H. C. STATON.

WIRE CLAMP.

APPLICATION FILED NOV. 27, 1916.

1,231,804.

Patented July 3, 1917.

Fig. 1.

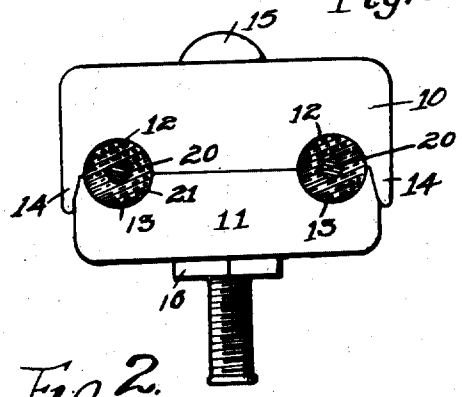



Fig. 2.

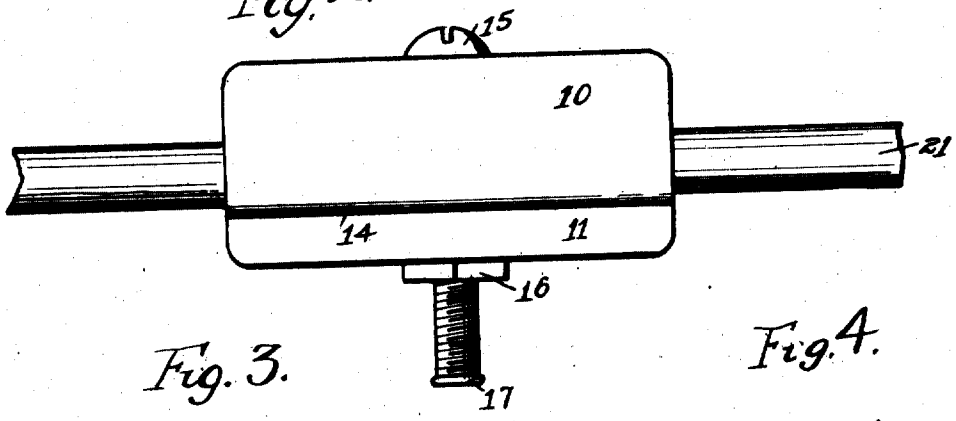



Fig. 3.

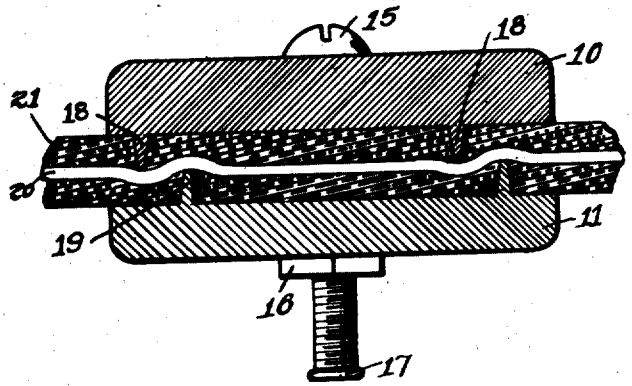
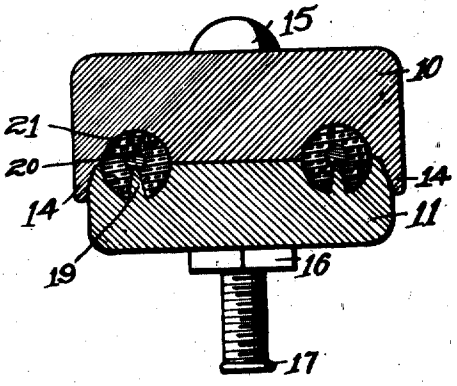



Fig. 4.




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# UNITED STATES PATENT OFFICE.

HARRY CULP STATON, OF BURLINGTON, IOWA.

## WIRE-CLAMP.

1,231,804. Specification of Letters Patent. Patented July 3, 1917.

Application filed November 27, 1916. Serial No. 133,640.

*To all whom it may concern:*

Be it known that I, HARRY CULP STATON, a citizen of the United States, and resident of Burlington, in the county of Des Moines and State of Iowa, have invented a certain new and useful Wire-Clamp, of which the following is a specification.

