June 6, 1939. J. E. CARLSON 2,161,246

ELECTRIC TERMINAL

Filed Dec. 22, 1937

Fig. 1.

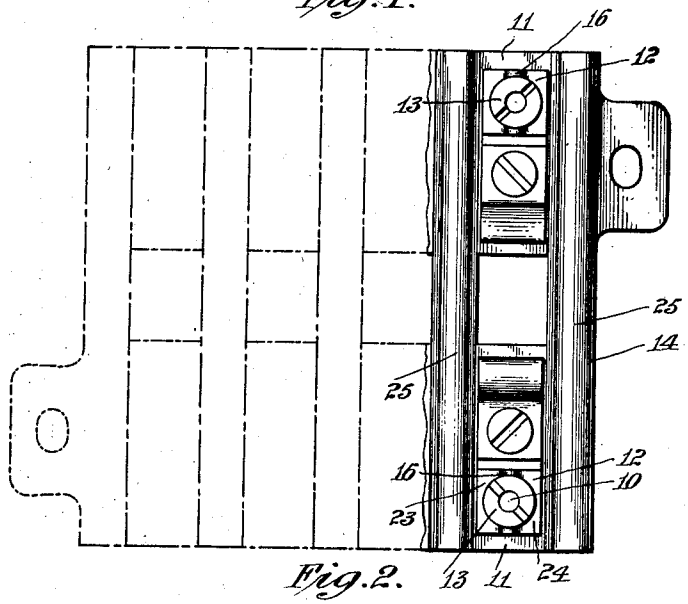


Fig. 6.

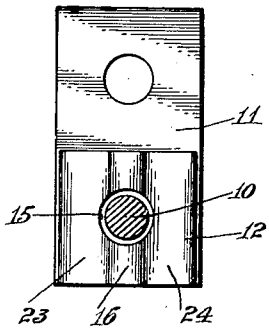


Fig. 2.

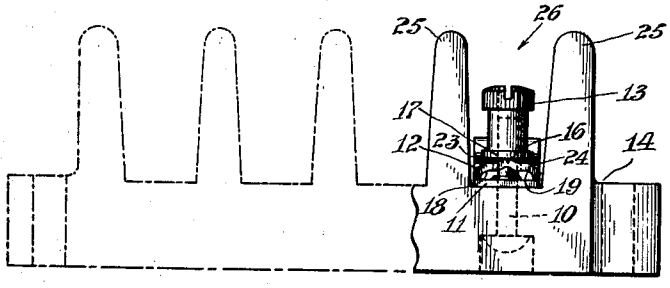


Fig. 3.

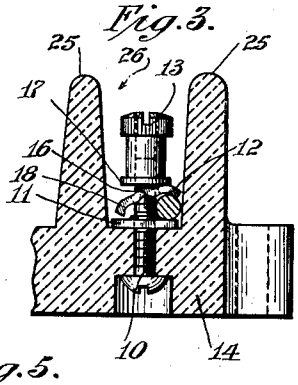


Fig. 4.

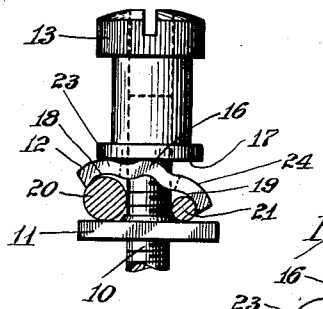


Fig. 5.

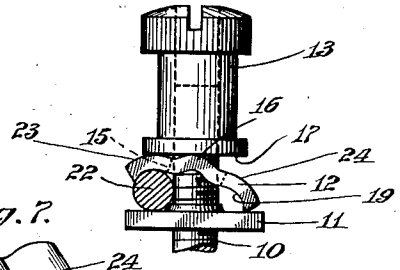


Fig. 7.

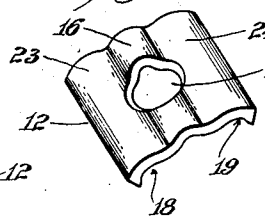
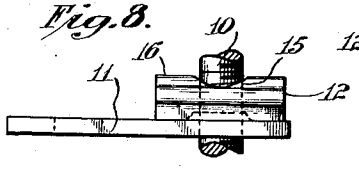


Fig. 8.



INVENTOR

John E. Carlson

BY

R. S. Allyn

ATTORNEY

Patented June 6, 1939 2,161,246

UNITED STATES PATENT OFFICE

2,161,246

ELECTRIC TERMINAL

John E. Carlson, Forestville, Conn., assignor to The Trumbull Electric Manufacturing Company, Plainville, Conn., a corporation of Connecticut

Application December 22, 1937, Serial No. 181,062

3 Claims. (Cl. 173—259)

The main object is to provide a device which will securely hold wires of various sizes. I have especially sought to provide a form which will accommodate either a single wire or two or more wires. Another object is to provide a device which will simultaneously accommodate two or more wires of different sizes.

Another object is to provide a device with which a maximum clamping effect can be produced with a minimum effort.

Another object is to provide a terminal of the character described which can be used to secure either a solid or a stranded wire or a solid wire and one or more stranded wires.

The preferred form as shown in the accompanying drawing includes a base plate, a tilting clamp plate, a screw or a screw threaded post and a clamp nut. The clamp plate is loosely mounted on the screw and has a projecting central rib against which the clamp nut presses so as to force the clamp plate toward the base plate and grip one or two wires beneath the edges of the clamp plate.

