

Jan. 6, 1942.

E. H. AYERS
TERMINAL CONDUCTOR
Filed Dec. 24, 1940

2,269,241

Fig. 1.

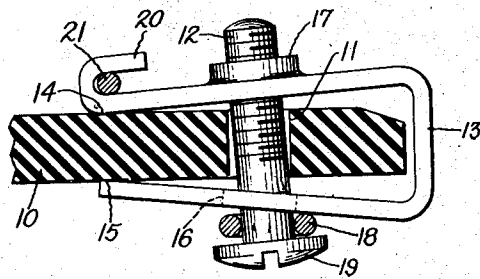
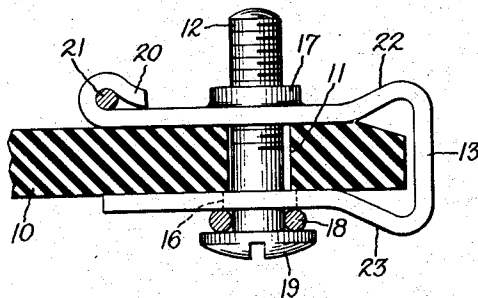


Fig. 2.



Inventor:
Edgar H. Ayers,
by *Harry E. Sundam*
His Attorney.

UNITED STATES PATENT OFFICE

2,269,241

TERMINAL CONDUCTOR

Edgar H. Ayers, Schenectady, N. Y., assignor to
General Electric Company, a corporation of
New York

Application December 24, 1940, Serial No. 371,493

4 Claims. (Cl. 173-259)

My invention relates to terminal conductors and is particularly applicable to binding posts for electric devices such as electric control apparatus, electric measuring instruments and the like.

The principal object of my invention is to provide a terminal of simple and inexpensive construction which may be readily and easily attached to and detached from an insulating base portion of an electric device.

My invention will be better understood, and further objects and advantages will be apparent, from the following description taken in conjunction with the accompanying drawing, in which Fig. 1 is a side elevational view, taken in section, of a terminal conductor embodying my invention; and Fig. 2 is a view similar to that of Fig. 1 showing the terminal conductor in clamping position.

Referring now to the drawing, the part 10 represents a portion of an insulating support for an electric device such as an electric control apparatus or measuring instrument. As shown, the insulating support 10 is provided with an aperture 11 for the reception of a binding screw 12. A resilient contact member 13 of conducting material is formed in the shape of a U having a base portion of greater length than the thickness of the support 10. By way of example, the length of the base portion may be approximately twice the thickness of the support 10. The sides of the U-shaped member 13 are not parallel in unclamped position, but are normally biased into converging relation with each other to such an extent that, when the member 13 is slipped over the end of the base portion 10, the extremities of its side portions exert a clamping action upon the support 10, as at 14 and 15 in Fig. 1. This clamping action is sufficient to insure the retention of the contact member 13 on the support 10 even though the binding screw 12 be removed. For reception of the screw 12 one side of the U-shaped member 13 is provided with an aperture 16 in alignment with the aperture 11 in the support 10. The opposite side of the member 13 is provided with a boss 17 having a threaded aperture therein to form a nut for the binding screw 12.

An incoming wire 18 is shown looped around the shank of the binding screw 12 between the head 19 of the screw and one side of the U-shaped contact member 13. A turned over portion 20 of the member 13 forms a hook adapted to receive a wire 21, which may be an outgoing

wire such as the end of an operating coil of an electric device. As shown in Fig. 2, the wire 21 may be firmly fixed in the turned over portion 20 by peening over the end of the portion 20. If desired, of course, the wire 21 may be fastened by any other suitable means such as spot welding and the like.

When the binding screw 12 is tightened into clamping position, as shown in Fig. 2, the U-shaped contact member 13 assumes the position there shown in which the sides of the member 13 are drawn together and the major portions thereof are forced, against their bias, into engagement with the substantially parallel sides of the support 10. The support 10 thus maintains the sides of the contact member spaced apart by a distance equal to the thickness of the support. The contact member 13 is sufficiently resilient that it will assume its initial shape, shown in Fig. 1, if the binding screw 12 is released. This tendency to assume the shape of Fig. 1 is expressed as a force exerted by the bent portions 22 and 23 of the contact member tending to raise the sides of the contact member away from the support 10. The spring pressure thus exerted by the U-shaped member when in its clamping position has two very advantageous effects. In the first place, the side of the contact member 13 adjacent the screw head 19 exerts a clamping action against the under side of the head, whereby the wire 18 is held in firm contact regardless of whether the binding screw 12 is drawn up to its fullest extent. Secondly, the resilience of the U-shaped contact member 13 has the same effect as a lock washer upon the threaded engagement between the binding screw 12 and the threaded boss 17. This locking action upon the binding screw prevents it from becoming loosened by vibration.

