J. AMON.

ELECTRIC CIRCUIT TERMINAL.

APPLICATION FILED JAN. 28, 1913.

1,174,027. Patented Feb. 29, 1916.

Fig. 1.

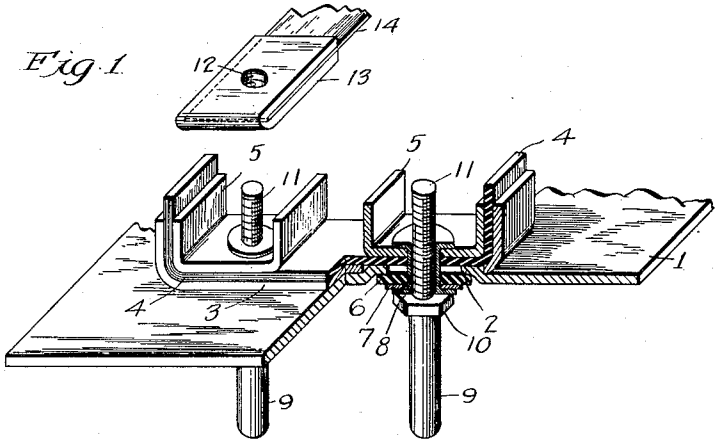


Fig. 2.

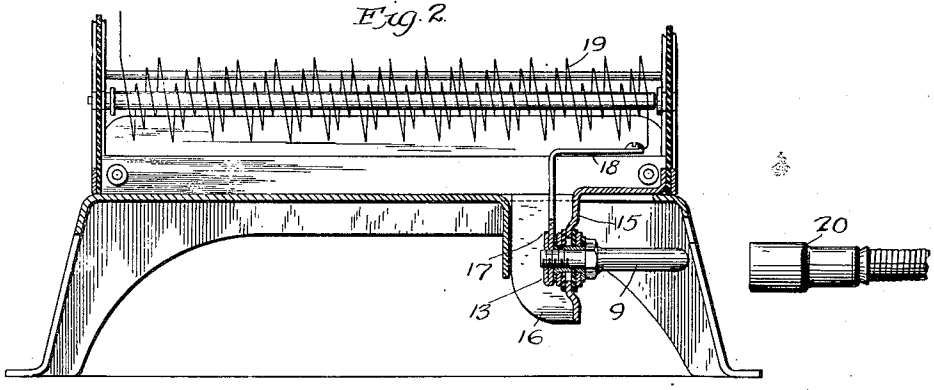


Fig. 4.

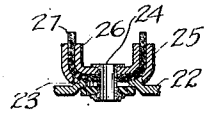


Fig. 3.

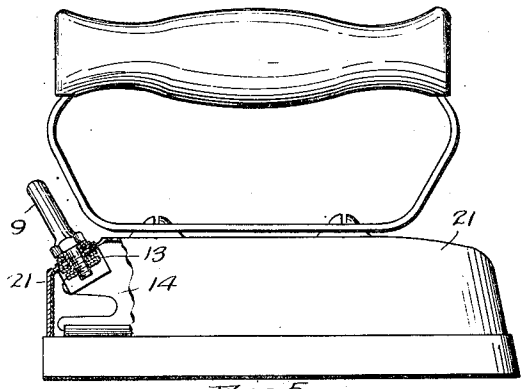


Fig. 7.

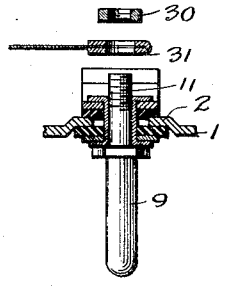


Fig. 6.

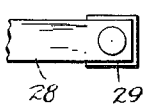


Fig. 5.



WITNESSES

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ELECTRIC-CIRCUIT TERMINAL.

1,174,027. Specification of Letters Patent. Patented Feb. 29, 1916.

Application filed January 28, 1913. Serial No. 744,739.

To all whom it may concern:

Be it known that I, JOSEF AMON, a subject of the Emperor of Austria-Hungary, and a resident of the city of New York, in the county of Bronx and State of New York, (whose post-office address is 972 Morris avenue, Bronx,) have invented new and useful Improvements in Electric-Circuit Terminals, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to electric circuit terminals.

One of the objects of the invention is to provide an improved electric terminal construction.

Another object is to provide a simple terminal construction in which the parts are thoroughly insulated and positively held in proper assembled relation.

Another object is to provide an improved electric terminal in which the terminal pins may be readily connected to electric conductors.

Other objects and advantages of the invention will hereinafter appear.

In the accompanying drawings I have illustrated several embodiments of the invention.

Figure 1 is a perspective view partly in section of a two pole terminal showing how the parts are assembled. Fig. 2 is a sectional elevation of part of an electric toaster showing the relation of the terminal mounting to a device of this character. Fig. 3 is an elevation partly in section of a laundry iron showing how the terminals are mounted thereon. Fig. 4 is a section of a one pole terminal mounting. Fig. 5 is a section of a four pole mounting. Figs. 6 and 7 are views of modified details.

