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L. L. JUGLE

2,963,679

AUTOMATIC DISTRIBUTION CLAMP

Filed Oct. 19, 1959

FIG. 1

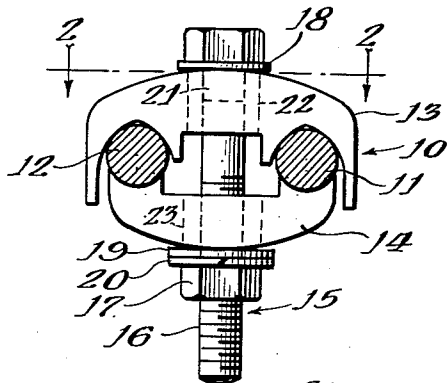


FIG. 2

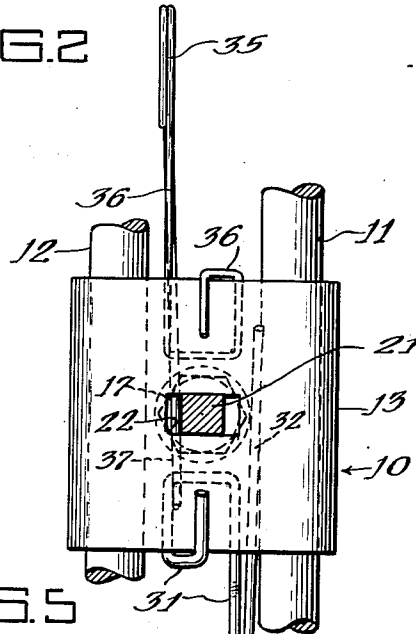


FIG. 3

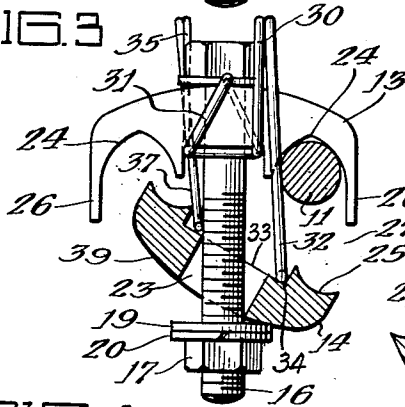


FIG. 5

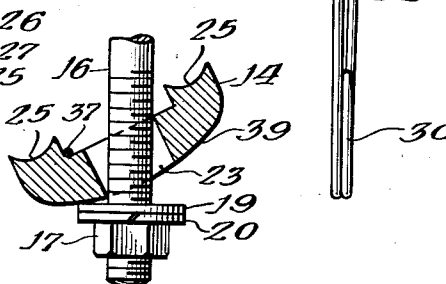


FIG. 4

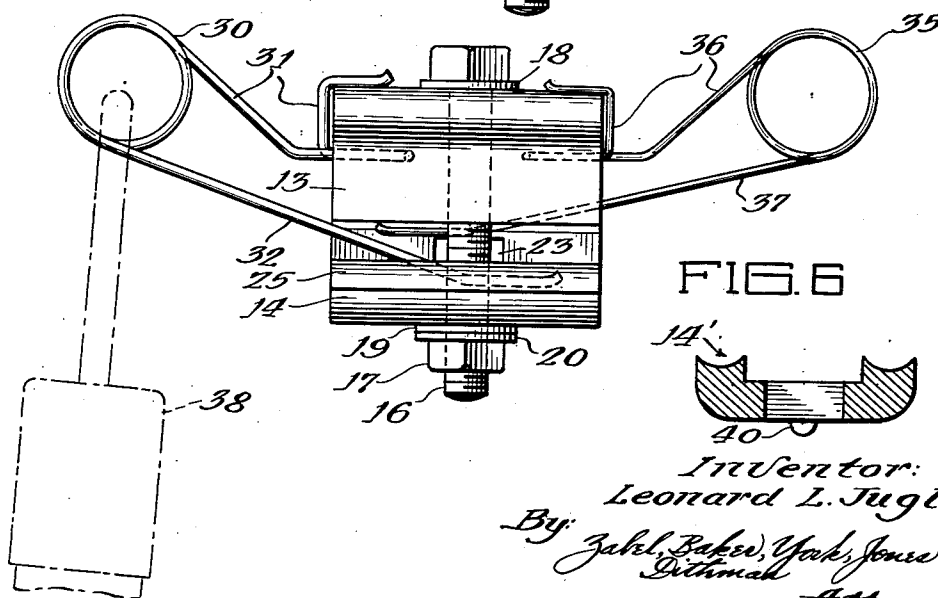
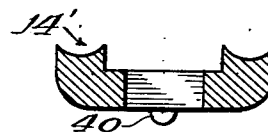


FIG. 6



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2,963,679

AUTOMATIC DISTRIBUTION CLAMP

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6 Claims. (Cl. 339-246)

This invention relates to an improvement in a distribution clamp, and in particular, to a distribution clamp in which the canting of the lower jaw can be automatically reversed to facilitate the application of the distribution clamp to two wires or cables.

