May 16, 1933. H. H. WERMINE 1,909,140

CONNECTER FOR ELECTRIC APPLIANCES

Filed Aug. 14, 1929

Fig. 1

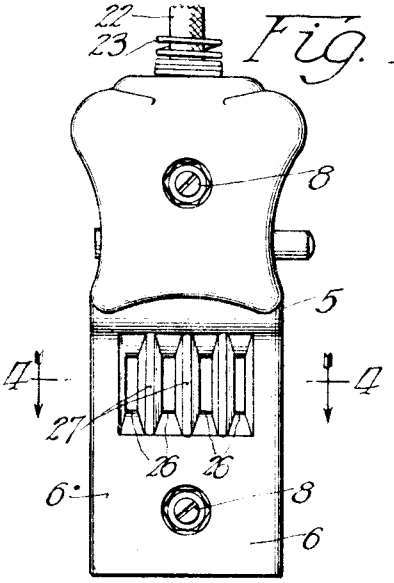


Fig. 2

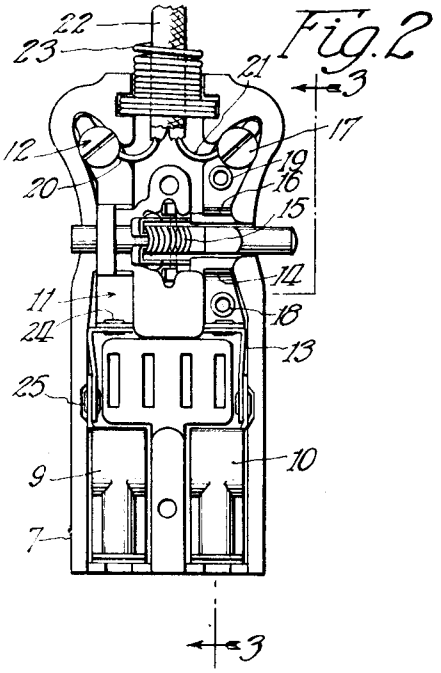


Fig. 3

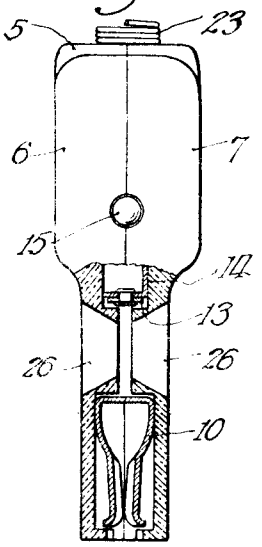
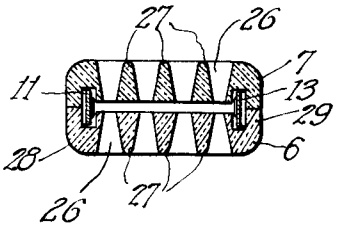


Fig. 4



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UNITED STATES PATENT OFFICE

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CONNECTER FOR ELECTRIC APPLIANCES

Application filed August 14, 1929. Serial No. 385,812.

This invention relates to electric connecters, and more particularly to that type of connecter which is used for electrically connecting a flexible electric conductor to an electric appliance such as a flat iron, waffle iron, toaster or other thermal electric device.

Conventional connecters, when used for the purpose above indicated, often become so hot that it is practically impossible to grasp the same to disconnect the appliance; also, the switch mechanism, the conductors and associated parts become overheated and thereby injured, or disabled, or difficult to operate.

The main objects of the invention are to provide a connecter in which means is provided for preventing the connecter body, or at least some part thereof, for instance, its upper end portion, from becoming too hot to be readily handled; to prevent overheating of the switch mechanism, conductors and other parts, and, in general, it is the object of my invention to provide an improved connecter of the class described.

Other objects and advantages of my invention will be understood by reference to the following specification and accompanying drawing wherein I have disclosed and illustrated an electric connecter embodying a selected form of my invention.

In the drawing:

Fig. 1 is an elevation.

Fig. 2 is an elevation, one body part being removed to expose the interior construction.

Fig. 3 is a side view, partly in elevation and partly in section, and

Fig. 4 is a section on the line 4—4 of Fig. 1.

