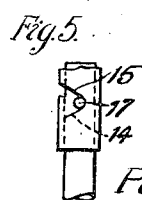
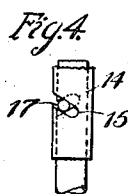
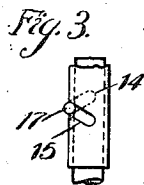
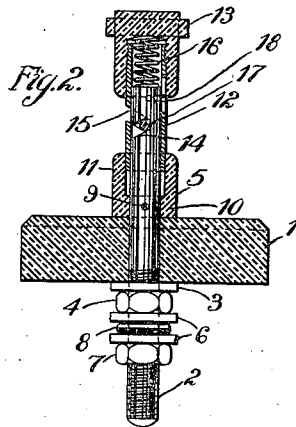
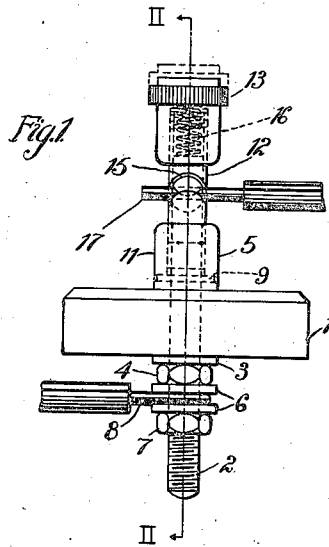


P. M. HENGSTENBERG.
 TERMINAL.

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1,437,103.

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WITNESSES:

J. A. Munn
Fred. H. Miller

INVENTOR

Paul M. Hengstenberg

BY

Wesley E. Carr
 ATTORNEY

UNITED STATES PATENT OFFICE.

PAUL M. HENGSTENBERG, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO WEST-
INGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENN-
SYLVANIA.

TERMINAL.

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To all whom it may concern:

Be it known that I, PAUL M. HENGSTENBERG, a citizen of the German Empire, and a resident of Wilkesburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Terminals, of which the following is a specification.

My invention relates to terminal devices for conductors and particularly to terminal devices that are adapted for use in connection with electrical measuring instruments.

One object of my invention is to provide a terminal device of the above-indicated character that shall be rugged and durable in construction and simple and effective in operation.

Another object of my invention is to provide a terminal device that shall automatically effect a wiping or cleaning engagement with a conductor during the operation of attaching the latter thereto.

A further object of my invention is to provide a terminal device that, by a simple pressing operation thereof, shall position certain parts of the same to receive a conductor, when the latter is placed against the side of the device, and, by release of the said device, it shall automatically and securely grip the conductor in position.

In practicing my invention, I provide a terminal device comprising two relatively-longitudinally-movable telescopically-related members having co-operating oppositely-diagonally-inclined side openings for the reception of a conductor. The arrangement permits the conductor to be positioned by a lateral movement thereof into the terminal openings without recourse to the difficult operation of threading the same through a small opening or the necessity of bending the conductor. The arrangement is also such as to automatically clean the conductor by slightly abrading the same at its points of contact with the terminal during the operation of inserting it in the latter. Further, the device employs no separable parts that are liable to be lost and may be operated, without the use of tools, to

insure a good mechanically-gripping and electrical contact between the same and the conductor.

Figure 1 of the accompanying drawings is an elevational view of a terminal device embodying my invention; Fig. 2 is a view of the same, partially in elevation and partially in section, the view being taken at right angles to Fig. 1, along the line II—II, and Figs 3, 4 and 5 are detail views of a portion of the device shown in Figs. 1 and 2, illustrating three stages of the operation of attaching a conductor.

An insulating supporting member 1 of slate, fiber, or other suitable material that may constitute a portion of a measuring instrument or other device (not shown), is provided with a partially screw-threaded rod 2 that extends through, and projects beyond, the respective sides thereof. A washer 3 and a screw-threaded nut 4 on the threaded portion of the rod 2 at one side of the member 1 and an insulating sleeve 5 on the rod at the other side of the member 1 secure the rod in rigid relation to the member 1. Washers 6 and a nut 7 secure one end of a conductor 8 to the rod 2. A pin 9, extending through the rod 2 and sleeve 5, or other suitable means, may be utilized to secure these parts rigidly together.

The sleeve 5 has a portion 10 of such internal diameter as to snugly fit the rod 2 and a portion 11 of such larger internal diameter as to slidably embrace a sleeve 12. The sleeve 12 telescopically engages one end of the rod 2 with which it is adapted for relative longitudinal movement and extends beyond the end of the same to a point where it is engaged, in screw-threaded, or other rigid, relation, with an insulating knurled-head knob 13 of fiber or other suitable material.

