Dec. 18, 1934. A. NELSON 1,984,540

CONNECTER

Filed Feb. 2, 1933

Fig. 1.

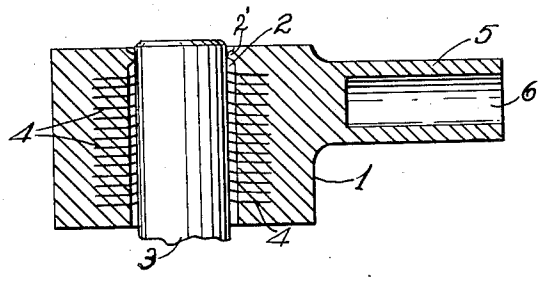


Fig. 2.

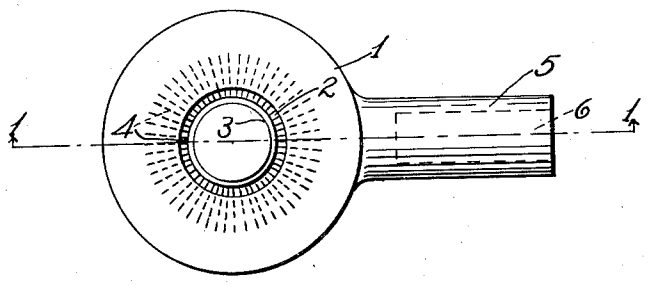
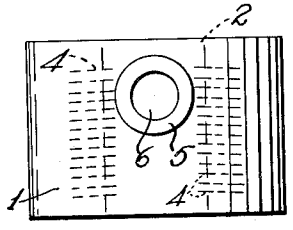


Fig. 3.



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CONNECTER

Axel Nelson, Great Neck, N. Y.

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9 Claims. (Cl. 173—259)

This invention relates to a connecter that can be readily applied and easily removed without the use of tools, but remains securely in place when in use. The invention is especially useful in making electrical connections although it may be successfully used to make other connections.

In carrying out this invention a member is provided with a hole or opening into which a second member, to which it is to be connected, projects. Resilient means, such as bristles, are attached to the first member and project into said hole or opening in such positions that they contact with said second member and prevent the two members from becoming accidentally disconnected. There are no screws or nuts to come loose. The members may, however, be separated by proper manipulation.

The invention will be specifically described in connection with a connecter for a battery terminal, although it is to be understood that the invention is capable of use in many other places.

In the accompanying drawing, Fig. 1 is a vertical section through an illustrative embodiment of the invention taken along the line 1—1 of Fig. 2; Fig. 2 is a plan view from the lower side thereof and Fig. 3 is a side elevation.

In the drawing, reference character 1 indicates a connecter that is a member or block that is provided with an opening 2. The opening 2 is indicated as being round in cross section and going entirely through the member 1, although this opening may be of other shapes such as oval, rectangular, etc., and may not extend entirely through the member 1. When the connecter is to be used for a battery or other electrical connecter it will be made of metal or other conductive material. Lead has been found to be especially suitable in this connection for making storage battery connecters, particularly when the battery terminals are also made of lead.

Bristles 4, or other forms of resilient material that are sharpened or pointed and are preferably non-corrosive or rustless, such as stainless steel, for example, are anchored to the connecter 1 and project a sufficient distance into the opening 2 to contact with the outer surfaces of the lug or terminal 3 when the connector is in place. The distances between the inner ends of bristles on opposite sides of the opening 2 are made less than the distance across the terminal 3 so that when the connecter is pressed down upon the terminal or this terminal enters the hole 2, the free ends of the bristles 4 will be sprung or bent sufficiently to permit the terminal to enter the hole. Any tendency to pull the connecter 1 off of the terminal 3 will cause the inner ends of the bristles 4 to tend to straighten and penetrate the terminal 3, thus placing the parts of the bristles inside the hole 2 in compression and preventing removal of the connecter. However, the connecter 1 can be removed by hand by turning it with respect to the terminal 3 while applying force to separate them as the ends of the bristles will thereby become sprung circumferentially allowing them to move spirally around the terminal to its outer end. The connecter may be used with terminals of considerable differences in size as the bristles 4 will merely be bent more with the larger size terminals, and will contact with the smaller sizes and keep the connecter in place so long as the terminals are large enough to strike the ends of bristles that are on opposite sides of the opening.

The bristles 4 may be made to slope slightly upwardly or opposite the direction the connecter 2 moves when it is being placed upon the terminal 3, thus making it easier to put the terminal on. These bristles may be embedded in the body of the connecter so as to extend generally in a radial direction as indicated in Fig. 2. This may be done, for example, when the metal to form the connecter is poured into the mold.

Even when the hole 2 extends entirely through the connecter 1, its outer end may be reduced as indicated at 2′ so that this portion fits the terminal closely and prevents entry of dirt into the hole 2.

The connecter 1 may be provided with a lug 5 having an opening 6 for an electrical wire. The wire may be connected to the lug 6 in any convenient way as by soldering, for example.

This connecter makes a better electrical connection than ordinary connectors as the ends of the bristles scratch off any film or layer of dirt or oil or other nonconducting material, that may be on the terminal, or will penetrate this film or layer and stick into the metal of the terminal so that the resistance to flow of current is decreased, with the numerous bristles carrying the current between the terminal and connecter. The connecter is not loosened by vibration as the ends of the bristles tend to work deeper into the terminal and maintain the mechanical and electrical contact securely.

I claim:

1. In combination, a connecter having an opening, the metallic bristles connected to said connecter and extending through the surface of said opening into said opening and pointing slightly toward one end of said opening, and a

lug in said opening with which the ends of said bristles contact.

2. In combination, a connecter having an opening, bristles connected to said connecter and extending through the surface of said opening into said opening in a substantially radial direction and a lug in said opening with which the ends of said bristles contact.

3. In combination, a connecter having a cylindrically shaped opening therein, bristles connected to said connecter and extending substantially radially into said opening, and a cylindrically shaped terminal extending axially into said opening, the diameter of said terminal being slightly greater than the distance between the ends of diametrically opposite bristles.

4. A connecter having a cylindrically shaped opening therein, the diameter of which is smaller at one place than at another, and metallic bristles connected to said connecter and extending substantially radially into said opening where the diameter is larger.

5. A connecter having a cylindrically shaped opening therein, and circumferentially and axially spaced metallic bristles individually spaced to form a plurality of rows connected to said connecter and extending substantially radially into said opening.

6. A connecter having a cylindrically shaped opening therein, and circumferentially and axially spaced metallic bristles connected to said connecter and extending substantially radially into said opening, the ends of said bristles all terminating substantially the same distance from the surface of said opening.

7. In combination, a connecter having an opening therein, metallic bristles connected to said connecter and extending substantially radially into said opening, a terminal extending axially into said opening, the size of said opening exceeding the size of said terminal slightly less than the amount said bristles extend into said opening.

8. In combination, a connecter having an opening therein, metallic bristles connected to said connecter and extending substantially radially into said opening, a terminal extending axially into said opening, said terminal being slightly smaller than said opening and said bristles extending across the space between said terminal and the wall of said opening.

9. In combination, a connecter having an opening therein, metallic bristles connected to said connecter and extending substantially radially into said opening, a terminal extending axially into said opening, the size of said terminal being such that said bristles are bent when said terminal enters said opening.

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