April 18, 1961 W. C. SCHUMACHER 2,980,791

AUTO MAP LIGHT

Filed Dec. 8, 1958

Fig. 1.

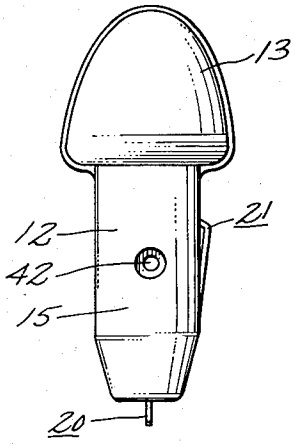


Fig. 2.

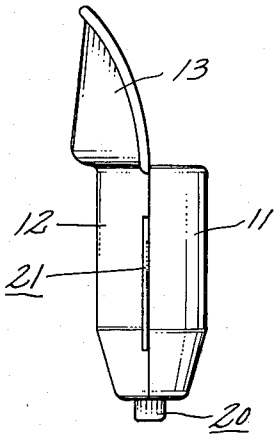


Fig. 3.

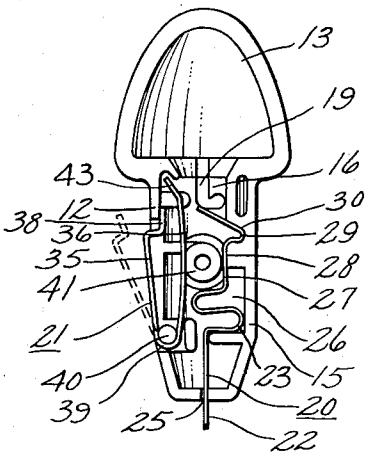


Fig. 4.

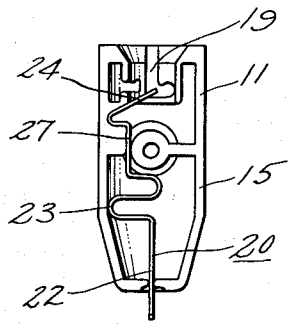
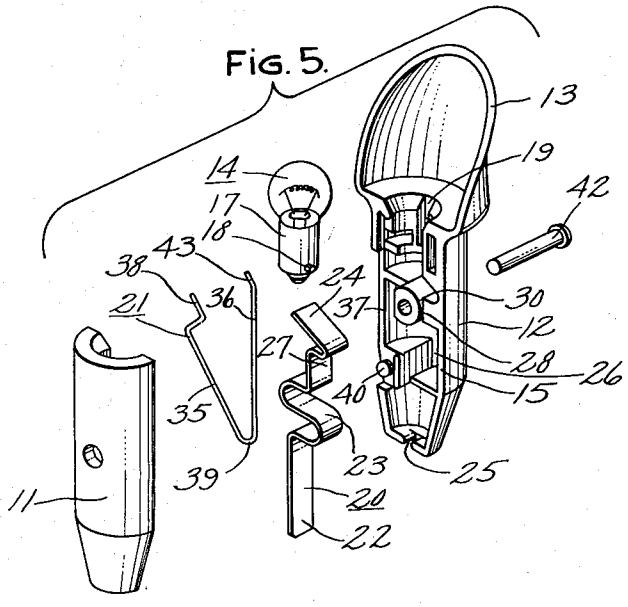


Fig. 5.



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AUTO MAP LIGHT

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2 Claims. (Cl. 240—8.14)

The present invention relates to a small light that is to be plugged into the receptacle of an automobile cigarette lighter. Specifically, this invention relates to a combined lamp socket and attachment plug that may be installed in place of the heating element of the lighter to provide more illumination within the car when needed.

Available for many years have been automobile trouble lights. These lights consist of a long cord set having a lamp socket at one end of the cord and an attachment plug at the other end for insertion into a cigarette lighter receptacle. This type of trouble light is of advantage when it is necessary to have the light outside the car for changing tires or signaling for help. There is a definite need, however, particularly in the modestly priced cars, to provide more interior lighting during night travel.

The principal object of the present invention is to provide a portable light having a combined lamp socket and attachment plug with novel spring contact means for both the lamp socket and plug.

A further object of the present invention is to provide a single pair of contact members for a combined lamp socket and attachment plug for use as an auto map light

The present invention is embodied in a combined lamp socket and attachment plug with a molded two-piece case or housing of insulating material. One case half is provided with a shade or reflector so that the direct rays of light may be shielded from the eyes of the driver. The main portion of the housing is cylindrical in shape and of a size to fit into the receptacle of the cigarette lighter that is commonly mounted in the dashboard of an automobile. Both the lamp socket and attachment plug must have a center or line contact and a side or ground contact. These contact means have been combined into a single pair of contacts to serve both the lamp socket and attachment plug. The center or line contact is of thin strip material with a straight portion that exends outwardly of the bottom of the plug for engagement with the center contact of the lighter receptacle. The opposite end of the center contact strip has an offset cantilever spring section for engagement with the center contact of a lamp. The intermediate section of the contact strip is bowed longitudinally into a serpentine shape to provide a spring action for both working ends of the strip. The side or grounding contact is of spring wire form of doubled-over construction. One leg of the wire has a portion that extends outwardly of the side of the plug for engagement with the side of the lighter receptacle. The opposite leg of the wire has a free end for engagement with the lamp base.

