidewise as may be done because of the provision of a narrow slot 40 communicating with the slot 39. The hook 38 may be brazed on the disk 33 if desired.

When the coil of wire 30 and insulating mica disk 35 is then supported on the disk 33, the pin may be secured in place by means of a nut 41 which may be tightened on the end of the pin 31 threaded to receive it, after a mica washer 42 and then metal washer 43 has been placed on the pin so as to lie between the disk 33 and the nut 41. An operative device will thus be found.

However, it is preferable to avoid the necessity of brazing the hook 38 on the disk 33, for such operations are costly and the connection might under the influence of the heated wire become loose or even crack-off.

To accomplish this and other results hereinafter referred to, the present invention provides a plate 44 between the disk 33 and the mica washer 42 and having a dished portion 45 fitting and receiving the mica washer 42 to further hold the pin centrally with respect to the hole 34 in the disk 33 and a hole 46 in the plate 44. The plate 44 is so shaped that when the assembly is securely held together by the nut 41, the plate presses firmly against the hook 38 on the end of the wire 30 and makes good electrical contact therewith. Since the hook 38 is located at one side of the plate, to prevent warping of the plate the dished portion 37 of the disk 33 is provided with two nibs 47 (see Fig. 5) located at equi-distances from each other and from the place where the hook 38 lies on the disk.

For reasons stated below, the plate 44 has a plurality of substantially radial arms 48 which have their ends rounded to be concentric with the periphery of the disk 33.

After the heating element 29 is assembled as shown in Figs. 2, 3 and 4, and the igniting unit is to be assembled, an asbestos washer 49 is dropped in the screw-threded end of the part 22 of the body to lie on the shouldered portion 27. Then the heating element is dropped in the same end of the part 22 so that the front surface of the disk engages the asbestos washer. Then the slit sleeve 25 is placed in the bore 24 of the part 21 so that a flange 50 thereof lies on the end 51 of the part 21 of the body. Then the parts 21 and 22 are screwed together until the end 52 of the part 22 engages a shoulder 53 of the part 21. As this is being done, an upturned edge of the flange 50 engages the arms 48 and causes them to yield more or less according to the formation of the particular parts. This also forces the disk 44 and the base of the arms 48 toward the hook 38 to further increase the pressure between the disk 44 and the hook 38, insuring good electrical connection therewith.

It should be noted that by providing the arms 48, which within their limits of movement are resilient, minor variations in the manufacture of the parts 21 and 22 (which are usually molded) and the parts of the heating element may occur without deleterious effects, for the arms will yield until the end 52 of the part 22 engage the shoulder 53 on the part 21. Moreover, these spring arms 48 take up any looseness that may exist in the threads 23 and thus prevent the parts 21 and 22 from accidentally unscrewing.

To decrease the amount of heat which may be conducted to the body from the disk 33 and to provide for the ventilation of the chamber behind the heating element, the disk 33 is provided with an annular series of perforations 55.

When the igniting unit is assembled, it is slid onto the holding device as far as it will go to be there supported until needed. In this position, the slit sleeve 25 engages the cap 20 on the post 14 while the end of the pin 31 engages a contact 56 on the cap and electrically insulated therefrom by a washer 57. When it is desired to heat the igniting unit preparatory to the igniting of a cigar or cigarette, this contact 56 is electrically connected to a wire 58 extending through the threaded rod 17 (see Fig. 1) and connecting with one terminal of a source of E. M. F. by an automatic switch device contained within the cap 20 and operated by sliding movement of the cap 20 on the post 14.

Current then flows from the contact 56 to the pin 31 and the inner end of the spiral coil of wire 30; then through the resistance wire 30 to the outer end where the hook 38 is formed; then through the spring arms 48 of the plate 44 which is in contact with the hook 38. From the spring arms 48 current flows to the upturned edge 54 of the flange 51 on the slit sleeve 25; then through the sleeve 25 to the cap 20 and through the post 14, instrument board 16 and other grounded parts of the car to the other terminal of a source of E. M. F. When current flowing through the coil of wire 30 causes it to heat to incandescence, the igniting unit may be removed and the hot heating element applied to the end of a cigar or cigarette to ignite the same.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

Having thus described the invention, what is claimed as new and for which it is desired to obtain Letters Patent, is:—

1. A heating element for cigar-lighters comprising a coil of high resistance wire; a disk on the top of which the coil is supported; a spring spider carried by said disk on the bottom thereof and fixedly united thereto and adapted to yield when the heating element is clamped between two parts of a holding device; and means holding said coil, disk and spider in superposed connected relation.

2. A heating element for cigar-lighters comprising a coil of high resistance wire; a post to which one end of the wire is secured; and a pair of plates between which the other end of the resistance wire is clamped at least one of said plates supporting the post and resistance wire.

3. A heating element for cigar-lighters comprising a coil of high resistance wire; and a pair of superposed plates between which the end of the resistance wire is clamped, the coil lying on the surface of the uppermost plate and having its end bent to form a hook, and said uppermost plate having a slot through which said hook may pass to lie between the adjacent surfaces of said plates and in contact therewith.

4. A heating element for cigar-lighters comprising a coil of high resistance wire; and a pair of superposed plates between which the end of the resistance wire is clamped, the coil lying on the surface of the uppermost plate and having its end bent to form a hook, and said uppermost plate having a slot through which said hook may pass to lie between the adjacent surfaces of said plates and in contact therewith, said slot having an opening permitting the bodily passage of the hook therethrough and a restricted slit communicating with said opening to prevent passage of the hook when the wire is moved edgewise into said slot.

5. A heating element for cigar-lighters comprising a coil of high resistance wire; and a pair of superposed plates between which the end of the resistance wire is clamped, the coil lying on the surface of the uppermost plate and having its end bent to form a hook, and said uppermost plate having a slot through which said hook may pass to lie between the adjacent surfaces of said plates and in contact therewith, one of said plates having nibs thereon equally spaced from each other and from the hook to compensate for

the thickness of the wire hook and allow the plates to be substantially parallel.

6. A heating element for cigar-lighters comprising a spiral coil of high resistance wire; a pin to which the inner end of the wire is secured; a mica plate having a hole adapted to snugly fit said pin, the spiral coil being supported on said mica plate; a supporting plate having a passage for the pin substantially larger than the diameter of the pin and having a dished portion adapted to snugly fit said mica plate; and means for holding the mica plate in said dished portion to space the pin from the edge of said passage in the supporting plate to electrically insulate the pin from said supporting plate.

7. A heating element for an igniting unit for cigar-lighters, for use in a body having two parts screw-threaded together and a pair of cooperating clamping surfaces drawn toward each other when the parts are screwed together, including a coil of high resistance wire; supporting means for said resistance wire; a flange on said supporting means; and a spring spider at all times forming a part of said supporting means, said spider and said flange forming seats for the heating element between the cooperating clamping surfaces of the body parts, with the spider yielding to compensate for the irregularities in the manufacture of the body parts when said parts are screwed together tightly.

8. A heating element for a cigar-lighter comprising a body having two parts screw-threaded together and a pair of cooperating clamping surfaces drawn toward each other when the parts are screwed together, said heating element including a coil of high resistance wire and supporting means for said wire having a pair of permanently united plates, one to be engaged by each of the parts of the body, one of said plates being yieldable in the direction of movement of the cooperating clamping surfaces.

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