May 24, 1927. 1,630,166

H. CATLIN ET AL

CONNECTER

Filed April 13, 1922

Fig. 1.

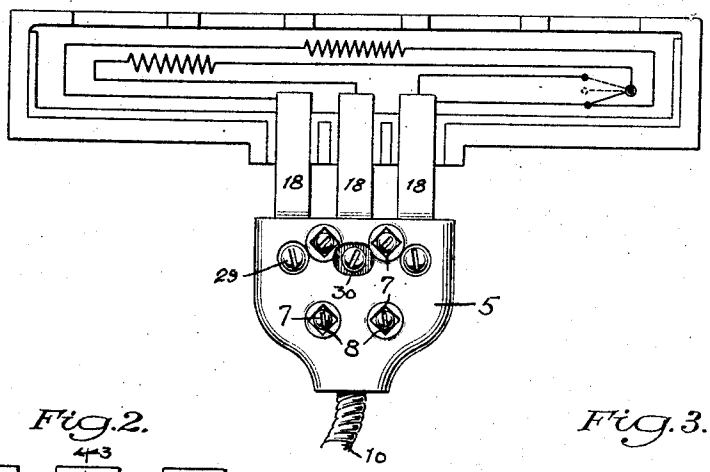


Fig. 2.

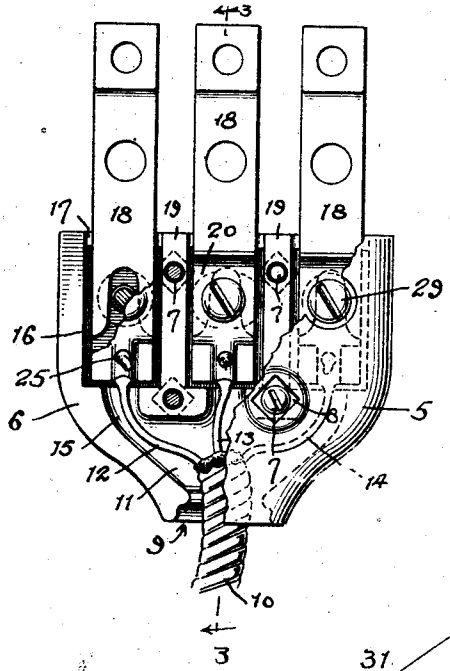
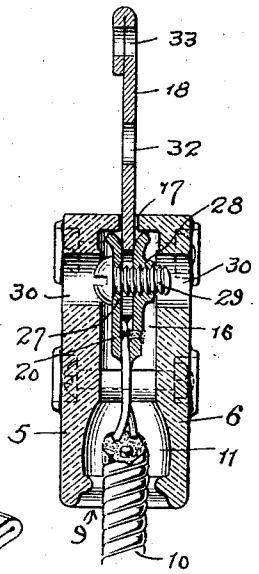


Fig. 3.



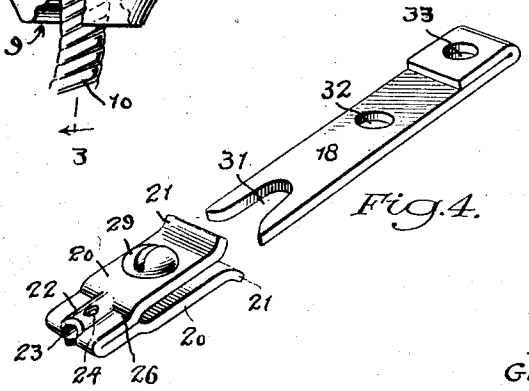


Fig. 4.

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UNITED STATES PATENT OFFICE.

HOYT CATLIN, OF FAIRFIELD, AND GEORGE B. THOMAS, OF BRIDGEPORT, CONNECTICUT, ASSIGNORS TO THE BRYANT ELECTRIC COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

CONNECTER.

Application filed April 13, 1922. Serial No. 552,099.

Our invention relates to connecters, and particularly to a device for establishing a detachable, but practically permanent, electrical connection between the feed mains and a current utilizing device, such for example as a heating unit of an electric range or the like. The object of our invention is to provide a rugged connecter of the type mentioned, in which the current carrying elements are properly insulated from each other and provided with suitable means for establishing a workmanlike and efficient electrical connection between the contacts of the connecter and the cooperating terminals of the current utilizing device, the connection being such that the connecter is also mechanically supported or suspended from the terminals of the current utilizing device when installed.

In the accompanying drawings—

Fig. 1 is a side elevation of a connecter in which our invention is embodied in one form, associated with the terminals of a heater unit, which is illustrated merely diagrammatically;

Fig. 2 is a broken side elevation of the connecter and the associated terminals of the heater unit drawn to a larger scale;

Fig. 3 is a section on the line 3—3, Fig. 2; and

Fig. 4 is a perspective of a connecter contact and a terminal for the heater unit, detached.

In electric range installations, it is necessary to establish connections between the wire mains and the several heating units of the range. Such connections have commonly been soldered, since the installation remains undisturbed until the heating unit becomes defective and needs replacement. When this occurs the soldered connection to the mains must be broken and remade with the terminals of the substituted unit. Such a repair job is frequently poorly done by unskilled or improperly equipped workmen, and the resulting installation is imperfect. The present connecter, designed for carrying heavy heating currents, eliminates the necessity for soldered joints, and substitutes a detachable but rigid engagement of the terminals of the heater unit by the connecter contacts, providing thus not only a good electrical, but also a firm mechanical, connection, while still retaining the advantage of ready detachability for replacement of the heater unit.

