H. B. SHERMAN.

ELECTRICAL CONDUCTOR TERMINAL CONNECTOR.

APPLICATION FILED JULY 8, 1920.

1,437,687. Patented Dec. 5, 1922.

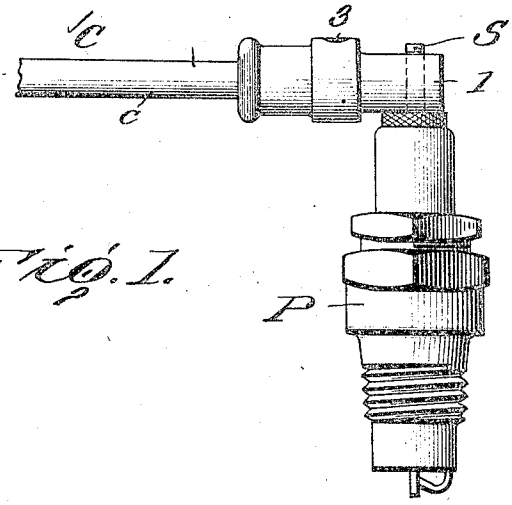

FIG. 1.

FIG. 2.

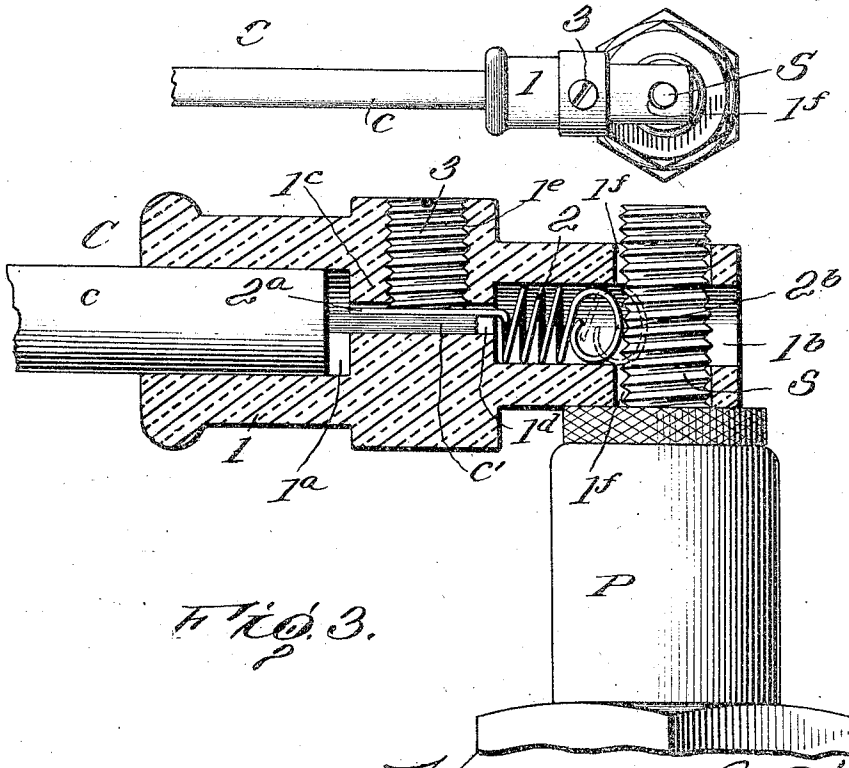

FIG. 3.

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UNITED STATES PATENT OFFICE.

HOWARD B. SHERMAN, OF BATTLE CREEK, MICHIGAN.

ELECTRICAL CONDUCTOR TERMINAL CONNECTOR.

Application filed July 8, 1920. Serial No. 394,660.

To all whom it may concern:

Be it known that I, HOWARD B. SHERMAN, a citizen of the United States, residing at Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Electrical Conductor Terminal Connectors; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is a novel electrical terminal connector for spark plugs. Its objects are to provide a very simple connector, which can be handled without danger of shock; that can be quickly applied to the plug, and readily removed therefrom; that will enable the operator to readily test the spark before connecting the plug; which will have no delicate or soldered parts liable to break or become unreliable; and which when applied will make excellent electrical contact; and will not be easily dislodged by jarring.

The invention consists in the novel construction of the terminal connector one practical embodiment of which is shown in the accompanying drawings and hereinafter described; the features and combinations of parts for which protection is desired are set forth in the claims.

In said drawings:

Fig. 1 is a side view of the terminal connector engaged with a spark plug.

Fig. 2 is a top view of Fig. 1.

Fig. 3 is an enlarged vertical section showing the interior construction of the connector.

The terminal connector as shown consists practically of but three pieces, to wit—a sleeve preferably made of hard rubber, bakelite, or like good electrical insulating substance; a helical spring contact member; and a screw, which fastens the conductor to the sleeve and also secures the contact spring in position in the sleeve, and also establishes a good electrical contact between the contact spring and the conductor.

