April 19, 1949. R. E. GRAY 2,467,473

CIGARETTE LIGHTER

Filed Feb. 18, 1947 2 Sheets-Sheet 1

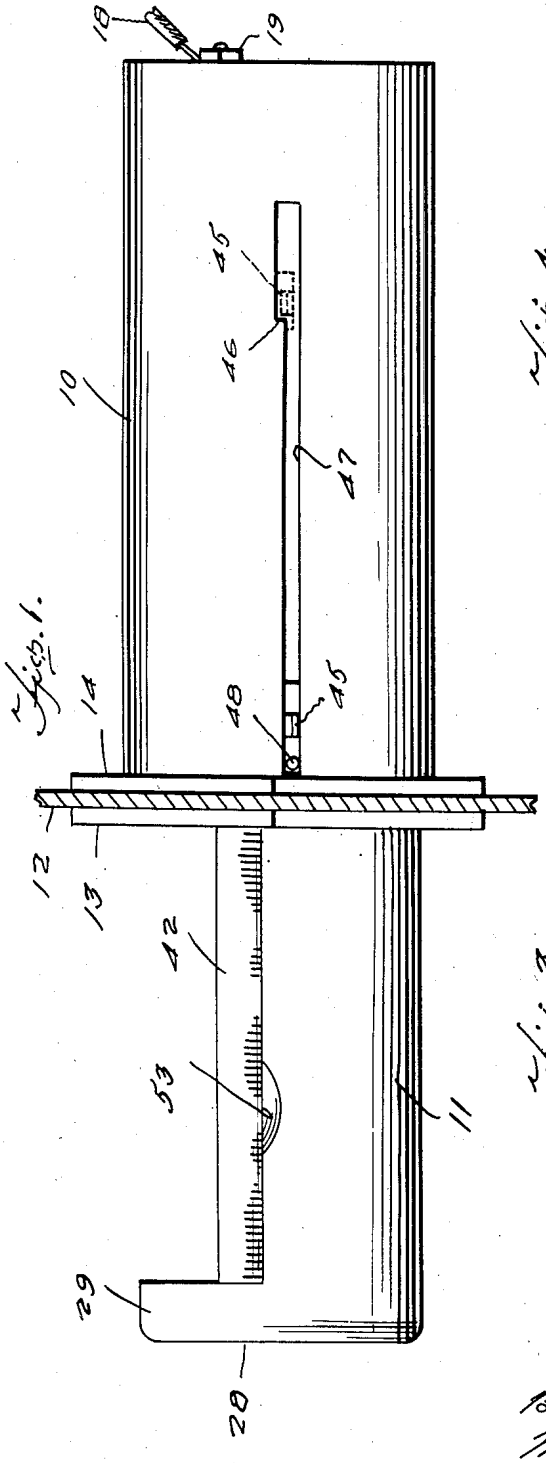



Fig. 1.

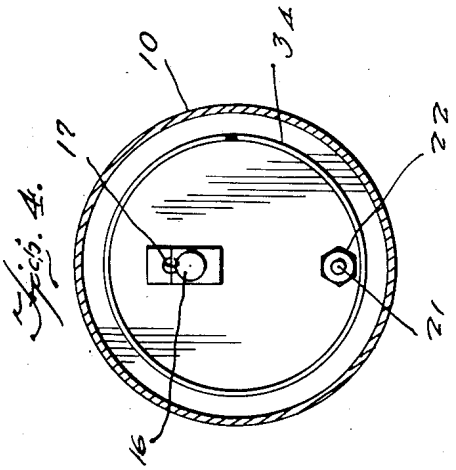



Fig. 4.

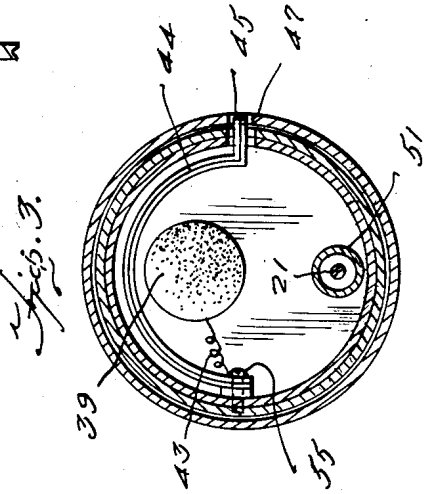



Fig. 3.