A distribution clamp, as the term is used herein, refers to a device comprising two yokes and a single clamping means which urges the yokes into engagement with each other. The yokes are each provided with two wire clamping jaws, and the arrangement is such that the wire gripping pressure can be distributed substantially equally between the two wires by the single clamping means, irrespective of differences in the wire or cable size.

When such a distribution clamp is applied to a pair of wires or cables, such as a line wire and a tap wire, the single clamping means, which is in the form of a nut and bolt, holds the two yokes loosely so that they can be tipped or canted one way or the other to open up first one side of the distribution clamp for applying it to one wire, and then to open up the other side of the clamp for applying it to the other wire. After the clamp has been applied to both wires the clamping means is tightened up so that both wires will be securely gripped.

Distribution clamps are often applied to hot or energized lines. This means that the lineman must wear heavy rubber gloves, or use a hot line stick, in either of which events the operation is difficult because the parts are small and very difficult to handle.

It is an object of the present invention to provide a distribution clamp in which that portion of the manipulation which involves the opening up of first one side and then the other is effected by mechanical means, thereby avoiding in large measure the difficulties incident to canting the lower yoke manually.

According to the present invention, spring means are provided first for holding one side open, and then for reversing the cant of the lower yoke so that the open side is closed and the closed side will be open so that the distribution clamp can be readily hooked first over one wire, and then over the other.

Other objects, features and advantages will become apparent as the description proceeds.

With reference now to the drawings in which like reference numerals designate like parts;

Fig. 1 is an end view of a distribution clamp in its fully closed or wire gripping position;

Fig. 2 is a plan section of the same taken along line 2-2 of Fig. 1 in combination with the operating springs, the parts being shown in the first open position;

Fig. 3 is an end view of the device shown in Fig. 2 in the first open position, the lower yoke being shown in section;

Fig. 4 is a side elevation of Fig. 3;

Fig. 5 is a fragmentary view showing the position of the lower yoke in its reversed or second open position; and

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Fig. 6 is an end view of a modified form of lower yoke.

Referring now to Fig. 1, the reference numeral 10 designates a distribution clamp which is gripping a line wire 11 and a tap wire 12. The distribution clamp comprises an upper yoke 13, a lower yoke 14, and clamping means 15 in the form of an ordinary bolt 16 and nut 17. The upper yoke 13 and the lower yoke 14 are sometimes known as the body and the bridge, respectively.

The yokes are maintained in operative relationship by the bolt and nut, and washers 18 and 19, and a lock washer 20 may be provided.

The bolt 16 is provided with an upper square shank 21 as shown in Fig. 2 which fits into a rectangular aperture 22 in the upper yoke 13 in order to prevent the bolt from turning. The lower yoke 14 is also provided with a rectangular aperture 23 which permits the lower yoke to be canted one way or the other as shown in Figs. 3 and 5. Each of the yokes is provided with two jaws 24 and 25 respectively for engaging the wires 11 and 12. Thus, after the upper yoke 13 has been hooked over the two wires 11 and 12, the lower yoke may be urged into gripping position merely by tightening up the nut 17, and the gripping force will be uniformly distributed between the two sets of jaws due to the fact that the clamping means is located between the two sets of jaws, and the yokes are loosely mounted with respect to the bolt 16.

Skirts 26 depend downwardly from the jaws 24 of the upper yoke so as to overlap one of the lower jaws 25 when the other side of the clamp is open as shown in Fig. 3.

In applying the distribution clamp, the nut 17 is unscrewed to permit the lower yoke 14 to be canted to provide an opening 27 between the lower edge of the skirt 26 and the upper edge of its opposite jaw 25, the nut being unscrewed to a sufficient extent so that this opening will receive the line wire 11. The skirts 26 provide means to prevent relative rotation of the yokes about the bolt 16 when the wires are inserted. The clamp could not be satisfactorily manipulated if the nut were unscrewed to an extent sufficient to open up both sides because the lower jaws 25 would then tend to rotate out of parallelism with the outer jaws 26.

According to my invention, two operating springs 30 and 35 are provided to maintain the yokes first in the first open position, and then in the second open position, and the lower yoke 14 is so constructed that it will rock on a portion of the clamping means in response to the force of the operating springs.

The operating spring 30 is stronger than the spring 35 as illustrated in the drawings by the larger wire size. The spring 30 has a forked end 31 which removably engages the upper yoke 13. The free end 32 of the spring 30 engages the lower yoke on the flat upper surface 33 at a point adjacent the corner 34 formed by that flat surface and the vertical side surface of one of the jaws 25. The weaker spring 35 is also provided with a forked end 36 and a free end 37, the forked end embracing the rear edge of the upper yoke 13, and the free end 37 engaging the flat surface 33 of the lower yoke 14, as shown in Figs. 3 and 4.