Referring now to the drawing, my improved connecter comprises a main body 5 which is preferably made in halves or sections 6 and 7, as clearly shown in Fig. 3, the two sections being secured together in operative relation by suitable means, such as screws 8. The body parts are provided with suitable recesses for receiving clips 9 and 10 at one end, which clips are adapted to engage the terminals of an electric appliance. The clip 9 is connected by means of a connecter element 11 to a wire-receiving terminal or binding post 12, and the clip 10 is connected by means of a suitable connecter 13 to one post 14 of a switch mechanism 15 which is provided in the upper end portion of the body. Another switch post 16 is connected to a wire-receiving terminal or binding post 17.

In the present instance, the unit which consists of the clip 9, connecter 11 and wire terminal 12, is not fastened to the body but is merely positioned by being seated in recesses provided in the respective body parts and shaped so as to maintain the unit in proper position. The conductor unit consisting of the clip 10, connecter 13 and switch post 14 is secured in place in the body by means of a tublar rivet 18 which is molded in place in the body and swaged over a part of the unit through which it passes, as clearly shown in Fig. 2. The conductor unit, including the switch post 16 and wire terminal 17, is also anchored in place by means of a similar rivet 19. The conductor elements 10, 13, 14, 16 and 17 are also positioned by being seated in suitable recesses in the plug body. I find it desirable, however, to anchor these parts by means of the rivets 18 and 19 for the reason that the switch posts 14 and 16 should be rigidly maintained in place so that an efficient electric connection can readily be established therebetween by means of the switch element 15 which may conveniently be of the conventional over-the-center spring type.

The wire terminals 12 and 17 are adapted to receive flexible electric conductors 20 and 21 which are suitably insulated from each other, and by preference bound together to form a duplex conductor 22 which extends outwardly from the upper end of the connecter body. A spring element 23 may be provided and anchored in the body in any suitable manner for supporting the duplex conductor in accordance with well-known practice.

The connecter element 11, which extends between the clips 9 and terminal 12 is preferably made of flat strips of suitable metal of such size as to be capable of carry-

ing the maximum amount of electric current which is required to operate the device with which the connecter is used. This connecter element may be formed of a plurality of strip parts united together as by means of rivets 24 and 25, and being of a size as above indicated will not offer resistance to the passing of electric current whereby heating of the body due to this cause is eliminated. Likewise, the connecter elements 13, 14, 15 and 16 are made of flat straps of suitable metal, and of such size that there will be no heating due to electrical resistance.

For further preventing heating of the connecter body, or at least a part thereof, I provide the same with a plurality of openings as indicated at 26—26, which preferably extend through both sections of the body in alignment with each other, thereby forming a plurality of webs or ribs 27—27 in each body section. In practice, the body sections 6 and 7 are molded of suitable insulating material such as rubber, rubber compound, bakelite or other phenol condensation products. In molding the parts, the openings 26 are formed with beveled or inclined faces, as clearly shown in the drawing. The connecter body is in effect divided by the openings 26 into upper and lower body parts which are rigidly united by the ribs or webs 27, and also by spaced body parts 28 and 29 which enclose the connecter elements 11 and 13. The arrangement is preferably such that the cross-sectional area of the ribs 27 and connecter and closing parts 28 and 29 is small as compared with the total cross-sectional area of the upper or lower body parts. Transmission of heat by conduction from the lower part of the connecter body to the upper part is greatly retarded, if not practically eliminated, probably due to the radiation of heat from the webs and connecter enclosing parts. The webs and enclosing parts are also preferably so shaped that there will be a comparatively large surface area provided therefor whereby radiation of the heat from the said parts is greatly facilitated.

The conventional type of electric connecters such as above referred to becomes too hot to handle after a short while in use, due partly to absorption by the plug body of heat radiated from the electric appliance. However, in my opinion, a large part of the heat in the connecter body is transmitted thereto by conduction from the appliance through the usual contact or terminal pins which engage the clips of the connecter. Such heat as is conducted in this or any other manner to the lower or clip end of my improved connecter is effectively prevented from reaching the upper end portion by the above described means. The upper end portion of the body being thus maintained relatively cool may be conveniently and comfortably grasped at any time for the purpose of disconnecting the same from the appliance, and the switch mechanism and conductors are accordingly maintained comparatively cool.

I am aware that changes may be made in the above described structure without departing from the scope of my invention, the scope of which should be determined by reference to the following claims, the same being construed as broadly as possible consistent with the state of the art.