The sleeve 1 has a socket 1^a in one end for the reception of the end of an ordinary electrical conductor C, which is usually provided with an insulating cover *c*. Within the other end of the sleeve is a bore 1^b in which is placed the spring contact member 2; the socket 1^a and bore 1^b are separated by a partition 1^c through which is an aperture 1^d, in which the bared end *c'* of the conductor C is inserted; and in which also the shank or extension 2^a of the spring contact member 2 is inserted. The bared end *c'* of the conductor, and the shank 2^a of the contact member practically overlap and both are confined in this aperture 1^d and caused to closely contact each other by means of the screw 3, which is tapped through a threaded radial opening 1^e in the sleeve 1, as shown.

The sleeve 1 is also provided with a transverse opening 1^f in its end opposite the conductor, which opening diametrically transfixes the bore 1^b. The opening 1^f is for the reception of and engagement with the threaded terminal of an electrical device, such as an ordinary spark plug P, which may be of any suitable construction.

The spring contact and locking member 2 is shown as formed of a helical expansion spring, and has its inner end straightened to form the shank 2^a; and its outer end is bent into a ring 2^b, which is preferably arranged perpendicular to the axis of the coil, or at right angles to the spirals of the coil, as indicated in Fig. 3; and said spring is preferably secured in the sleeve so that the outer part of ring 2^b will lie in the plane of the axis of the opening 1^f and will also partially project into the said opening, and partially obstruct the same, as indicated in dotted lines in Fig. 3, so that when the opening 1^f of the terminal connector is slipped over the terminal S of the spark plug the part of the terminal S in the connector will contact with the ring 2^b and push the same inward compressing the spring, and the ring 2^b of the spring engaging the threads of the terminal S will lock the terminal connector thereon and effectively prevent casual disengagement of the terminal connector from the spark plug.

The simplicity of the device will be obvious on inspection of the drawings. The parts can be readily assembled. When screw 3 binds the bared end of the cable *c'* and the shank 2^a of the spring contact member 2 in position in the sleeve it ensures an excellent positive electrical contact therebetween.

The terminal connector can be readily applied to the terminal S of the spark plug by simply engaging the opening 1^f of the sleeve with the terminal S, and the ring 2^b

of spring 2 engaging this terminal retains the terminal connector securely in place; while permitting it to be readily disengaged by simply pulling the sleeve off the terminal S.

The operator can easily test the circuit before applying the terminal connector to the plug by slipping the socket end 1^b of the connector onto the terminal S until the latter contacts with the ring 2^b of spring 2, and observing whether a spark is produced or not.

What I claim is:

1. A terminal connector comprising a sleeve having a transverse opening near one end and an internal partition provided with an aperture to receive the bared end of a conductor; a coiled spring member having one end entered into the aperture in the partition, and having its other end projecting into the said opening and adapted to engage and form electrical contact with the terminal of an electrical device when such terminal is entered into the opening; and means to secure the bared end of the conductor and the end of the spring member in the aperture, substantially as described.

2. A terminal connector comprising a sleeve having a transverse opening near one end and an internal partition provided with an aperture to receive the bared end of a conductor; a coiled spring member having one end entered into the aperture in the partition, and having its outer end bent so that it lies in the plane of the axis of the transverse opening and projecting into the said opening, and adapted to engage and form electrical contact with the terminal of an electrical device, when such terminal is entered into the transverse opening; and a screw tapped through the sleeve and engaging the bared end of the conductor and the end of the spring member in the aperture in the partition to secure them in the sleeve.

3. A terminal connector comprising a sleeve having an internal partition and sockets on opposite sides thereof, said partition having an aperture for the reception of the bared end of a conductor inserted in one socket, and for the shank of a spring contact member inserted in the other socket; said sleeve also having a transverse opening in the end containing the spring member; a spring member having one end entered into the aperture in the partition, and its outer end projecting into the said opening, and adapted to engage and form electrical contact with the terminal of an electrical device when such terminal is entered into the transverse opening; and means engaging the bared end of the conductor and the end of the spring member in the aperture and retaining them in the sleeve.

4. A connector for the purpose specified comprising a sleeve having an internal partition and sockets on opposite sides thereof, said partition having an aperture for the reception of the bared end of a conductor inserted in one socket, and for the shank of a spring contact member inserted in the other socket; said sleeve also having a transverse opening in the end containing the spring member; a coiled spring member having one end entered into the aperture in the partition, and having its outer end bent so that it lies in the plane of the axis of the transverse opening and projecting into the said opening, and adapted to engage and form electrical contact with the terminal of an electrical device when such terminal is entered into the transverse opening, and a screw tapped through the sleeve and engaging the bared end of the conductor and the end of the spring member in the aperture, substantially as described.

In testimony that I claim the foregoing as my own, I affix my signature.

HOWARD B. SHERMAN.