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S. C. CUTTER.

CLAMP FOR ELECTRICAL CONDUCTORS.

APPLICATION FILED JULY 3, 1905.

Fig. 1

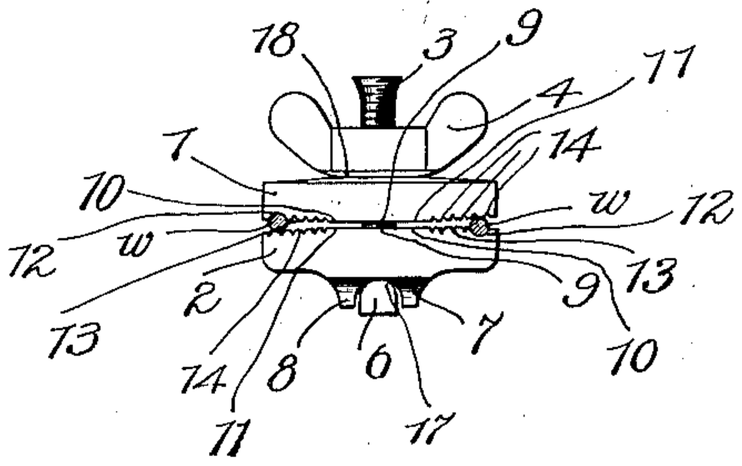


Fig. 2.

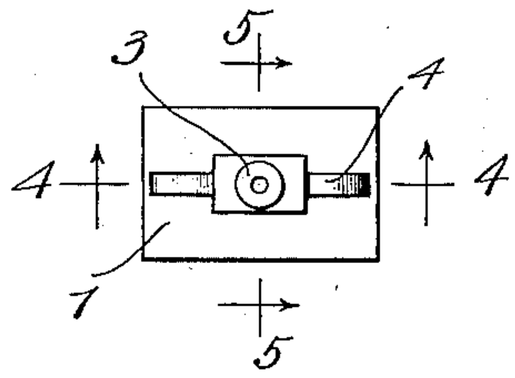


Fig. 3.

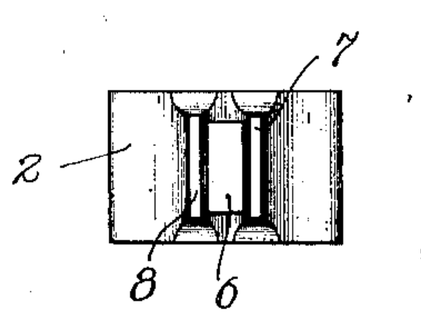


Fig. 4.

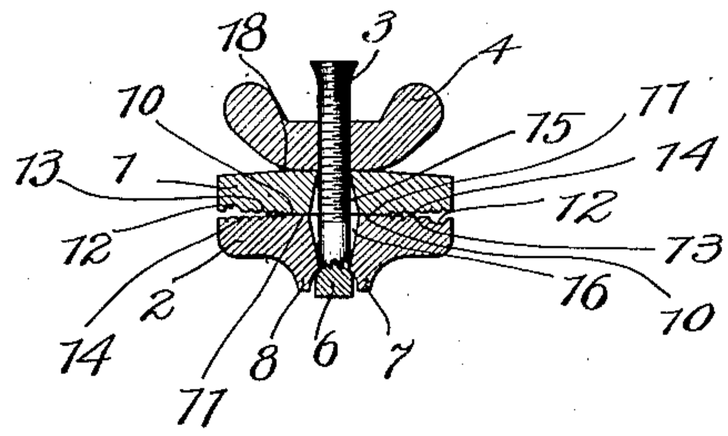
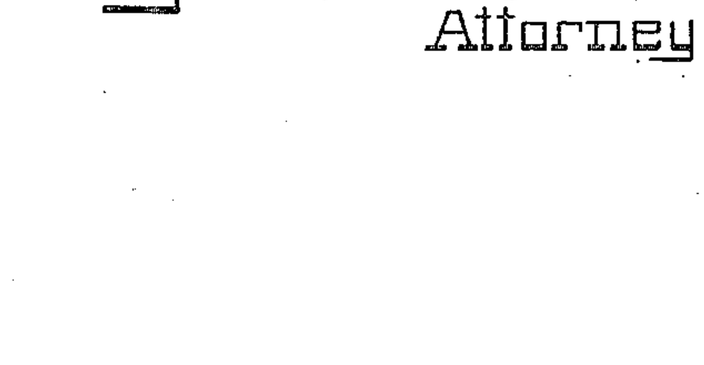


Fig. 5.