In Fig. 1, I have shown a suitable supporting element 1, which in practice is usually a metallic plate. Said plate has a plurality of circular bosses 2 formed by pressing the metal outwardly, thereby forming projections on one side and recesses on the other side of said plate, each boss having a circular opening therein. In the present instance I have illustrated two bosses, the number being determined by the number of circuit terminals which it is desired to mount on the supporting plate. A metallic strip or channel-shaped retainer 3 is provided, having openings therein large enough to receive said bosses which bosses thereby serve to locate said retainer and positively lock the same in position, thus preventing the retainer from sliding about on the supporting plate, even if not otherwise secured. In addition said retainer is firmly clamped to said plate, as hereinafter described. Said retainer is provided with an insulating lining preferably in the form of strips or sheets of mica 4 which are made to conform to the channel-shaped outline of said retainer, as clearly shown in the drawings. The ends of said mica strips project considerably beyond the corresponding ends of the retainer, as shown. A metallic U-shaped clip 5, having an opening therein, is arranged at each side of said channel, said opening being alined with a similar opening in said mica lining and also with the opening in the boss. Each clip is insulated from the metal retainer by the mica 4, the projecting ends of which prevent the accidental establishing of a circuit between the two. Said clips being located against the side walls of the channel, are prevented from turning, the advantage of this feature being apparent from the later description.

An insulating disk, which is preferably a mica washer, or washers 6, is arranged in each recess on the opposite side of the supporting plate. A metallic washer 7 is pressed against said mica washer to reinforce the same mechanically, said metal washer, however, being insulated from said plate. Metallic eyelets 8, having a diameter considerably less than the openings in the bosses, are arranged centrally in these openings with their opposite ends flanged over to firmly clamp in position the various parts heretofore described. Each of said eyelets is electrically insulated from the supporting plate by the mica insulation on opposite sides of said plate and also by the annular chamber or air space where the

eyelet passes through the bosses. Said eyelet, as will be seen, is not only firmly secured to said plate mechanically and thoroughly insulated therefrom, but is located in proper concentric position with respect to said bosses by reason of the peculiar interfitting and cooperation of the various metal and mica elements heretofore described. That is, the insulation 4 is prevented from movement by its outwardly turned ends which are clamped between the metallic clips 5 and the side walls of the metal channel 3, said latter channel being locked in position by reason of the fact that it fits over the projecting bosses. Furthermore, the mica washers 6 fit within the recesses on the under side of said bosses and hence also serve to center the metallic eyelet 8.

Contact pins or terminal pins 9 are provided, each having a shoulder 10 of polygonal outline constituting a nut, and a reduced screw-threaded extension 11, said screw-threaded extension passing loosely through the metallic eyelet 8 and being received within a screw-threaded opening 12 in the nut 13, formed by doubling over a strip of metal and clamping the same against opposite sides of the resistance element or conductor 14, said conductor being preferably in the form of a flat metallic ribbon. Each nut 13 is received loosely within the metallic clips 5 and is prevented from turning by the parallel walls thereof, whereby the terminal pin and the nut may be conveniently assembled by holding them on opposite sides of the supporting plate and screwing one into the other.

With the construction described, it will be seen that the terminal pins 9 may be very readily clamped to the supporting plate, which latter may be of any desired configuration. Furthermore, said pins are thoroughly insulated from said supporting plate and are positively locked thereto in the desired position. In order to detach said terminals, it is necessary merely to unscrew them from the outside of the structure on which they are mounted without having access to the interior.

Terminals mounted in the manner described are applicable to a great variety of uses and are particularly desirable and convenient in connection with electric heating devices in which the resistance wire or ribbon is usually inclosed or incased within some part of the device and it is desirable to mount the terminals in a convenient position for connection with an external circuit. As suggestive of some of the uses to which said terminals may be put, I have shown in Fig. 2 how said terminals may be mounted on the frame of an electric toaster, and in Fig. 3 I have shown them mounted on the casing of a laundry iron. In these figures, where the parts are identical with the various elements heretofore described, I have used the same reference characters, so that further detailed description will be unnecessary.

In Fig. 2 the supporting plate 15 forms a part of the toaster frame and has side wings or flanges 16 integral therewith, between which wings is fitted the U-shaped retainer plate 3, shown in Fig. 1. The terminal pins 9 have screw-threaded engagement with a nut 13 similar to that previously described, said nut, however, being formed by bending over the extremity of a metallic strip 18 to which the resistance wire 19 is secured. The plug or socket member 20 which is illustrated in this figure, may be of any suitable construction and, of course, is intended to connect the terminals 9 with an internal circuit.

In Fig. 3 the metallic casing 21 of the iron constitutes the supporting plate and has bosses pressed thereform in the manner previously described. The resistance ribbon 14 is similar to that described above and is connected in the manner illustrated in Fig. 1, the various details being the same as those shown in that figure. In the case of the laundry iron the entire casing may be lifted from the body of the iron and the inner side of the casing and the terminals may be inspected without disconnecting the contact pins from the resistance ribbon, said ribbon being bent back and forth as shown, thereby providing the necessary length. It will also be apparent how, when the iron is being assembled, the contact pins are readily screwed into position in engagement with the nuts 13, the casing being thereafter placed over the body of the iron, and secured in place.