I claim as my invention:

1. In an electric connecter of the class described, the combination of a clip for engaging the terminal of an electric appliance, a wire terminal electrically connected to said clip by means of a conductor of low resistance, a connecter body enclosing said parts and provided with a plurality of fins or the like affording a comparatively large surface area, in proportion to the cross-sectioned area thereof, for radiating heat absorbed by said body.

2. In a connecter of the class described, the combination of a clip for engaging a terminal of an electric appliance, a wire-receiving terminal spaced from but electrically connected to said clip by means of a conductor of low resistance, a connecter body including spaced body parts for said spaced terminal and clip, and means connecting said parts, affording a comparatively large surface area in proportion to the cross-sectional area of said connecting means for preventing transmission of the heat absorbed by said clip body part to the other body part.

3. In a connecter of the class described, the combination of a clip for engaging a terminal pin of an electric appliance, a wire-receiving terminal spaced from but electrically connected to said clip, a casing for said parts, said casing being provided intermediate said clip and terminal with a plurality of openings extending through the casing, thereby dividing the casing into upper and lower portions having integral ribs connecting the same, said ribs providing a large surface area effective to radiate heat conducted thereby from said lower casing part towards said upper casing part, thereby maintaining said upper casing part cool relative to the temperature of said lower part.

4. In an electric device of the class described, the combination of upper and lower body parts, a pair of clips in the lower part for contacting with the terminals of electric appliance, a pair of wire-receiving terminals in said upper body part, spaced connecters extending between and connecting the respective wire terminals and clips, and spaced body parts formed integral with

and rigidly uniting said upper and lower body parts for enclosing said connecters, and one or more webs integral with and extending between said upper and lower body parts intermediate said connecter enclosing parts, with openings between said webs extending entirely through said device, said connecter enclosing parts and said webs being of comparatively small cross-sectional area so as to retard the transmission of heat from said lower body to said upper body part.

5. In an electric device of the class described, the combination of upper and lower body parts, a pair of clips in the lower part for contacting with the terminals of an electric appliance, a pair of wire receiving terminals in said upper body part, spaced connecters extending between and connecting the respective wire terminals and clips, spaced body parts, formed integral with and rigidly uniting said upper and lower body parts for enclosing said connecters, and one or more webs integral with and extending between said upper and lower body parts intermediate said connecter enclosing parts said webs being of comparatively small cross-sectional area and formed with relatively large outside surface area for radiating the heat which said parts tend to conduct from the lower body part to the upper body part, and said device having spaces extending entirely therethrough between said webs.

6. In a device of the class described, the combination of a pair of clips for engaging terminals of an electrical appliance, a pair of wire-receiving terminals, a casing enclosing said clips and terminals, conductor means connecting said clips with said terminals, said conductor means being disposed adjacent outer walls of said casing, and said casing being perforated adjacent and between said conductor means whereby air may circulate entirely through said casing, and at least one web-like member connecting opposite sides of said perforations for radiating heat.

7. In a device of the class described, the combination of a pair of clips for engaging terminals of an electrical appliance, a pair of wire-receiving terminals, a casing enclosing said clips and terminals, and conductor means connecting said clips with said terminals, said conductor means being disposed adjacent outer walls of said casing, and said casing having a plurality of perforations extending entirely through said casing between said conductor means, so as to provide web-like members for radiating heat.

8. In a device of the class described, the combination of a pair of clips for engaging terminals of an electrical appliance, a pair of wire-receiving terminals, a casing enclosing said clips and terminals, conductor means connecting the respective clips and terminals, said conductor means being disposed adjacent the outer walls of said casing, said casing being perforated adjacent and between said conductor means whereby air may circulate entirely through said casing, and a plurality of members extending away from a wall of said casing and lying within said perforation, said members being relatively high in surface area as compared with their cross sectional area so as rapidly to dissipate heat.

9. In a device of the class described, the combination of a pair of clips for engaging terminals of an electrical appliance, a pair of wire-receiving terminals, a casing enclosing said clips and terminals, conductor means connecting the respective clips and terminals, said conductor means being disposed adjacent the outer walls of said casing, said casing being perforated adjacent and between said conductor means whereby air may circulate entirely through said casing, and a plurality of members extending from opposite walls of said perforation, said members lying within said perforation and being of relatively high surface area as compared with their cross sectional area so as rapidly to dissipate heat.

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