My invention will be better understood from the following description taken in connection with the accompanying drawing and its scope will be pointed out in the appended claims.

Figure 1 is a top plan view of an auto map light embodying my invention.

Figure 2 is a right side view of the map light of Figure 1.

Figure 3 is a right side view taken of Figure 2, with

one half of the housing removed to show the disposition of the novel spring contacts.

Figure 4 is a view similar to that of Figure 3 showing the other half of the housing and how only the center contact strip is fitted therein.

Figure 5 is an exploded view of the map light, showing the various elements which are included in the preferred embodiment.

Referring in detail to the drawing and in particular to Figure 5, there is shown a combined lamp socket and attachment plug comprising an insulating housing formed by two molded case halves **11** and **12**. Part **12** includes a shield or reflector **13** for directing the light rays of a candelabra lamp **14**. As is best seen in Figure 3, the lower end of the housing **15** represents the attachment plug portion while the upper end contains a lamp socket **16**. The lamp **14** has a bayonet pin base **17** with a pair of diametrically opposed pins **18** that are received in the slots **19** of the lamp socket.

Two electrical contacts are positioned in the housing. First, there is a center or line contact **20** and a side or ground contact **21**. The center contact **20** is of thin strip material with a straight end **22**, an intermediate spring section **23** and an offset cantilever spring section **24** at the opposite end. The straight end **22** fits through a slot **25** in the bottom wall of the housing. The intermediate spring section **23** is of generally serpentine shape with an S configuration that is disposed within a compartment **26** of the housing. Leading from the S spring **23** is a straight extension **27** that slips into a groove **28**. Finally, the extension **27** merges into an acute angle bend **29** that is received by a recess **30**. The contact strip **20** is a live spring which moves nearly throughout its entire length when a compression force is placed on either end of the spring. By this is meant that the insertion of the lamp **14** into the socket **16** or the insertion of the attachment plug portion **15** into a cigarette lighter receptacle will exert pressure on the contact strip **20**, causing it to realign itself within the housing. It is important that the intermediate spring portion **23** of the contact strip be of such design as to avoid taking a permanent set when an excessive push is exerted on the device in thrusting it into the lighter receptacle.

As mentioned previously, the side or ground contact **21** is of spring wire form quite similar in appearance to a hairpin, but of heavier stock. This spring has a short leg **35** and a long leg **36**. The spring is placed under compression during the assembly of the spring into the case half **12**, as clearly seen in Figure 3. The shape of this spring in the unassembled condition is both shown in dotted lines in Figure 3 and in full lines in Figure 5. An indentation **37** is made in the side of the case half **12**, as best seen in Figure 5 for accommodating the short leg **35**. A portion of this short leg extends outwardly of the housing for wiping engagement with the interior of the lighter receptacle. The free end **38** of the short leg is hook shaped for engagement with the interior of the case half **12** to hold the spring **21** under compression. To explain further, the bent end **39** of the spring is fitted over a circular embossment **40** in the case half **12** and the mid-portion of the long leg **36** is braced against a central boss **41** that contains a through opening for receiving a rivet fastener **42**. The free end **43** of the long leg **36** is positioned along one side wall of the lamp socket **16** for engagement with the lamp base **17**. The end **43** of the long leg is inclined in such a way that it will be deflected outwardly a slight amount and be spring biased against the lamp base.

Figure 4 is a view of the case half **11** showing the disposition of the contact strip **20** therein. It should be appreciated that the center contact strip **20** is centrally disposed within the housing so that half of it is received

in the molded case half **11** and the other half of the strip in the case half **12**. The same is not true of the side contact **21**, for it is completely held in the case half **12**, as is best seen in Figure 2.

Having described above my invention of a combined lamp socket and attachment plug for insertion in a cigarette lighter receptacle, it will be readily apparent to those skilled in this art that I have produced a remarkably simple construction with the least number of parts by integrating the contacts of both the attachment plug and lamp socket so that a single pair of contacts will suffice. Of course, there is a great deal more to this design than simplicity, for if such a design is to be acceptable, it must have a reasonably long life span that will more than satisfy the average user.

Modifications of this invention will occur to those skilled in this art and it is to be understood, therefore, that this invention is not limited to the particular embodiments disclosed but that it is intended to cover all modifications within the true spirit and scope of this invention as claimed.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A combined lamp socket and attachment plug adapted for connection to an automobile-type cigarette lighter socket comprising an insulating housing of generally cylindrical configuration composed of first and second mating molded sections, said molded sections defining a contact end having an axial contact aperture and an oppositely disposed socket end, said first molded section defining a longitudinal slot, a circular embossment

in said first molded section extending across said longitudinal slot near the contact end thereof, a U-shaped grounding contact mounted around said embossment with the ends extending toward the socket end of said housing, one leg of said grounding contact being hooked on the interior of said housing and leading exteriorly thereof through said longitudinal slot and the other leg thereof being positioned to make peripheral contact with the base of a lamp positioned in said socket, and a center contact of thin strip material with a straight end that extends through the axial contact aperture, the mid-section of the contact strip being bowed in an S configuration to bias the strip in an extended position, the opposite end of the strip having a free end positioned to engage the center contact of the base of a lamp positioned in said socket, said molded sections including interior partitions to maintain said contacts in position.

2. A combined lamp socket and attachment plug as claimed in claim 1 wherein one of the molded sections includes an integral reflector at the lamp socket end.

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