In Fig. 4 I have illustrated a mounting for a one pole terminal. The plate 22 is provided with a boss 23 having an opening therein through which passes a metal eyelet 24, the latter securing a pair of U-shaped clips 25 and 26 in position, said clips being separated by mica sheets 27, the general arrangement being similar to that previously described.

In Fig. 5 I have illustrated a mounting for a multipole terminal which is in effect simply a duplication of the elements of the single pole terminal in Fig. 4. Accordingly the same reference characters have been employed to indicate corresponding parts, and the construction will be clear in view of the preceding description. Although in this figure I have illustrated a mounting for four terminals it is apparent that a greater or less number may be provided for readily.

In Fig. 6 I have illustrated a modified reinforcement for the conducting ribbon or

resistance. Said ribbon 28 is welded to a nut 29, preferably by electric-welding, said nut corresponding to the enlarged terminal 13 in Fig. 1. Said nut may be screw threaded or it may receive the screw threaded extension on the terminal pin loosely, an additional nut being employed to clamp the nut 29 in place. Such a construction is shown more clearly in Fig. 7 in which an additional nut 30 is employed. The remaining elements will be clearly understood, the terminal enlargement 31 being similar to that in Fig. 1 except that the hole therethrough is large enough to receive loosely the screw threaded extension 11. The terminal 31 is clamped in position by the nut 30.

The above modifications are merely suggestive of various changes which may be made in the constructions described. The invention of course is not limited to these embodiments but may be embodied in various other forms. By reference to an electric toaster and a flat iron I do not intend to limit myself to the application of the terminals to devices of this character as said devices are merely illustrative of certain desirable uses to which said terminals may be put. Accordingly I desire to cover all the various forms of the invention which fall within the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a mounting for circuit terminals, a supporting element, insulation on opposite sides thereof, an eyelet passing through an opening in said plate out of contact therewith and clamping said insulation to said plate, a conductor terminal on one side of said element, and a terminal stud passing loosely through said eyelet from the opposite side of said element and having screw-threaded engagement with said conductor terminal to provide a readily detachable connection.

2. In combination, a supporting plate having a boss pressed therefrom with an opening therein, a metallic terminal guide having an opening therein which fits over said boss to locate said guide, an eyelet for clamping said guide to said plate, and means for insulating said eyelet from said plate.

3. In a device of the character described, a supporting plate having a boss pressed therefrom with an opening therein, a metallic terminal guide having an opening therein which fits over said boss to locate said guide, an eyelet for clamping said guide to said plate, means for insulating said eyelet from said plate, a contact pin passing loosely through said eyelet, and a conductor terminal for securing said pin in position.

4. A terminal mounting comprising a supporting element having openings therein, the metal surrounding said openings being pressed outwardly to form bosses, a channel-shaped carrier having openings therein registering with the openings in said support and of a size sufficient to receive said bosses whereby said carrier is located and held in position thereby, a plurality of channel-shaped clips each having an opening registering with one of said above mentioned openings, metallic eyelets passing through said alined openings and clamping said elements to said plate, and insulation interposed between said clips and said carrier and between said eyelet and said plate.

5. In combination, a supporting plate having a pair of openings therein, the metal surrounding each opening being pressed outwardly to form bosses, a channel-shaped carrier having openings within which said bosses are received, a pair of small channel-shaped metallic clips arranged one at each side of said channel, a strip of insulation covering the inner face of said channel and arranged between said channel and said clips, insulating washers on the opposite side of said plate arranged one on the under side of each boss, a metallic washer arranged against each insulating washer, and a metallic eyelet passing through each of the openings in said plate and serving to clamp the above group of elements to said plate.

6. In combination, a supporting plate having a pair of openings therein, the metal surrounding each opening being pressed outwardly to form bosses, a channel-shaped carrier having openings within which said bosses are received, a pair of small channel-shaped metallic clips arranged one at each side of said channel, a strip of insulation covering the inner face of said channel and arranged between said channel and said clips, insulating washers on the opposite side of said plate arranged one on the under side of each boss, a metallic washer arranged against each insulating washer, a metallic eyelet passing through each of the openings in said plate and serving to clamp the above group of elements to said plate, contact pins having reduced threaded extensions passing loosely through said eyelets, and resistance terminals having screw-threaded openings which receive said screw-threaded extensions, each terminal being received within one of said clips whereby it is locked against turning, said pins and said terminals being supported mechanically by said plate but electrically insulated therefrom.

7. In combination, a supporting plate having an aperture therein, an insulating washer on each side of said plate, said plate being formed so as to center one of said in-

sulating washers relative to said aperture, a metal washer coöperating with said formed portion to center the other insulating washer and means for uniting said parts adapted to removably receive an electric plug terminal.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

JOSEF AMON.

Witnesses:
GEO. B. JONES,
G. P. BROCKWAY.