As here indicated, the connecter comprises a pair of complementary insulating blocks 5 and 6 of identical construction, united by a group of bolts 7, which pass through registering apertures in the two blocks, and the heads and nuts of which are seated in countersunk recesses 8 in the outer faces of the blocks. The adjacent faces of the latter are recessed at one end to afford a wire entry aperture 9 for the cable 10. This aperture 9 opens to a chamber 11 adapted to accommodate a strain relief device or knot (not shown), and to afford room for the branching of the cable wire strands 12, 13 and 14 to the separate channels 15, through which they are led to the separate contact chambers 16. The ends of the blocks adjacent the chambers 16 are notched in register to afford spaced guide apertures 17 through which the terminals 18 of the heater unit enter the contact chambers. It will be noted that the branch wire channels 15, chambers 16, and the guide apertures 17 are formed and spaced apart by barrier ribs 19, through which the screw bolts 7 pass, and further that the blocks 5 and 6 are symmetrically shaped—and may thus be molded in the same dies.

Within each of the chambers 16 is arranged a clamp contact 20 of such dimensions that a certain freedom of displacement in its chamber is permitted. The several clamps 20 may thus accommodate themselves within certain limits, to the varying spacement of the jack terminals 18 of the heater unit on which they are rigidly mounted. Each clamp 20 may be formed as shown, from a strap bent back upon itself and having its free ends spaced apart and flared at 21 to form a pair of jaws with guide lips, which facilitate the entry of the cooperating jack 18 between the jaws. At the bent end of the contact it is ribbed on opposite faces to form a channel 22 which leads from the end apertures 23 through which one of the branch wires 12, 13 or 14 may be introduced. Connection at this point may be made in any suitable way, but we prefer to braze the lead to the terminal. A hole 24 in one of the ribs 22 may be used for the

introduction of a flux, or other brazing material.

The contact plates 20 are offset at 26 to space the jaws apart a sufficient distance to receive the jack terminals 18 therebetween. Their offset portions are also pierced in register at 27, and a boss 28 may be formed on one of the jaws at the hole 27 which is tapped to receive the clamping screw 29. In assembled position within the insulating body of the connecter, the clamping screws 29 of the several terminals, register with holes 30 piercing the insulating blocks 5 and 6, and through which access may be had thereto. It will be noted (Fig. 3) that the same are of such length that the ends lie below the faces of the blocks so that the danger of accidental contact therewith is minimized.

The cooperating jack terminals 18 of the heater units are formed from straps notched at 31 to form a fish tail end adapted to enter between the plates 20 of the connecter contact, and to straddle the shank of the clamping screw 29. At their opposite ends the jack terminals 18 are apertured at 32 and 33 to receive respectively any appropriate means for mounting the same in the heater units, and establishing connection with one or the other of the resistances of the unit.

The details of shape and form of the connecter parts may be variously modified without departing from what we claim as our invention. In whatever form the parts are made, they should be such that the contact clamping screws 29 are protected from exposure by being located below the surface of the insulating blocks 5 and 6. The terminals 20 should also be loosely assembled in their respective chambers in the insulating housing so that they may be readily lined up with the associated jack terminals of the heater unit regardless of variation in the spacing of the heater, such as is a common incident to the manufacture of the latter. Inasmuch as the terminals 18 of the heating unit project downward from the bottom thereof, as indicated, the construction of the connecter should be such that its contacts 20, by reason of their rugged character, the strong threaded boss 28 and its associated heavy clamping screw 29, and the extended bearing surface of the fish tail end of the terminals 18, afford a rigid clamping engagement between these points, which not only establishes perfect electrical connection, but also unites the same mechanically with such security that their accidental separation is a practical impossibility. If the connecter is marketed with the wires of cable 10 attached to the contacts, the insulating body blocks 5 and 6 may be permanently united by waxing-in the heads and nuts of the securing bolts 7, leaving only the clamping bolts 29 accessible.

We claim as our invention—

1. A connecter comprising an insulating body recessed to afford a plurality of contact chambers with guide slots opening thereto from one end of said body, contacts arranged in said chambers, each of said contacts comprising a strap of sheet metal folded back upon itself to form a pair of jaws spaced to receive between them an inserted jack terminal, together with a clamping screw passing through said jaws to clamp them upon the inserted jack, the body being apertured in register with said clamping screw to afford access thereto.

2. A connecter comprising an insulating body recessed to afford a plurality of contact chambers with guide slots opening thereto from one end of said body, contacts arranged in said chambers, each of said contacts comprising a strap of sheet metal folded back upon itself to form a pair of jaws spaced to receive between them an inserted jack terminal, together with a clamping screw passing freely through one of said jaws and screwing into the other to clamp said jaws upon the inserted jack, the body being apertured in register with said clamping screw to afford access thereto.

3. A connecter comprising an insulating body recessed to afford a plurality of contact chambers with guide slots opening thereto from one end of said body, contacts arranged in said chambers, each of said contacts comprising a strap of sheet metal folded back upon itself to form a pair of jaws spaced to receive between them an inserted jack terminal, together with a clamping screw passing through said jaws to clamp them upon the inserted jack, the body being apertured in register with said clamping screw to afford access thereto, and surrounding said screw in clamping position to prevent accidental contact therewith.

4. A connecter comprising an insulating body recessed to afford a plurality of contact chambers with guide slots opening thereto from one end of said body, contacts arranged in said chambers, each of said contacts comprising a pair of jaws spaced to receive between them an inserted jack terminal, together with a clamping screw passing through said jaws to clamp them upon the inserted jack, the body being apertured in register with said clamping screw to afford access thereto, in combination with jack terminals having fish-tail ends straddling said clamping screws in inserted position.

In testimony whereof we have signed our names to this specification.

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GEORGE B. THOMAS.