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H. C. DOANE

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HEADLIGHT CONNECTOR

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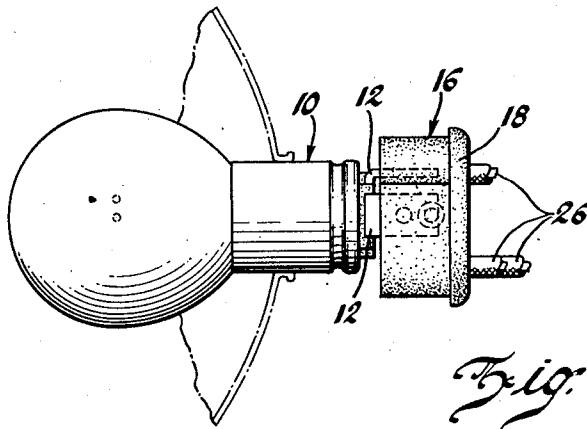


Fig. 1

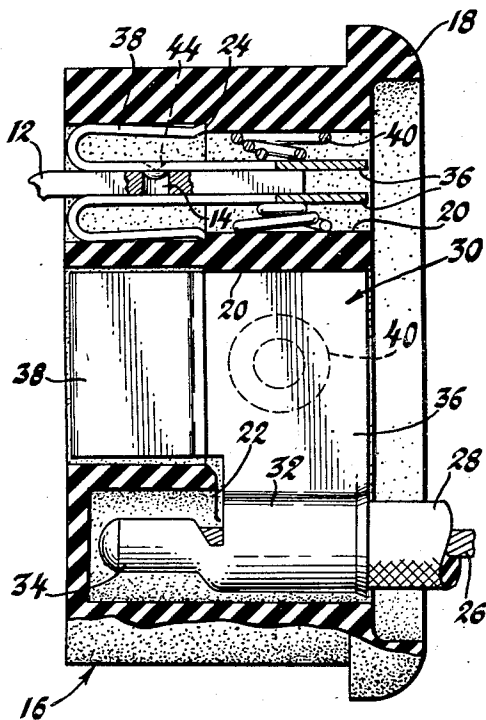


Fig. 2

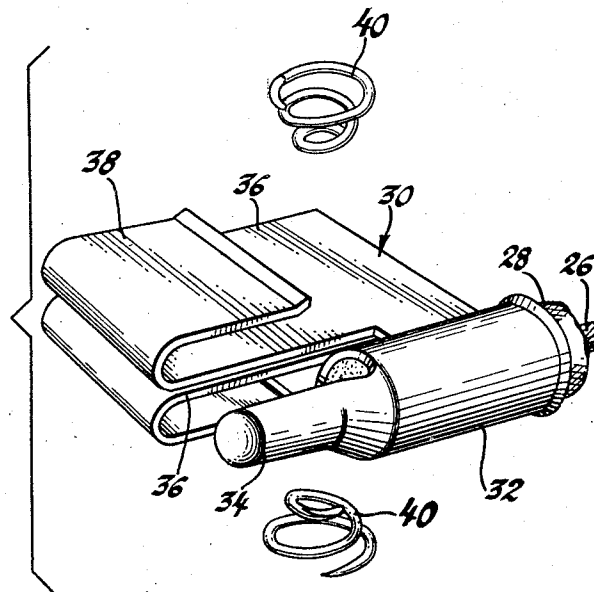


Fig. 3

Inventor

Hetty C. Doane

Blackman, Spencer & Flint
Attorneys

UNITED STATES PATENT OFFICE

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HEADLIGHT CONNECTOR

Harry C. Doane, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

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3 Claims. (Cl. 173—328)

This invention has to do with an improvement in connectors for electrical wiring, particularly connectors designed for attachment to the terminals of bulbs such as are used on automobile headlamps or to the terminals of complete light projecting units of the type known as "Sealed Beam" headlamps. It may also be used to connect the ends of wires together wherever desired.

One type of connector heretofore developed consists of a suitable housing of insulating material containing one or more passages in each of which is secured a clip adapted to be fastened to the end of a conductor and comprising a pair of parallel sheet metal members or blades adapted to receive a terminal between them. In order to yieldingly press the blades against the terminal the ends of the blades through which the bulb terminal enters were doubled back upon themselves, the doubled-back portions bearing against the walls of the passage and tending to yieldingly press the blades toward each other to grip the terminal between them.

After considerable testing of connectors of the type described it was found that good contact could not be obtained for the blades tended to diverge instead of remaining parallel and gripping the bulb terminal. Also since they were necessarily made of material having good electrical conductivity such as copper, which is relatively soft, the blades became permanently deformed when the connector was pushed into position over the bulb terminal. The result was poor contact with accompanying drop in voltage and possible arcing.