Inventor
Robert E. Gray

By
McMorrow, Berman & Davidson

Attorneys

April 19, 1949. R. E. GRAY 2,467,473

CIGARETTE LIGHTER

Filed Feb. 18, 1947 2 Sheets-Sheet 2

Fig. 2.

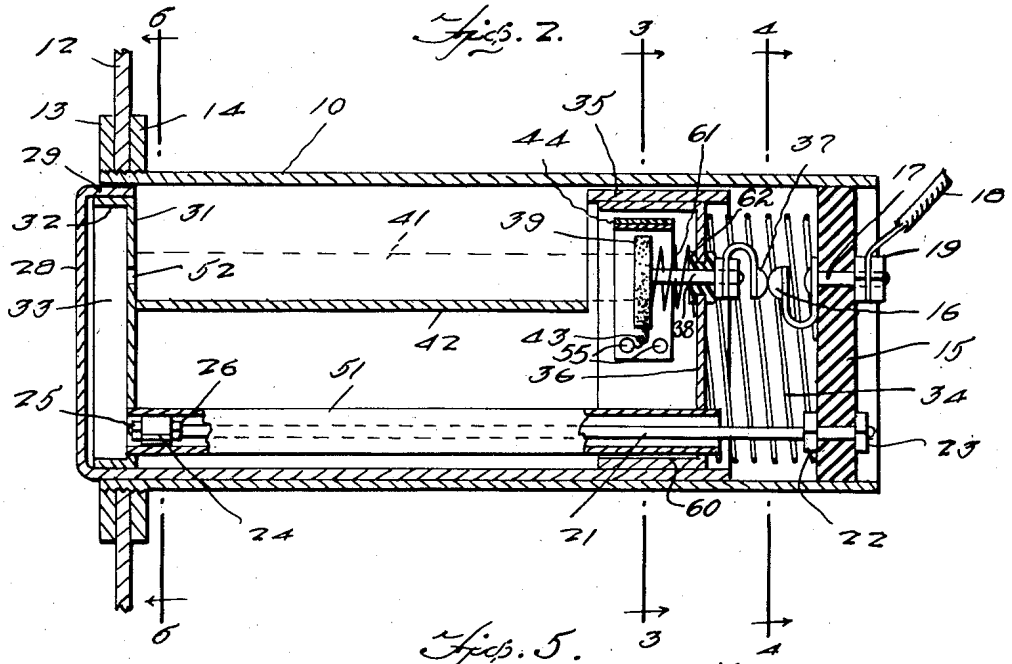
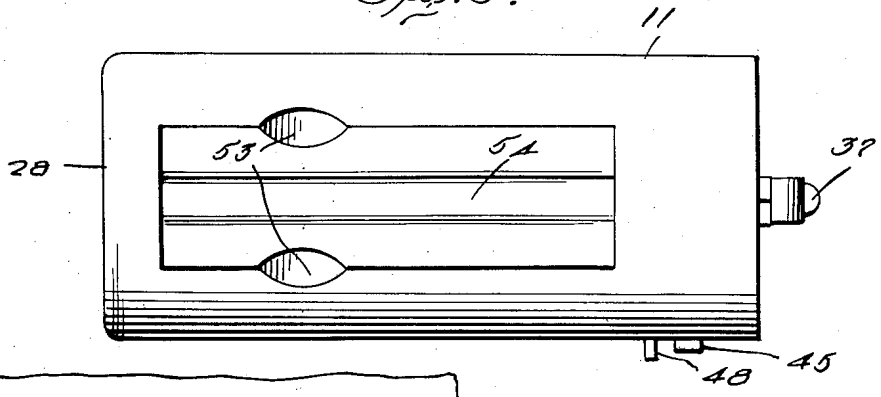



Fig. 5.



