

E. Q. MOSES.
CONNECTOR.
APPLICATION FILED JULY 3, 1915.

1,167,780.

Patented Jan. 11, 1916.

FIG. 1

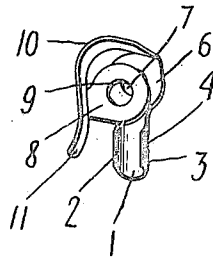


FIG. 2

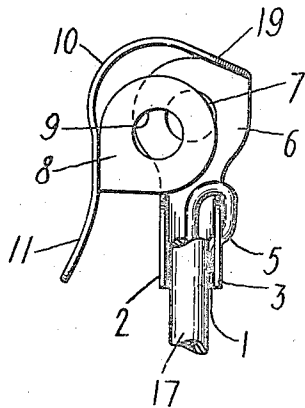


FIG. 4

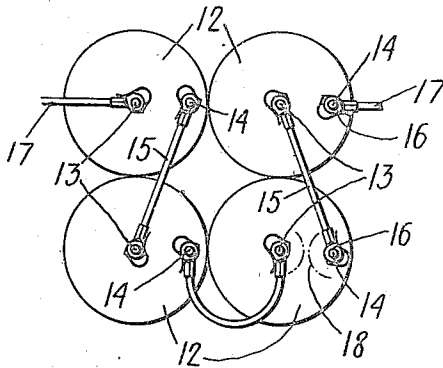
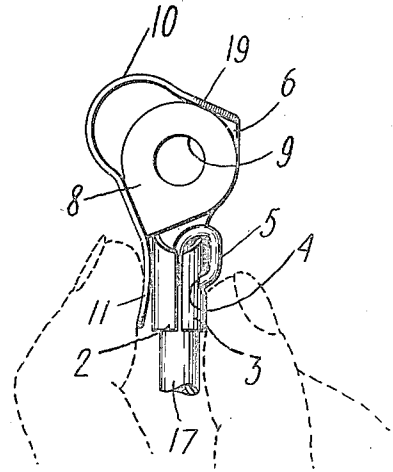


FIG. 3

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CONNECTOR.

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To all whom it may concern:

Be it known that I, EDMUND QUINCY MOSES, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Connectors, of which the following is a specification.

This invention relates to connectors or terminals such as are utilized for connecting wires to binding posts or the like in electrical apparatus.

The objects of the invention are to provide a cheap and efficient construction for this purpose which shall be easy to manipulate, compact so as to avoid long extended parts which might cause short circuits and, at the same time, which will insure a good electrical connection.

In the accompanying drawings which form a part of this specification I have illustrated but one of the many embodiments of which my invention is susceptible.

Figure 1 is a perspective view of such preferred embodiment. Fig. 2 is a plan view thereof on an enlarged scale, the end of the conductor being placed in the groove of the shank, which, however, has not yet been closed to clamp the conductor in place. Fig. 3 is a view similar to Fig. 2 with the conductor clamped in place and also showing the terminal compressed to permit its application to a binding post. Fig. 4 is a diagrammatic plan view showing a series of dry batteries connected by means of battery connectors embodying my improved construction.

Referring to the drawings in detail it will be seen that the terminal illustrated is made of one piece of sheet metal which may be readily stamped and bent to the proper shape. It is, of course, non-essential that the device be made of a single piece of metal, but this is preferred as it reduces the cost to a minimum and it is also very satisfactory as there are no joints to separate or parts to get loose and break.

The device consists of a stock portion 1, which may be constructed in any suitable form for attachment to a conductor, it being shown as provided with the ears 2 and 3

which receive the conductor wire between them and are bent over to clamp the terminal to the wire. The connection to the wire may be conveniently made by providing a perforation 4 in one of the ears, through which the end of the wire 5 is threaded, the wire being then bent around over the top of the ear and lying between the ears 2 and 3 which are closed over upon it as shown in Fig. 3. A very firm connection is thus secured although it will be understood that the wire may be attached to the terminal in any other desired manner. The stock portion 3 carries a plate 6 having a binding post hole 7 therein. A second plate 8 having a similar binding post hole 9 is movably connected to the plate 6 by means of a web or spring member 10. Carried by the plate 8 and preferably formed as a continuation of the web 10 is a tail or finger-piece 11 which normally stands substantially parallel with but at some distance from the stock portion 1 and conductor wire 5. This normal, or rather initial position, is illustrated in Figs. 1 and 2. When the terminal is to be applied to a binding post, or other part, the operator grasps the terminal, one finger engaging the stock portion, or the wire, or both while another finger or the thumb presses upon the tail 11 thus compressing the connector as indicated in Fig. 3, bending the spring member or web 10 and bringing the holes 7 and 9 in the plates 6 and 8 into registry. The portion 19 of the web 10 which is turned up from the plate 6 serves as a stop which will be engaged by the edge of the plate 8 and so limit the movement of the latter as to permit the holes to be aligned, but to prevent movement beyond that point.