Fig. 6.



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CLAMP FOR ELECTRICAL CONDUCTORS.

No. 830,572. Specification of Letters Patent. Patented Sept. 11, 1906.

Application filed July 3, 1905. Serial No. 268,036.

To all whom it may concern:

Be it known that I, SCOTT C. CUTTER, a citizen of the United States, residing at Oswego, in the county of Kendall and State of Illinois, have invented a certain new and useful Improvement in Clamps for Electrical Conductors, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to connectors or clamps for use in the electrical art for electrically connecting together conductors in various ways; and the object of my invention is to provide an adjustable clamp which will accommodate itself to conductors having a wide range of diameters.

In my clamp I can efficiently connect together a conductor of very large diameter and a conductor of very small diameter and also connect together conductors of equal diameter and all intermediate-size conductors. The clamp is also preferably composed of material which has high conductivity, but which is free from corrosion and which will not produce electrolytic action.

A clamp of this kind is very useful in the telephone or electric-lighting field where branch lines are run from a main line, and particularly where the branch wires are of smaller diameter than the main or trunk wires, this being particularly true in the electric-lighting field. In telephone-lines also where the lines are transposed a clamp of this kind is of very great utility for test connections between the line-sections at the transposition-points.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the clamp. Fig. 2 is a top view thereof. Fig. 3 is a bottom view thereof. Fig. 4 is a sectional view thereof, taken on line 4 4 of Fig. 2. Fig. 5 is a sectional view thereof, taken on line 5 5 of Fig. 2; and Fig. 6 shows the clamp connecting a very large with a very small conductor.

The clamp consists of the upper and lower jaw members 1 and 2, which may be rectangular, and a clamping-bolt 3, passing through both members and engaged by the thumb or wing nut 4. The clamping-bolt may be T-shaped, as shown in Fig. 5, and the head 6 thereof may engage between the retaining wings or extensions 7 and 8 to prevent turning of the bolt upon tightening of the nut. The end of the bolt after application of the wing-nut is also preferably upset, as shown, or other means may be provided for limiting the range of travel of the wing-nut and preventing its escape from the screw. Each jaw has a central portion 9, which is preferably horizontal in the position shown in the figures, and the faces 10 and 11 at the sides of the central portion are provided with transverse serrations, one face being preferably provided with a large serration 12, disposed near the outer edge thereof, and a plurality of smaller serrations 13, disposed between the large serration and the inner part of the face. The other face 11 has preferably only the smaller serrations 14. These faces 10 and 11 extend and are rounded slightly away from the central horizontal part at an angle thereto. The opening 15 through the jaw 1 and the opening 16 through the jaw 2 are tapering, having a large diameter at their inner end. The lower edge or face 17 of the screw-head 6 is rounded, as shown, and the inner faces of the wings or projections 7 and 8 form a cylindrical pivot-pocket for receiving the rounded face of the screw-head. The under surface 18 of the wing-nut is also rounded, as shown. With this construction just described the jaws may be pulled straight apart or may be pulled apart and swung with relation to each other, so that they will be farther apart at one side of the screw than at the other. The rounded head of the screw, the tapered openings for the screw, and the rounded face of the wing-nut, as well as the rounded side faces of the jaws, all coöperate to permit this adjustment, and thus a large wire may be placed in one side between the jaws and a very fine wire at the other side and upon tightening of the wing-nut both wires will be held firmly between the jaws irrespective of their size, the grooves or serrations aiding to hold them securely in place.

In Fig. 1 I have shown the clamp employed for securing two wires w w of equal diameter. In a case like this the jaws are preferably disposed with the large serrations at the opposite sides, each conductor then lying in one of these serrations, as shown. In Fig. 6 the jaws are shown as clamping a wire w' of very large diameter and a wire w^2 of very small diameter. In this case, however, it is preferable to bring the large serrations to the same side and opposite each other, as shown, to receive the large conductor, and the fine conductor w^2 can then be placed in the appropriate small serrations at the other side.

In the same manner conductors of any relative diameters may be securely connected together with the same clamp, which cannot be accomplished with clamps of the prior art. The hub of the wing-nut may be rectangular, as shown in Fig. 2, whereby it may be engaged by pliers or a wrench.