At a point within the sleeve 12, the rod 2 is provided with a diagonal slot 14 and the sleeve 12 has a similar slot 15 that is inclined in a direction opposite to that of the slot 14. A spring 16, disposed in the sleeve 12 between one end of the rod 2 and the knob 13, normally biases the sleeve so that

the slots 14 and 15 are longitudinally displaced, the limit of said displacement being determined and separation of the sleeve from the rod prevented by a pin and slot connection 18.

When it is desired to connect a conductor 17 to the device, the knob 13 is pressed toward the rod 2 until the entrances to the slots 14 and 15 register (Fig. 3). In this position, the inner ends of the slots are longitudinally displaced. By placing the conductor 17 against the device at the registering entrances of the slots 14 and 15 and releasing the knob 13, the conductor is automatically carried to the inner ends of the slots 14 and 15, where it is securely gripped by the surrounding metal (Figs. 1, 2 and 5). During the progress of the conductor from its outer to its inner positions, with respect to the slots 14 and 15, it is so frictionally engaged by the rod and the sleeve, by reason of the opposite inclination of the slots and the pressure exerted by the spring 16, as to become relatively clean (Fig. 4). This insures good electrical contact between the co-operating engaging surfaces of the conductor with those of the rod and the sleeve. By reason of the final relation of the sleeve and the rod that may be provided with relatively sharp edges around the slots 14 and 15, a positive mechanical connection and a clean, intimate electrical connection are effected between the terminal device and the conductor.

While I have shown and described a particular form of my invention, changes may be effected therein without departing from the spirit and scope thereof, as set forth in the appended claims.

I claim as my invention:

1. An electrical terminal device comprising an elongated member having a diagonal cut-away portion or opening extending from a position adjacent to its longitudinal axis through a side thereof, a member longitudinally slidable relative to said first member and having a cooperating similar diagonal opening oppositely inclined with respect to said first opening, and self-contained means for moving said members relatively.

2. An electrical terminal device comprising an elongated member having a diagonal cut-away portion or opening extending from a position adjacent to its longitudinal axis through a side thereof, a member longitudinally slidable relative to said first member and having a cooperating similar diagonal opening oppositely inclined with respect to said first opening, and means for permitting the outer entrances of said openings to be moved into register for the insertion of a conductor and for binding the conductor in good electrical contact between said members.

3. An electrical terminal device comprising an elongated member having a diagonal cut-away portion or opening extending from a position adjacent to its longitudinal axis through a side thereof, a member longitudinally slidable relative to said first member and having a cooperating similar diagonal opening oppositely inclined with respect to said first opening, and resilient means permitting the entrances to said openings to be placed in register for the insertion of a conductor and for automatically moving the conductor to binding position between said members when the resilient means is released.

4. An electrical terminal device comprising longitudinally relatively movable telescopic members having co-operating cut-away portions or openings extending diagonally in opposite directions from positions adjacent to the longitudinal axis of the device through sides of the respective members, and means for permitting said portions to be moved into register at the entrances thereof to receive a conductor and for binding the conductor in good electrical contact with said members adjacent to the inner ends of said portions.

5. An electrical terminal device comprising a central member, a tube disposed thereover, said members having co-operating transversely extending side slots that are registerable to admit a conductor simultaneously into both slots laterally from one side of the device and each of said slots having its transverse extremities longitudinally displaced on the device for locking the conductor against lateral withdrawal through said slots, and means for moving said members longitudinally relative to each other to clamp and release the conductor.

6. An electrical terminal device comprising an elongated central member, a tube telescopically mounted thereon, said members having co-operating cut-away portions or openings extending diagonally from intermediate positions thereof through sides of the respective members, which admit an intermediate portion of a conductor laterally into both of said openings when the members have a certain longitudinal relation and which are shaped to prevent the lateral withdrawal of the conductor when the members are in a certain other longitudinal relation, and self-contained means for moving said members relatively.

7. An electrical connector comprising an elongated member having a diagonal cut-away portion or opening extending from a position adjacent to its longitudinal axis through its side walls, a sleeve slidably embracing said member and having a co-operating similar diagonal cut-away portion oppositely inclined with respect to the cut-

away portion on said member, and a spring co-operating between said member and said sleeve to normally maintain the entrances to said cut-away portions out of register, the arrangement permitting, by relative movement of said member and said sleeve against the action of the spring, the outer ends of said cut-away portions to register to receive a conductor and, by releasing said member and said sleeve, to permit the conductor to be automatically moved to the inner ends of the cut-away portions where it is clamped in position.

In testimony whereof, I have hereunto subscribed my name this 1st day of August, 1918.

PAUL M. HENGSTENBERG.