

Nov. 6, 1934.

S. S. STOLP

1,979,582

BINDING POST TERMINAL

Original Filed June 11, 1928

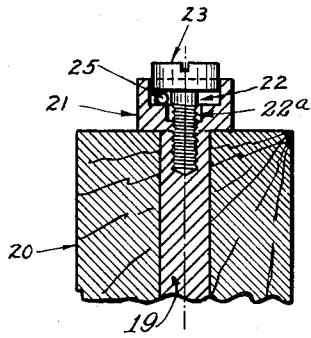


FIG. 1.

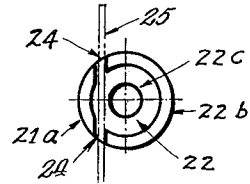


FIG. 3.

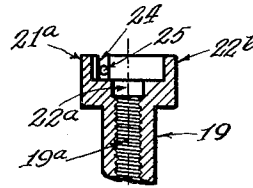


FIG. 2.

SAMUEL S. STOLP.
INVENTOR.

BY *John L. Milton*
ATTORNEY.

UNITED STATES PATENT OFFICE

1,979,582

BINDING POST TERMINAL

Samuel S. Stolp, Louisville, Ky., assignor to
Cheatham Electric Switching Device Com-
pany

Original application June 11, 1928, Serial No.
284,636. Divided and this application January
20, 1930, Serial No. 422,124

5 Claims. (Cl. 173—259)

This application is a division of my copending application Serial No. 284,636, filed June 11, 1928, Patent 1,824,844 issued September 29, 1931.

This invention relates to improvements in binding post terminals for attaching electric wires to devices and has for its principal object to provide an article of this character for quickly, easily and effectively supporting the wire in a predetermined position.

The object of my invention is to produce an improved terminal for securing electrical conductors in the form of wires to any kind of apparatus, in which not only a good mechanical and electrical connection is obtained, but a highly desirable definite locking of the conductor securing means is accomplished without employing an auxiliary locking part, such as a lock nut, set screw, lock washer, et cetera.

An outstanding feature in the accomplishment of this locking action, is the embodiment of the principle in a simple convenient terminal which can be actuated without the employment of special tools, or having to resort to special instructions. In fact the locking is automatically accomplished without thought on the part of the user.

Figure 1 is illustrative of the terminal attached to apparatus shown principally in cross-section.

Fig. 2 is a cross-sectional elevation of the fixed or shell member shown in cross-sectional elevation with the terminal screw removed.

Fig. 3 is a top view of Fig. 2.

Referring now to the drawing in detail, the invention comprises a terminal construction fashioned in the head of a clamping bolt. Referring in particular to Figure 1, it will be noted that the clamping bolt is illustrated as having an annular head 21, with a shank 19 extending through an insulating bar 20, however, it will be apparent that the bar 20 may be of metal without changing the spirit of the invention. In the outer face of the annular head 21, a concentric annular recess is formed. This recess may be fashioned by counterboring, die casting, or many other well known processes familiar to those skilled in the art of working metals. The bottom of the recess, as illustrated in either Figures 1 or 2, is flat and has the surrounding walls of the recess substantially perpendicular to its bottom surface. Centrally disposed in the bottom of the recess 22, is an internally threaded opening 19a which extends into the shank 19 of the clamping bolt. It will be noted that the upper portion of the internally threaded open-

ing 19a is drilled slightly larger, thereby removing the threads adjacent the bottom of the recess, the object of which will be described later. A terminal screw 23, comprising a cylindrical shaped bolt head having a substantially flat under surface and an externally threaded shank for engaging the internally threaded opening, is employed to secure an electrical conductor 25 to the clamping bolt. Attention is directed to the construction of the cylindrical head of the terminal screw 23, which is made substantially the same diameter as the recess 22, such that normally the cylindrical head will be receivable in the recess without binding on the walls 21a and 22b. In order to insure that the head of the terminal screw 23 will not bind on the walls of the recess before the wire connection is properly clamped, the internal screw threads 19a are arranged to engage the threaded portion of the terminal screw loosely. Referring to Figs. 2 and 3, it will be noted that the outer face of the annular clamping bolt head 21 is cross milled, providing off-centered linearly disposed slots 24, 24. It will be further noted that the outer ends of these slots terminate on the outside surface of the clamping bolt head while the inner ends terminate within the recess 22. This cross milling divides the wall of the recess into major and minor arcuate segments 22b and 21a respectively, providing openings by which a wire conductor 25 may be extended through the recess between the threaded shank of the terminal screw, and arcuate segment 21a. The off-centered disposition of these slots therefore serves to hold the conductor in a definite location within the recess, such that the conductor will be held out of engagement with the threaded portion of the terminal screw and in a preferred position where it may be secured by the flat under surface of the terminal screw head. This feature is of great importance, especially when stranded conductors are employed, since it definitely prevents any strand of a conductor becoming entangled in the threads of the terminal screw, as is the case in many ordinary forms of terminal constructions. The off-centered disposition of the slots 24, 24 also serves to introduce a frictional locking feature for the terminal screw head. This feature is accomplished when the terminal screw engages the conductor 25, at which time the conductor becomes a fulcrum, resulting in the head of the terminal screw engaging the major arcuate segment 22b diametrically opposite the point where the terminal connection is being made. It is