Many changes may readily be made in the exact construction and arrangement of the various parts of the clamp without departing from the spirit of the invention, the main feature being, as above described, a clamp which will accommodate itself for a very wide range of wires of different diameters.

I therefore claim as new and desire to secure by Letters Patent—

1. In a clamp for connecting together electrical conductors, the combination with jaw members, of a clamping-bolt passing through conical openings through the centers of the jaw members whereby said jaw members are pivoted to the said bolt and whereby jaws are formed at either side of the bolt for receiving different-sized conductors.

2. In a clamp for connecting together electrical conductors, the combination with jaw members in the form of rectangular plates, of a screw passing through openings through the center of said plates, a clamping-nut engaging the end of the screw, said members forming a clamping-jaw at opposite sides of said screw, means for allowing relative movement between said jaw members to adapt one jaw to receive a larger conductor than the other jaw, whereby the clamp is adjustable for connecting together conductors of different size through a wide range, and means for preventing turning of said screw upon tightening of the clamping-nut.

3. In a clamp for connecting together electrical conductors, the combination with jaw members in the form of rectangular plates, of a clamping-screw passing through openings through the center of said plates, the head of said screw engaging one of said members, a clamping-nut engaging the end of the screw and the other member, said openings through which the screw passes being expanded from the outside to the inside of the members, whereby said members may be disposed at angles with each other, whereby the conductors clamped between the jaw members and opposite sides of the screw may be of different diameters.

4. In a clamp for connecting together electrical conductors, the combination with jaw members in the form of rectangular plates, of a clamping-screw passing through openings through the center of said plates, the head of said screw engaging one of said members, a clamping-nut engaging the end of the screw and the other member, said openings through which the screw passes being expanded from the outside to the inside of the members, whereby said members may be disposed at angles with each other, whereby the conductors clamped between the jaw members and opposite sides of the screw may be of different diameters, and extensions from the first jaw engaging the head of the screw to prevent turning thereof when the clamping-screw is tightened.

5. In a clamp for connecting together electrical conductors, the combination with jaw members in the form of rectangular plates, of a clamping-screw passing through the center of the plates, the head of the screw engaging one member and a clamping-nut receiving the end of the screw for engaging the other member, said members forming two jaw-compartments at opposite sides of the screw, the opening in the members through which the screw passes expanding from the outer to the inner face of the members and in a direction lengthwise thereof, whereby said members may be moved to cause the jaw-faces to assume various angles to each other, whereby one jaw-compartment may receive a larger conductor than the other jaw-compartment, and extensions from the first member forming a pivot-pocket for the head of the screw, tightening of the clamping-nut causing clamping of the conductors in the compartments irrespective of their relative size.

6. In a clamp for connecting together electrical conductors, the combination with jaw members in the form of plates, of a clamping-screw passing through openings through the center of said plates, the head of said screw engaging the outside one of said members, and a clamping-nut engaging said screw and the outside of the other member, the opening through which said screw passes being slightly larger than the screw to allow the members to be disposed at angles to each other whereby the conductors to be clamped between the jaw members at opposite sides of the screw may be of different diameters, the engaging surface of the screw-head and said clamping-nut being rounded, whereby said members may be clamped together when at angles with each other, and means for preventing turning of the screw upon tightening of the clamping-nut.

7. In a clamp for connecting together electrical conductors, the combination with jaw members in the form of plates, of a clamping-screw passing through openings through the center of said plates, the head of said screw engaging the outside one of said members, a clamping-nut engaging said screw and the outside of the other member, the opening through which said screw passes being slightly larger than the screw to allow the members to be disposed at angles to each other whereby the conductors to be clamped between the jaw members at opposite sides of the screw may be of different diameters, the engaging surface of the screw-head and

said clamping-nut being rounded, whereby said members may be clamped together when at angles with each other, and wings on one of said members for preventing turning of the screw upon actuation of the clamping-nut to clamp the members together.

8. In a clamp for connecting together electrical conductors, the combination with jaw members in the form of similar plates, of clamping means passing through the center and engaging said plates, the opposed ends of said plates forming jaw-compartments for the reception of conductors, the distance between the opposed faces of the jaw-compartments increasing from the center of the members toward the outside thereof whereby different-sized conductors may be accommodated in the jaw-compartments.

In witness whereof I hereunto subscribe my name this 27th day of June, A. D. 1905.

SCOTT C. CUTTER.

Witnesses:

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