According to this arrangement, the force exerted by the stronger spring 30 preponderates with the result that the lower yoke 14 will be canted or rocked in one direction, but when the spring 30 is removed, the force exerted by the weaker spring 35 will cant or rock the lower yoke 14 in the opposite direction as shown in Fig. 5.

The type of engagement provided by the forked ends 31 and 36 permit easy removal of the springs merely by giving the spring a yank either by a gloved finger, or by

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a hot line stick 38 as shown in Fig. 4. It will be observed that the lower surface 39 of the lower yoke 14 is curved so as to permit rocking movement of the lower yoke on the washer 19 or some other shoulder provided by the clamping means. An alternative form of construction is shown in Fig. 6, in which the lower yoke 14' is provided with a ridge 40 projecting from its lower surface, rather than having the curved surface 39.

In operation, after the operating springs 30 and 35 have been applied, the distribution clamp is opened first at one side so that the upper yoke 13 may be hooked over the line wire 11; then the stronger spring 30 is removed which permits the lower yoke to be rocked by the weaker spring 35 so that the opposite side is opened for reception of the tap wire 12. Then the nut 17 is tightened up until the wires 11 and 12 are securely gripped, at which time the spring 35 can be yanked out.

In addition to maintaining the distribution clamp in either its first or second open positions, the springs serve to maintain the jaws in parallelism with each other at all times, thus greatly facilitating the application of the distribution clamp to the wires or cables 11 and 12.

Although I have shown only preferred embodiments of my invention it will be understood that various changes and modifications may be made in the constructions shown without departing from the spirit of my invention as pointed out in the appended claims.

I claim:

1. In a two conductor distribution clamp having oppositely disposed yoke members and centrally located clamping means loosely engaging said yoke members for urging the same into gripping engagement with a pair of conductors, the combination of two springs located on opposite sides of said clamping means for urging said yoke members away from each other toward open position, one of said springs being stronger than the other so that when both of said springs are in place, the stronger spring will cause one side of said distribution clamp to be opened up for reception of one of said conductors, and so that when said stronger spring is removed, the other spring will cause the other side of said distribution clamp to be opened up for reception of the other one of said conductors.

2. A distribution clamp comprising an apertured upper yoke member, an apertured lower yoke member, each of said yoke members having jaw portions for gripping a pair of conductors in parallel spaced relationship, clamping means passing through said apertured yoke

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members for urging the same into gripping engagement with said pair of conductors, said lower yoke member being constructed for rocking movement with respect to said clamping means, and two springs removably secured to said upper yoke member and each having an arm engaging said lower yoke member on opposite sides of said clamping means, one of said springs being stronger than the other so that when both of said springs are in place, the stronger spring will cause said lower yoke member to be rocked to open side of said distribution clamp for reception of one of said conductors, and so that when said stronger spring is removed, the other spring will cause said lower yoke member to be rocked in the opposite direction to open the other side of said distribution clamp for reception of the other one of said conductors.

3. A distribution clamp as claimed in claim 2 in which each of said springs is a torsion spring having two ends, one end being provided with a fork removably embracing the upper and lower surfaces of said upper yoke member in a longitudinal direction and at a point between said jaw portions in order that said spring may be removed by a longitudinally directed force, and the other end engaging the upper surface of said lower yoke member at a point adjacent one of said jaws so that the force tending to rock said lower yoke member will be applied at a point offset from the axis of said clamping means.

4. A distribution clamp as claimed in claim 2 in which said clamping means includes a bolt, a nut cooperating therewith and a washer disposed between said nut and said lower yoke member, the lower surface of said lower yoke member being substantially cylindrical so that it will rock on said washer.

5. A distribution clamp as claimed in claim 2 in which said clamping means includes a bolt, a nut cooperating therewith and a washer disposed between said nut and said lower yoke member, the lower surface of said yoke member having a ridge parallel to said jaw portions and engaging said washer so that said lower yoke member will rock on said washer.

6. A distribution clamp as claimed in claim 2 in which said upper yoke member is provided with skirt portions to prevent relative rotation of said yoke members about the axis of said clamping member, one of said skirt portions overlapping the jaw portion of the closed side of said lower yoke member when the opposite side of said distribution clamp is open.

No references cited.

UNITED STATES PATENT OFFICE
CERTIFICATION OF CORRECTION

Patent No. 2,968,679

December 6, 1960

Leonard L. Jugle

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 10, after "open" insert -- one --.

Signed and sealed this 2nd day of May 1961.

(SEAL)

Attest:

ERNEST W. SWIDER
Attesting Officer

DAVID L. LADD
Commissioner of Patents