

FUSE ASSEMBLY FOR CAR

BACKGROUND OF THE INVENTION

5 The present invention relates to a fuse, and more particularly to a fuse assembly for a car.

10 The conventional fuse assembly for a car includes a transparent tube, two metallic covering sleeves mounted on two ends of the tube and a fuse received in the tube and connected to the covering sleeves. Such fuse assembly is getting used fewer and fewer now since it cannot be conveniently put into practice and/or use.

15 In order to overcome the above shortcoming, there has been developed a fuse assembly 10 which as shown in Fig. 1 includes a hollow insulating housing 11 having a receiving room 12, two conducting plates 13 parallelly juxtaposed in the receiving room 12 and each of which has an inserting end 14 protruding beyond the housing 11, and
20 a fuse 15 mounted between and integrally formed with the conducting plates 13. In use, the inserting ends 14 of the conducting plates 13 are inserted into a fuse assembly socket 20 having a plurality of socket slots 21 and electrically connected to various circuit system of the car. Such structure is advantageous in that the user can

conveniently use or replace the fuse assembly 10 and the fuse assembly socket 20 can insert thereon a relatively great number of the fuse assemblies 10.

Nevertheless, either one of the above
5 described two types of fuse assemblies is disadvantageous in that it is difficult for the user to determine whether a particular fuse assembly is out of order since a car normally has about 10-20 fuse assemblies grouped together.

10 It is therefore tried by the Applicant to deal with the shortcomings encountered by the prior art.

It is therefore an object of the present invention to provide a fuse assembly enabling the user to readily determine whether it is out of order.

15 According to the present invention there is provided a fuse assembly for a car comprising: a hollow, transparent or translucent, electrically insulating housing of generally rectangular cross-section having an open bottom, a central receiving
20 chamber, two side receiving chambers both communicating with said central receiving chamber, and a top wall having two depending projections of substantially rectangular cross-sectional shape and two through holes communicating respectively with said two receiving
25 chambers; two conducting plates received respectively in said two side chambers, each said conducting plate having an L-shaped recess at one corner complementary to a respective one of said projections, and each of which

includes a first end inserted in one of said two top holes and a second end protruding beyond said open bottom and adapted to be inserted, in use, into a fuse assembly socket for said car; and a fuse positioned in
5 said central chamber and having two ends thereof respectively connected to and integrally formed with said two conducting plates, in which said fuse assembly further includes an indicating bulb generally positioned in said central chamber and between said top wall and
10 said fuse and having two oppositely projecting electrodes respectively generally positioned in said two side chambers; each of said electrodes having a U-shaped portion firmly clamped between a respective projection and the base of a respective L-shaped recess
15 in order to generally position said indicating bulb in said central chamber.

The present invention may best be understood through the following description with reference to the accompanying drawings, in which:

20 Fig. 1 is a perspective view showing a fuse assembly according to the prior art and a fuse assembly socket therefore;

Fig. 2 is an exploded view showing a preferred embodiment of a fuse assembly according to the present
25 invention;

Fig. 3 is a perspective view showing a fuse assembly in Fig. 2;

Fig. 4 is a sectional view taken along line 4-4 in Fig. 3;

Fig. 5 is a sectional view taken along line 5-5 in Fig. 3;

Fig. 6 is a circuit diagram showing a fuse assembly in Fig. 2 in a normal operation; and

Fig. 7 is a circuit diagram showing a fuse assembly in Fig. 2 being out of order.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to Figs. 2-5, a fuse assembly 30 according to the present invention includes a hollow insulating housing 40, two conducting plates 50, a fuse 60 and an indicating bulb 70. Housing 40 is made of a transparent or translucent plastic material and includes an open bottom, a receiving portion 41 having a central chamber 42 and two side chambers 43 communicating with central chamber 42, and a top wall having two through holes 44 respectively communicating with side chambers and two depending projections 45 which are of substantially rectangular cross-section and which form therebetween together with two side walls of housing 40 a receiving space 47.

Each of conducting plates 50 is made of a metal having a good conductivity, e.g. the aluminium and received in one respective side chamber 43 and includes a first end 51

having a tip 52 inserted in one respective hole 44 and an L-shaped recess 53 complementary to two sides of a projection 45, a second opposite end 54 protruding beyond the open bottom, and an intermediate through hole 55 by which a high frequency wave can be used to meltingly connect together two side walls of housing 40 to parallelly juxtapose conducting plates 50 in housing 40.

10 Fuse 60 is arcuate to unharmedly allow a slight displacement of either conducting plate 50 and generally received in central chamber 42 and has two ends thereof respectively connected to and integrally formed with conducting plates 50 to have a simple
15 manufacture so that fuse 60 and conducting plates 50 can be easily assembled in housing 40.

Indicating bulb 70 having an internal resistance larger than that of any other one of the
20 electrical devices used in the car includes two diametrically disposed electrodes 71 respectively generally positioned in side chambers 43 having two U-shaped portions 72 which are firmly clamped between the base of a respective recess 53 and a respective
25 projection 45 to connect fuse 60 and indicating bulb 70 in parallel. Indicating bulb 70 is received in central chamber 42 and receiving space 47 and positioned between the

housing top wall and fuse 60.

Upon assembling, indicating bulb 70 is inserted in receiving portion 41 before conducting plates 50 and fuse 60 are inserted therein to properly fix and position indicating bulb 70 therein. Finally, a high frequency wave is used to meltingly connect together two side walls of housing 40 by the provision of through holes 55 of conducting plates 50 to suitably secure conducting plates 50, fuse 60 and indicating bulb 70 in receiving portion 41.

The conventional fuse assembly socket can be used for the present fuse assembly 30 the operation principle of which is as follows:

As shown in Fig.6 wherein V represents the potential of the car battery, R stands for the internal resistance of a particular electrical device in the car and r represents the internal resistance of indicating bulb 70. if the present fuse assembly 30 is in order, the electrical current will flow through fuse 60 but not indicating bulb 70 since r , e.g. being 100 ohms is relatively large and connected with fuse 60 in parallel. As shown in Fig. 7, if fuse 60 is blasted, the electrical current can only flow through indicating bulb 70 and is

much smaller than the rated current in order not only to protect the electrical device kept unactuated from being damaged but also to light up indicating bulb 70 so that the relevant person can readily know which electrical device or fuse assembly 30 is out of order.

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CLAIMS

1. A fuse assembly for a car comprising: a hollow, transparent or translucent, electrically insulating housing of generally rectangular cross-section having an open bottom, a central receiving chamber, two side receiving chambers both communicating with said central receiving chamber, and a top wall having two depending projections of substantially rectangular cross-sectional shape and two through holes communicating respectively with said two receiving chambers; two conducting plates received respectively in said two side chambers, each said conducting plate having an L-shaped recess at one corner complementary to a respective one of said projections, and each of which includes a first end inserted in one of said two top holes and a second end protruding beyond said open bottom and adapted to be inserted, in use, into a fuse assembly socket for said car; and a fuse positioned in said central chamber and having two ends thereof respectively connected to and integrally formed with said two conducting plates, in which said fuse assembly further includes an indicating bulb generally positioned in said central chamber and between said top wall and said fuse and having two oppositely projecting electrodes respectively generally positioned in said two side chambers; each of said electrodes having a U-shaped portion firmly clamped between a respective projection and the base of a respective L-shaped recess



in order to generally position said indicating bulb in said central chamber.

2. A fuse assembly substantially as described
5 hereinbefore with reference to and as shown in Figures 2
to 7 of the accompanying drawings.