I have found that this difficulty may be avoided by employing separate spring means for urging the blades toward each other. This spring means may take the form of coil springs made of steel wire or other resilient material, interposed between the blades and the walls of the passage. It has been found that with this construction good contact is obtained under all conditions encountered in service. The added cost is slight.

In the drawing:

Figure 1 is a side view of the connector applied to a lamp bulb.

Figure 2 is a composite sectional view showing the clip in two different positions in an insulator housing.

Figure 3 is an exploded view of the clip and the springs used with it.

In the drawing, 10 indicates a conventional incandescent lamp provided with spaced terminals indicated at 12. Each of the terminals is

preferably apertured as indicated at 14 in Figure 2.

16 indicates the connector consisting of an insulator 18 having one or more passages 20 there-through each having an abutment 22 extending into the passage toward one end. Passages 20 are provided with shoulders 24 at opposite sides thereof as indicated in Figure 2. 26 indicates a conductor for leading current to the connector. The conductor is provided with the usual covering of insulation indicated at 28. To the conductor is secured a clip 30 consisting of a sleeve portion 32 clamped about the insulation 28 and having reduced end portion 34 soldered to the end of conductor 26. This soldering may be easily accomplished by dipping the conductor with clip attached in molten solder. 36 indicates blades extending laterally from the cylindrical portion 32 and provided with return bent yielding portions 38 serving as detents as hereinafter pointed out.

In assembling the parts so far described, conductor 26—28 with the attached clip 32 is inserted in passage 20 from the right hand end as shown in Figures 1 and 2 until the ends of the return bent portions 38 snap behind the shoulders 24 and the clip engages abutment 22. In this position of the parts the clip is prevented from going through the passage 20 by engagement with abutment 22 and is prevented from being pulled out in the other direction by engagement of return bent portions 38 with shoulders 24.

With the construction described, difficulty has been experienced in obtaining good contact between the terminal 12 and the blades 36. I have found that this difficulty can be overcome by applying additional spring pressure to the blades 36 and have done this conveniently and cheaply by inserting coil springs 40 between the blades 36 and the walls of passage 20. These springs may be made of metal such as steel which is resilient and does not "take a set." A further advantage of this arrangement is the fact that the springs permit blades 36 to float to some extent in the passage 20. This is desirable inasmuch as the terminals 12 at the base of the bulb are not positioned with absolute accuracy in manufacture and the floating mounting of the clips insures that the connector will fit the terminals despite these variations.

If desired, provision may be made for anchoring the springs 40 in place as by provision of depressions or locating lugs in the passage 20 to receive them. It will usually be found desirable to provide pressed-out portion 44 on one of the blades 36 to snap into passage or depression 46 in the ter-

minal 12 so as to yieldingly hold the connector against separation from the terminals.

I claim:

1. A connector comprising an insulator having a passage therethrough provided with a shoulder intermediate its ends facing one end of the passage, and having a socket alongside the passage and parallel therewith, the end of said socket adjacent said end of the passage being closed, the opposite end of the socket being open and communicating laterally with said passage, a clip made of sheet metal and comprising an intermediate looped portion seated in the socket and aligned therewith and secured to a conductor extending from the open end of the socket, parallel blade members extending laterally from the looped portion into said passage and adapted to receive a terminal between them, one of said blade members being provided with a return-bent portion having its end engaged behind said shoulder to prevent withdrawal of the clip from the passage in the direction of the open end of the socket, a wall of the socket engaging said clip to prevent withdrawal of the clip in the opposite direction, and spring means engaging said blades and yieldingly urging them into engagement with each other.

2. A connector comprising an insulator having

a passage therethrough provided with opposed shoulders intermediate its ends facing one end of the passage, and having a socket alongside the passage and parallel therewith, the end of said socket adjacent said end of the passage being closed, the opposite end of the socket being open and communicating laterally with said passage, a clip made of sheet metal and comprising an intermediate looped portion seated in the socket and aligned therewith and secured to a conductor extending from the open end of the socket, parallel blade members extending laterally from the looped portion into said passage and adapted to receive a terminal between them, said blade members being provided with return-bent portions having their ends engaged behind said shoulders to prevent withdrawal of the clip from the passage in the direction of the open end of the socket, a wall of the socket engaging said clip to prevent withdrawal of the clip in the opposite direction, and spring means engaging said blades and yieldingly urging them into engagement with each other.

3. In the combination as defined in claim 2, said spring means engaging said blades at the ends opposite said looped portions.

HARRY C. DOANE.