F. KUHN & F. E. SHAILOR.

HANDLE AND TERMINAL CONNECTION FOR ELECTRICALLY HEATED INSTRUMENTS.

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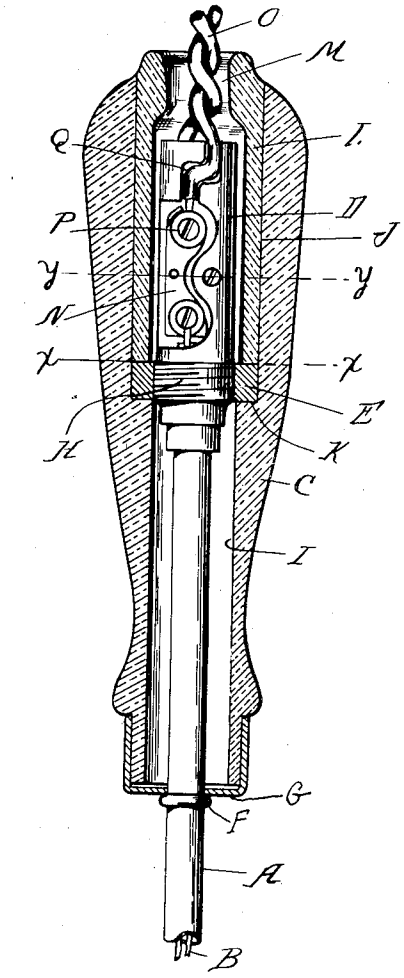


Fig. 1.

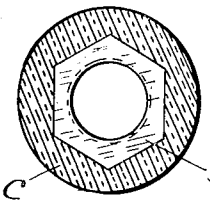


Fig. 2.

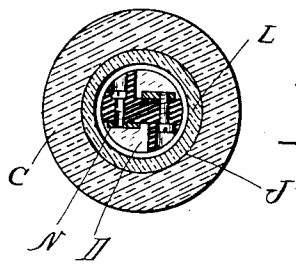


Fig. 3.

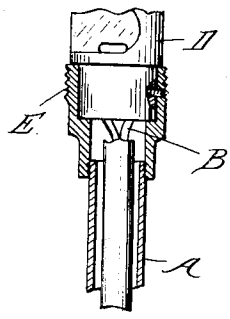


Fig. 4.

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HANDLE AND TERMINAL CONNECTION FOR ELECTRICALLY-HEATED INSTRUMENTS.

1,154,415. Specification of Letters Patent. Patented Sept. 21, 1915.

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To all whom it may concern:

Be it known that we, FRANK KUHN and FRANK E. SHAILOR, citizens of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Handle and Terminal Connections for Electrically-Heated Instruments, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to electrically heated instruments and more particularly to electrically heated tools, such for instance as soldering irons.

It is the object of the invention to obtain a construction of handle and terminal which may be securely fastened to the instrument and in which the electrical connectors are thoroughly insulated and protected.

In the drawings: Figure 1 is a longitudinal section through the handle and terminal connection; Fig. 2 is a section on line *x*—*x* Fig. 1 and Fig. 3 is a section on line *y*—*y*; and Fig. 4 is a longitudinal section showing the connection between the terminal block and shank.

A is a tubular shank connected to the electrically heated instrument (not shown), B are the electrical conductors passing outward through the tubular shank A, C is a hollow handle into which the shank is inserted, and D is an insulator terminal block at the end of the shank located within said hollow handle.

To securely fasten the handle to the shank without interfering with the electrical connections we have devised the following construction: E is a threaded collar secured to the end of the tubular shank. F is a bead or shoulder on the shank forming an abutment for a ferrule or cap member G which engages the inner end of the handle. H is a nut threaded for engagement with the collar E and located in a recess within the hollow handle. This recess is formed by boring the handle throughout its length as indicated at I and counterboring the outer end thereof at J to form a shoulder K against which the inner face of the nut abuts. The nut is preferably hexagonal or polygonal and is inserted in this counterbore, which is then filled by a hollow plug L. The space within this plug is sufficient to receive the terminal block D, and has a contracted orifice M at its outer end through which the terminal conductors O pass outward from the handle. The block D is preferably formed of fiber or other insulating material having suitable terminal plates N and binding screws P for attaching the conductors.

With the construction as described the parts may be assembled by inserting the block D and shank A into the inner end of the hollow handle C until the threaded collar E engages the nut H. By then turning the handle the nut may be screwed down upon the collar until the ferrule G is clamped against the inner end of the handle. Before inserting the block D into the handle the terminal conductors may be secured thereto and the flexible cord which passes outward from the handle may be threaded through the aperture N in the plug L. Thus the parts may be very easily assembled and cannot become accidentally detached, while at the same time the electrical connections are not subjected to any stress or twisting.

To secure the terminal block D to the shank A the collar E is preferably recessed to receive the inner end of said block, as shown in Fig. 4. The block D is also provided with angle bent channels Q through which the separate strands of the terminal conductor pass and which serve to mechanically connect said strands to the plug without the necessity of a knot.

What we claim as our invention is:—

1. The combination with a hollow shank having terminal conductors passing therethrough, of an insulating terminal block mounted upon the end of said shank, a hollow handle for receiving said shank and terminal block, and a nut within said handle and spaced from the ends thereof for engaging a threaded portion of said shank.

2. The combination with a tubular shank, of terminal conductors passing therethrough, a threaded collar at the end of said shank, an insulator terminal block mounted upon said collar, a shoulder on said shank, a ferrule abutting against said shoulder, a hollow handle for receiving said terminal block and a portion of said shank having its inner end fitting within said ferrule, and a nut within said hollow handle engaging said threaded collar.

3. The combination with a tubular shank, of terminal conductors passing therethrough, a threaded collar at the end of said

shank, a terminal block mounted on said collar and connected to said conductors, a shoulder on said shank, a ferrule abutting against said shoulder, a hollow handle for receiving said block and a portion of the shank, a nut engaging a counterbore in the outer end of said handle and engageable with said threaded collar, and a hollow plug for filling the end of said counterbore.

4. The combination with a hollow shank, of a threaded collar at the end of said shank and recessed in its end, a terminal block engaging the recess in said collar, a flexible conductor connected to said terminal block and extending outward therefrom, a hollow handle adapted to receive said terminal block and a portion of said shank, a nut in said hollow handle for engaging said threaded collar, and an apertured plug for closing the end of said hollow handle and forming an outlet orifice for the passage of said flexible conductor.

5. The combination with a hollow handle, of a tubular shank extending into the handle, conductors passing through said shank, an insulating terminal block mounted upon the shank within the handle, and an apertured plug inserted in the outer end of the handle inclosing the insulating block and providing an outlet orifice for conductors extending from said block.

6. The combination with a hollow shank having terminal conductors passing therethrough, of a hollow handle into one end portion of which said shank is inserted, a terminal block inserted in the other end portion of the handle, and means for interengaging the terminal block and shank while inserted in the handle.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK KUHN.
FRANK E. SHAILOR.

Witnesses:
JAMES E. DUFFEY,
HARRY W. LUYCKX.