It will be seen that owing to the connection of the web at the top of the plate 6 and at the side of the plate 8, the movement of the latter will be slightly outward as well as lateral, so that in the initial position shown in Fig. 2 the hole 9 is located slightly lower or nearer to the stock portion than the hole 7. The bending of the web will then bring the holes into the desired alinement. The device may then be slipped over the binding post and when the pressure is released the plates

will tend to slip by one another under the influence of the spring 11, thereby causing the edges of the holes in the plates to firmly engage the binding post. The latter is thus
 5 firmly gripped by the connector and a good electrical connection insured at all times. Ordinarily such binding posts are screw threaded, the edges of the holes in the thin plates engaging firmly with the threads so
 10 that the accidental separation of the terminal from the binding post is effectually prevented. It is ordinarily unnecessary to use a binding nut on the post, but if desired such a nut may be employed and screwed
 15 firmly down upon the flat plates.

It will be seen that the fingers, when used to compress the connector, engage the rounded stock portion and the flat tail 11, respectively, so that a firm and, at the same time,
 20 comfortable grip may be secured without discomfort or danger of cutting the fingers upon any sharp edges of the device. The finger engaging piece or tail also serves as a lever arm which gives added purchase for
 25 compressing the device and so facilitates its manipulation. This again makes possible the use of a stiff spring member which will cause considerable pressure between the edges of the plates and the binding post,
 30 thus insuring good electrical contact. At the same time the terminal is very short for the reason that the stock portion, which is a necessary part of the terminal in any case for the attachment of the wire, is also utilized
 35 as one of the finger holds when compressing the connector. It is of great advantage to have the device short as the danger of short circuits is thereby minimized. This will be seen by reference to Fig. 4
 40 where the device is illustrated as applied to dry battery connectors where it finds particular utility. As shown in this figure, the dry batteries 12 are each provided with a central binding post 13 and with a peripheral binding post 14. The connectors 15
 45 have one of my improved terminals 16 at each end thereof, but owing to the short length of these terminals it will be seen that in whatever direction they extend from the
 50 binding posts it is not possible for the terminals on adjacent posts to contact so that there is no danger of short circuit. This is indicated by the dotted arcs 18 in Fig. 4. The leads 17 to and from the series of cells
 55 may also be provided with my improved terminals, if desired.

While I have illustrated but one preferred embodiment of my invention and while I have also shown that embodiment as employed in a dry battery connector, it is to be
 60 understood that my invention is not limited either to such embodiment or use, but is capable of general application to the making of electrical connections. I therefore intend

to cover the principle of my invention 65 broadly and in whatever application it may be found desirable to make of it.

Having thus described my invention what I claim as new herein and desire to secure by Letters Patent is:—

1. A connector terminal including in combination a single pair of flat thin metal plates having binding post holes therein, a spring member connecting said plates, a stock portion connected to one of said plates
 75 and comprising a thin sheet metal member adapted to be bent to inclose the end of a conductor wire, and a finger piece connected to the other of said plates and extending along side of said stock portion. 80

2. A conductor terminal comprising a pair of superposed members having binding post holes therein, resilient means connecting said members, a stock portion projecting from
 85 one of said members for engagement with a conducting wire, and a finger piece carried by the other member and extending alongside of that part of said stock portion adapted to engage with said conductor wire. 90

3. A conductor terminal formed of a single piece of sheet metal bent to provide a stock portion adapted to be connected to a wire, a flat plate having a binding post hole therein directly connected to said stock portion, a resilient web bent at right angles to
 95 said plate, a second flat plate having a binding post hole therein and superposed upon said first plate, said second plate being bent from said resilient web, said web being carried beyond said second plate and adjacent
 100 to said stock portion to form a finger hold to cooperate with said stock portion when the device is to be operated. 105

4. A battery connector comprising a wire having a connector terminal attached to each
 105 end thereof, each of said terminals comprising a short stock portion to which the wire is connected, a pair of superposed plates having binding post holes therein, one of said plates being connected to said stock
 110 portion and the other of said plates being connected to the first of said plates by a resilient member and a finger piece carried by the second of said plates and extending alongside of said stock portion and the end
 115 of the wire connected thereto to permit said finger piece and stock portion to be simultaneously grasped. 120

5. A conductor terminal comprising a pair of superposed plates having binding post
 120 holes therein, one of said plates having means for connection to a conductor wire and having a web joined thereto at the top thereof and bent at an angle therefrom, said web carrying the second of said plates, the
 125 bent-up portion of said web at the top of the first of said plates forming a stop for engagement with the second of said plates to

limit the movement of the latter to a position in which the holes in the plates register.

6. A conductor terminal comprising a pair of superposed plates having binding post
5 holes therein, the first of said plates having at one side thereof a stock portion for engagement with a wire and having connected

at the diametrically opposite side thereof and transversely of the axis of the stock portion a spring web, said web being bent down 10 alongside of said first plate and carrying the second of said plates in position to slide laterally over said first plate.

EDMUND QUINCY MOSES.