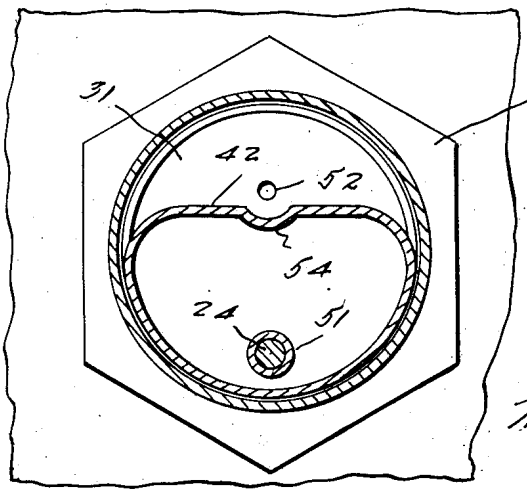




Fig. 6.

Inventor
Robert E. Gray

By McMorrow, Berman and Davidson

Attorneys

Patented Apr. 19, 1949

2,467,473

# UNITED STATES PATENT OFFICE

2,467,473

## CIGARETTE LIGHTER

Robert E. Gray, Minetto, N. Y.

Application February 18, 1947, Serial No. 729,218

1 Claim. (Cl. 219—32)

1

This invention relates to cigarette lighters for automobile dashboards.

It is an object of the present invention to provide a cigarette lighter for use in an automobile which does not require the removal of parts to effect the lighting of the cigarette, but wherein the cigarette is presented to the person in the car in lighted condition ready to be smoked.

It is another object of the present invention to provide in a cigarette lighter for automobile dashboards wherein the cigarette is lighted and presented to the rider of the car in lighted form, a single spring which serves to cause the carriage to be moved outwardly when the cigarette has been lighted and which also causes the cylinder which is a part of the carriage to be drawn over a piston whereby to suck air from the mouth end of the cigarette to at this time insure that the cigarette has been permanently lighted.

It is another object of the invention to provide an automatic cigarette lighter for an automobile dashboard which is of simple construction, cheap to manufacture, and efficient in operation, and easy to install.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawings, in which:

Figure 1 is a side elevational view of the lighter with the carriage extended outwardly from the dashboard and in position to receive a cigarette or to expel a cigarette after it has been lighted.

Figure 2 is a longitudinal cross-sectional view taken through the lighter casing and carriage with the carriage lying fully within the casing with a cigarette therein being lighted by the heater element prior to the carriage being released by the thermal element.

Figure 3 is a transverse cross-sectional view taken on line 3—3 of Figure 2, and looking in the direction of the arrows thereof and upon the face of the heater element.

Figure 4 is a transverse cross-sectional view taken on line 4—4 of Figure 2, and looking in the direction of the arrows thereof and upon the fixed electrical spring contact on the back of the casing.

Figure 5 is a top plan view of the cigarette carriage removed from the casing.

Figure 6 is a transverse cross-sectional view taken on line 6—6 of Figure 2, and looking in the direction of the arrows thereof, and upon the rest for the cigarette and into the cylinder which is drawn from the piston to effect a sucking action upon the cigarette.

Referring now to the figures, 10 represents a

2

casing open at one end to receive a cigarette carriage 11 and adapted at that end to be connected to a dashboard 12 by means of locking nuts 13 and 14 upon the opposite faces of the dashboard wall 12. The end of the casing is threaded to receive the locking nuts 13 and 14. The rear of the casing 10 is closed by a disc 15 of insulating material. On the inner face of the disc 15 there is connected a spring contact 16 by means of a bolt 17 to the rear end of which is connected a wire 18 by means of nuts 19.

Also connected to the disc 15 is a rod 21 which extends forwardly for nearly the entire length of the casing 10. This rod is connected to the opposite faces of the insulated member 15 by lock nuts 22 and 23. The forward end of the rod 21 has a piston 24 fixed thereto by lock nuts 25 and 26.

The carriage 11 has a closed end 28 flanged at its top, as indicated at 29, to slide into the casing 10 to close the end thereof when the carriage is forced thereinto for the purpose of causing a cigarette to be lighted. A disc 31 having a flange 32 is fitted into the end 28 and under the flange 29 of the carriage to provide thereby a suction chamber 33 from which air is drawn as the carriage 11 is pushed outwardly by a spring 34 lying in the rear end of the casing 10 and abutting the insulated disc 15.