Fig. 1 is a plan view showing the invention as applied to one form of a connector.

Fig. 2 is an end view of the same, the dot-dash lines suggesting a plurality of positions for terminals.

Fig. 3 is a fragmentary sectional view showing a single terminal with one wire in place.

Fig. 4 is an enlarged elevation of a terminal with two wires of different sizes clamped in place.

Fig. 5 is a similar elevation with only one wire in place.

Fig. 6 is a plan view showing the clamping plate mounted on a base plate, with the screw in section.

Fig. 7 is a perspective view of a clamping plate.

Fig. 8 is a side view of the clamping parts.

The four metal parts are the screw post **10**, the base plate **11**, the clamping plate **12** and the nut **13**. The screw post may be mounted on an insulating base **14** for instance of a connector or other electrical device.

The screw **10** is threaded into the base plate **11** so as to hold it in place. The clamp plate has a hole **15** considerably larger than the screw so as to permit the plate to tilt freely on the screw. Along the center of the plate **12** is a rib **16** which projects considerably beyond the general plane of the plate. The lower face **17** of the nut **13** is flat so as to engage the top of the rib of the clamp plate along a central line thus allowing the clamp plate to tilt or rock along this central line like on a knife edge to clamp the wire or wires.

Beneath the opposite edges of the clamping plate preferably are grooves **18** and **19** adapted to position and hold different sizes of wires such as **20**, **21** and **22**.

The clamping plate may also have shoulders **23** and **24** on opposite sides which may serve to limit the tilting action of the plate and to coact with the central rib **16** in some instances so as to provide an additional seat for the nut **13** when the plate **11** is tilted in its rocking engagement with the wire or wires. The central rib **16**, however, projects above the level of the shoulders **23** and **24** so as to permit a considerable tilting of the plate.

The support **14** in this case has projecting walls **25** and **25** between which is the channel **26** in which the terminal is mounted. These walls serve to assist in positioning and confining the clamp plate and base plate or terminal **11** between the adjacent side walls.

The base plate **11** and the clamping plate **12** are positioned some distance from the edge of the insulating base or support **14** so that the insulation on the wires may be butted against the clamp plate and thus all of the stripped portion of the wires may be confined between the walls of the insulating base.

The knife-edge contact between the nut and the crown of the rib of the clamping plate makes it easy to turn the nut when clamping the wire or wires and to centralize the pressure of the nut. It also limits the maximum tilting of the clamp plate.

In practice the wires to be attached are bared or skinned at their ends for a distance about equal to the width of the clamping plates. The nut is then loosened and the wires are inserted with the insulation of the wires abutting the ends of the plates and the nuts are then tightened up to secure the wires in position. It is general practice to use stranded wires and in some instances a single line wire may be used in connection with two or more branch wires and in such instances the form of clamp described herein adapts itself to such conditions by squeezing or compressing the wires so that the nut not only bears directly upon the central rib but also upon one of the shoulders **23** or **24** so as to more effectually clamp the multiple number of wires.

In practice the clamping plate may be designed so that when only one wire of a certain large size is to be used, the nut will engage and bear

upon not only the central rib of the clamp plate but also upon one of the shoulders 23 or 24 and the opposite edge of the plate will bear upon the base plate 11 thus providing a very efficient clamp for the wire. This condition is clearly shown in Fig. 5 of the drawing.

I claim:

1. A binding post including a stationary base plate having a screw threaded post projecting rigidly therefrom, a clamp plate loosely mounted on said post so as to permit it to tilt, said clamp plate having a central rib and a somewhat lower rib at each of the opposite sides of the central rib, said side ribs being spaced apart and having grooves under the side ribs at opposite sides of the post with their inner edges substantially tangent to the sides of the post for forcing conductor wires against the sides of the post and a clamp nut having a base portion of greater diameter than the distance between the tops of the side ribs so that the base portion of said clamp nut can bear upon the top portion of the central rib of the clamp plate and also upon the top portion of one of the side ribs when a wire conductor is located beneath one side of the clamp plate and the clamp plate is tilted and force the wire or wires against the base plate and the post.

2. An electric terminal having a stationary base plate, a screw threaded post extending rigidly therefrom, a clamp plate loosely mounted so as to tilt on the post, said plate having a central projecting rib on the top and with shoulders on opposite sides of the central rib but much lower than the central rib with grooves beneath the shoulders adjacent the post and a clamp nut adjustable on the post and having its inner face coacting with the rib of the plate and with one of the shoulders to force the plate to grip one or more wires and force the same simultaneously against the post and the base plate.

3. An electrical connector including an insulating base having a channel with insulating confining walls, a wire connector mounted within the channel and including a base plate, a post projecting therefrom, a tilting clamping plate on said post having a central perforation considerably larger in diameter than said post and having a central rib projecting from the remainder of the clamping plate and two side ribs with grooves beneath them adjacent the post and means for engaging the central rib and one of the side ribs of the clamping plate within the channel for forcing one or more wires of different diameters under the clamping plate against said post, the side edges of the clamping plate extending close to the insulating confining walls of the channel and preventing the sidewise escape of wires held in said grooves.

JOHN E. CARLSON.