It will now be apparent that my terminal conductor consists of a minimum number of parts and makes optimum use of materials, while providing a terminal connection of great simplicity and eminently satisfactory performance.

While I have shown only one preferred embodiment of my invention, it will be understood of course that I do not wish to be limited thereto since various modifications will occur to those skilled in the art and I, therefore, contemplate by the appended claims to cover all such modifications as fall within the true spirit and scope of my invention.

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

1. In combination with a support, a terminal conductor for clamping engagement therewith comprising a substantially U-shaped contact member made of resilient electrically conducting material, said U-shaped member being provided with a base and with two straight sides converging toward each other from said base to their ends, said ends frictionally engaging said support to hold said U-shaped member upon said support, said base separating the opposite ends of said sides at their juncture with said base by a distance substantially greater than the thickness of the support, one of said sides being provided with an internally threaded aperture and the other of said sides being provided with an aligned aperture, and a clamping screw passing through said apertures and said support to connect said sides and having a head portion cooperating with one of said sides for drawing said sides toward each other into clamping engagement with said support throughout substantially their entire lengths, said sides having sufficient resiliency to resume substantially said straight shapes when said clamping screw is removed thereby to lock said clamping screw and to form with said head portion a clamp for receiving an electric conductor.

2. In combination with a support, a terminal conductor for clamping engagement therewith comprising a substantially U-shaped member made of resilient electrically conducting material, said U-shaped member being provided with a base and with two straight sides converging toward each other from said base to their ends to embrace said support, the ends of said sides being spaced apart a distance somewhat less than the thickness of said support so that said ends frictionally hold said member on the support, said base separating the opposite ends of said sides at their juncture with said base a distance at least 25 per cent greater than the thickness of the support, and a screw clamping member cooperating with said sides for drawing said sides toward each other into clamping engagement with the support throughout substantially their entire lengths, said sides having sufficient resiliency to resume substantially said straight shapes when said clamping means is removed thereby to lock said screw clamping member.

3. In combination, an insulating support having a transverse aperture therein, a resilient U-shaped contact member fitting over the end of said support and having a base substantially wider than said support, the sides of said contact

member being biased into converging relation with each other and into clamping engagement with said support thereby frictionally to hold said contact member upon said support, each of the sides of said U-shaped member having an aperture in alignment with the aperture in said support, a binding screw received within said apertures and threadingly engaging one of said apertures to draw said sides into parallel spaced relation, the head of said binding screw being adjacent said aperture in said one side of said U-shaped member and forming with said one side of said U-shaped member a clamp for the reception of an electric conductor, said contact member being sufficiently resilient to assume substantially its original shape after removal of said screw and to remain in frictional engagement with said support.

4. In combination with an insulated support having a transverse aperture therein, a terminal conductor for clamping engagement with said support comprising a substantially U-shaped member made of resilient electrically conducting material, said U-shaped member being provided with a base and with two straight sides converging toward each other from said base to their ends, the ends of said sides being spaced apart a distance somewhat less than the thickness of said support thereby to engage said support on opposite sides thereof and frictionally hold said U-shaped member upon said support, one of said sides having an aperture in alignment with the aperture in said support, a boss located on the opposite side of said U-shaped member in alignment with said aperture and provided with a threaded aperture, said base separating the opposite ends of said sides at their juncture with said base by a distance substantially greater than the thickness of said support, a clamping screw received within said apertures and threadingly engaging said threaded aperture said binding screw being provided with a head adjacent said aperture in said one side of said U-shaped member to draw said biased sides together into parallel spaced relation and into engagement with said support for substantially their entire lengths thereby to form with one of said sides a clamp for the reception of an electric conductor, said opposite side of said U-shaped member by its resilience providing locking engagement between said screw and said threaded boss.

EDGAR H. AYERS.