therefore apparent, that the off-centered slots provide a further desirable feature inasmuch as the segment 22b, which supports the head of the terminal screw 23 to provide the frictional lock, is formed of the larger portion, while the segment 21a which serves only to hold the conductor within the head of the terminal screw is formed of the smaller portion. When small conductors were secured by the terminal screw 23, it was found that the terminal screw would not tilt sufficiently to engage the wall 22b without bending the terminal screw. This was found to be the result of having too great a proportion of the terminal screw threads within the threaded opening 19a. In order to insure the terminal screw tilting, even for the smallest conductors, the upper portion of the threads 19a were removed forming space 22a. This tilting action was further ensured by making the screw thread portion 19a loose as mentioned heretofore. Another important feature of having the supporting segment 22b partially surrounding the terminal screw head, is that a supporting surface for the head of the terminal screw is provided even though the wire is clamped at any point along the clamping surface.

It will be noted that under normal conditions, while clamping wire 25 under the head of screw 23 that, as pressure is applied and increased, there will be a definite tendency toward a tilting action of the screw. This tilting action will move the head into engagement with the supporting side wall 22b, thereby effecting a definite braking action, which will directly and automatically produce an effective lock against vibration. Were it not for the fact that the side wall 22b is engaged at the time the tilting action begins, to support the screw head and produce the desired locking action, the shank of the screw would be bent to such an extent that removal of the screw would be made difficult.

Special attention is directed to the fact that this terminal, although definitely locked, is always ready to be operated as an ordinary screw terminal without the use of any special or auxiliary equipment and without in any way marring any of the parts, while being operated in either direction, which is incident to the use of many ordinary locking devices.

While this terminal is shown as having been especially fashioned from material to form a separate terminal unit, it may readily be incorporated into other forms without departing from the spirit of this invention, therefore, I wish to be limited only by the appended claims.

I claim:

1. A terminal connection comprising a clamping bolt having a shank and an annular head, a cylindrical recess formed in the outer face of the said annular head having its bottom perpendicular to the walls of said recess, a centrally disposed internally threaded opening in the bottom of said recess extending into the shank of the said clamping bolt, a conductor securing means fashioned with a cylindrical screw head having a flat under surface perpendicular to the periphery of said screw head, and a centrally disposed externally threaded shank extending from the said under surface for engaging the

said internally threaded opening, said recess adapted to closely fit the periphery of said cylindrical screw head, and off-centered linearly disposed conductor receiving slots in the outer face of the said annular head, having their outer ends terminating on the periphery of the said annular head and their inner ends terminating within the said recess.

2. An electrical connector for lead wires comprising a binding post provided at one end with securing means, and fashioned with a cylindrical recess having a flat bottom perpendicular to the walls of said recess in the other end forming a flange in prolongation of the said post except as interrupted by a pair of linearly disposed slots intersecting the said flange on one side of the diameter of the said recess, the bottom of said slots adapted to register with the bottom of said recess, a centrally disposed threaded opening in the bottom of the said recess, a terminal screw inserted in the said threaded opening fashioned with a cylindrical screw head concentric with the threaded portion of said screw and having a flat under surface perpendicular to the periphery of the said screw head, said screw head adapted to closely fit said recess and to secure a straight wire extending through said slots into said recess between the flat bottom of the said recess and the flat under surface of the head of said terminal screw.

3. A binding post terminal comprising an annular base provided with a shank for securing the same, the said base having a central threaded opening, a terminal screw inserted in the said threaded opening fashioned with a concentric cylindrical head, upstanding supporting members formed on said base providing a channel to receive a wire, the inner surfaces of the said members forming a cylindrical recess closely fitting the periphery of the said terminal screw head, the outer surfaces of the members forming extensions of the periphery of the said base.

4. A terminal construction comprising an attaching base having a threaded opening, a terminal screw inserted in the said threaded opening fashioned with a concentric cylindrical head, upstanding supporting members formed on said base providing a channel to receive a wire, the inner surfaces of the said members forming a cylindrical recess concentric with the said threaded opening and closely fitting the periphery of the said terminal screw head.

5. A terminal construction comprising an attaching base having a threaded opening, a terminal screw inserted in the said threaded portion fashioned with a concentric cylindrical head, a pair of upstanding supporting members formed on the said base, the inner surfaces of the said members forming a cylindrical recess concentric with the said threaded opening and closely fitting the periphery of the said terminal screw head, said members adapted to provide a channel to guide and retain a wire extending through the said recess out of mechanical engagement with the said threaded portion of the terminal screw.

SAMUEL S. STOLP.

70

75

80

85

90

95

100

105

110

115

120

125

130

135

140

145

150