The rear end of the carriage 11 has a circular side wall 35 into which there is telescopically fitted a rear wall 36. The rear wall 36 includes a forwardly-directed, annular flange 60 having a close fit with the inner surface of the side wall 35. This wall 36 carries a spring contact 37 secured to a heater support rod 38 on the forward end of which is mounted a heater 39 adapted to be contacted by the head end of a cigarette 41 when lying upon a rest 42 within the carriage 11. The rod 38 is slidable through an insulating bushing 62 in the rear wall 36 and is maintained in a forward position by a spring 61 surrounding rod 38 between bushing 62 and heater 39. However, when a cigarette is placed on rest 42, the heater and rod may be moved rearwardly and released so that the cigarette is resiliently clamped between heater 39 and disc 31. The lighter element 39, rod 38 and contact 37 are thus insulated from the disc 36. When the contact 37 engages with the spring contact 16 on the insulated disc 15, current will be passed to the heater 39 and from the heater 39 it is grounded by a wire 43 to a bimetallic thermal element 44 of arcuate shape and extended over the top of the heater so as to be heated by radiation from the

heater simultaneously with the actuation of heater 39. The thermal element 44 serves as a latch to retain the carriage 11 in its innermost position against the action of the spring 34. The end of the thermal element, as indicated at 45, will extend over a shoulder 46 when the carriage is moved in to effect the lighting of the cigarette and will thus retain the carriage in this position. As the thermal element is heated, the end 45 will drop down below shoulder 46 and the carriage 11 will be released. Thereafter spring 34 projects the carriage 11 forwardly. This action separates contacts 16 and 37, breaks the circuit to heater 39 and permits it and element 44 to cool off. As the carriage moves forwardly, the end 45 of the thermal element will then pass with the carriage forwardly from the dotted line position in Figure 1 to the full line position shown, the end 45 projecting into the slot 47 of the casing 10. To stop the forward movement of the carriage there is provided a pin 48 which will engage with the end of the casing after having traveled throughout the length of the slot. There may be a slot 45 on each side of the casing and there may be a projection 48 for each slot.

When the carriage travels forwardly, the piston 24 will be drawn from a cylinder 51 extending from the chamber 33 to the rear of the carriage whereby to cause a suction to be created in the chamber 33 and smoke and air drawn through the cigarette from its mouth end which lies over a small hole 52 in the disc 31. This action will automatically light the cigarette so that it will be presented to the rider of the car in its fully lighted condition.

The rest 42 has indentations 53 at the opposite sides of the same to facilitate the removal of the cigarette 41 from the rest. In order to keep the cigarette from rolling sidewise on the rest 42, there is provided a longitudinally extending depression 54.

The thermal element 44 is attached to the sides of the carriage by two rivets 55, as shown in Figures 2 and 3. The device requires no switch as the circuit is closed as soon as the carriage is pushed in sufficiently to engage contacts 16 and 37. When not in use, the carriage is left in the



projected position of Figure 1 and a fresh cigarette may be placed on the carriage.

Having now described my invention, I claim:

A cigarette lighter comprising a casing adapted to be attached to a fixed wall or dashboard, a carriage adapted to receive a cigarette and movable through the casing to cause the cigarette to be moved thereinto, said casing having a contact terminal, said carriage having a contact terminal adapted to engage with the contact terminal of the casing as the carriage is extended thereinto, a heater in circuit relation with the contact terminals and carried by the carriage and adapted to have the cigarette engage with it to effect the lighting of the cigarette when a predetermined temperature of the heater has been ascertained, a suction arrangement in communication with the mouth end of the cigarette and responsive to the movement of the carriage to effect a drawing action upon the cigarette as the carriage is moved outwardly with the lighted cigarette, said suction arrangement comprising a rod fixed to the rear of the casing and extending forwardly therethrough, said rod including a piston, a cylinder on the carriage receiving the piston and through which the piston is drawn as the carriage moves outwardly to dispense the cigarette, the forward end of the cylinder being fixed to a chamber wall, said chamber wall providing a suction chamber and having an opening aligned with the mouth end of the cigarette when in place upon the carriage.

ROBERT E. GRAY.


## REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 1,959,093 | Davis | May 15, 1934 |
| 1,989,064 | Schiavilli | Jan. 22, 1935 |
| 1,994,712 | Isaacs | Mar. 19, 1935 |
| 2,244,269 | Springborn | June 3, 1941 |
| 2,381,726 | Davis | Aug. 7, 1945 |