The object of my invention is to provide a wire clamp of simple, durable, and inexpensive construction.

A further object is to provide a novel means whereby a contact may be formed between two insulated wires without having to remove the insulation.

A further object is to provide a clamp for making a contact between two wires which is provided with pins adapted to be forced through the insulation by drawing the clamp members together so that the points of the pins will rest against the wire proper.

A further object is to provide a clamp with such pins having a staggered relation toward each other, whereby, as the clamp members are drawn toward each other, the wire will be slightly bent and the points of the pins moved longitudinally on its surface as the bending of the wire draws it through the insulation.

My invention consists in the arrangement, construction, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows an end elevation of a clamp embodying my invention, the insulated wires which are passed through it being shown as cut off at end of the clamp.

Fig. 2 shows a side elevation of the clamp with wires inclosed therein.

Fig. 3 shows a vertical, sectional, longitudinal view taken on the central line of one of the wires, and

Fig. 4 shows a vertical transverse sectional view taken on the central line of one pair of contact pins.

In the accompanying drawings, I have used the reference numeral 10 to indicate generally the upper half or member of my clamp, and the lower half or member is indicated by the numeral 11. A pair of longitudinal grooves 12 adapted to register with a similar pair of grooves 13 are formed in the members 10 and 11 respectively. Flanges 14 formed on member 10 coact with the outer upper edges of member 11 to prevent lateral displacement of the members when they are brought together. A bolt 15 and nut 16, or other similar means, are provided for drawing the clamp members together, and in actual use the lower end of the bolt at 17 is battered so that the nut can not be separated from the bolt with the consequent tendency to lose one or more of the parts when they are being carried around.

The groove 12 is provided with two or more downwardly projecting pins 18 which project from a central longitudinal line, and are pointed at their lower ends. Groove 13 has upwardly projecting pins similar in shape but which are spaced longitudinally from pins 18. The latter described pins are designated by numeral 19.

The parts are so interrelated in size that when the clamp members are brought together by the bolt 15 around a pair of wires 20, that the insulation 21 thereon will be tightly pressed between the pairs of registering grooves 12 and 13, and the adjacent faces of the clamp members will substantially abut against each other. Further, the length of the pins is such that when the wires are in this position, the ends of the pins 18 will lie in a plane spaced slightly down from the plane in which the ends of pins 19 lie.

It will thus be seen that when the clamp members are brought together, pins 18 and 19 will push through the insulation 21 to the wires 20, at which time the clamp members will still not have reached their position in which the adjacent faces abut. The balance of the closing movement pushes the pins 19 upward against the wire 20 and pins 19 down against the wire, so that the portion adjacent to pin 18 is bent downwardly and the portion adjacent to pin 19 is bent upwardly, thereby forming the wire into an elongated S shape in the portion adjacent to the pins.

It has been found by actual experiment that this bending the wire pulls it through the insulation and consequently moves it along past the point of the pins so that the pins are not only held against it by the pressure of the bolt 15 but are scraped along it during the latter part of the closing movement of the clamp. The grooves in the clamp members being formed so as to engage the outside of the insulation tightly when the clamp members are brought together prevent by their pressure against the insulation the wires from buckling sidewise to allow

the pins to slide past the wires instead of having the points press directly against said wires.

It will be understood that there are many devices for accomplishing the purpose which mine does, and that I do not claim as new the clamp with registering grooves for receiving two wires which it is desired to fasten together. The novelty of construction resides in the improved means for forming an electrical connection between two insulated wires without having to prepare the wires by removing the insulation or the like.

In actual operation, this device is used with telephones which are connected as is common in rural districts in a series, the method being to string the necessary wires to the farthest subscriber, and then to connect with those wires at convenient places the subscribers living at intermediate points. When connecting up such intermediate or new subscribers, the ends of the new wires must be connected to those already installed and some means must be provided to protect the connection from the weather, as it is usually made out doors in an unprotected place. My invention is intended to be used in such situations to connect the ends of the new wires with the wires already installed, and to make it unnecessary to make any preparations to insure a tight joint or to install any protection over the joint afterward to prevent corrosion and the like. It will be seen that with my construction it is not necessary to cut off the insulation of either wire so that corrosion will ensue, nor it is necessary to protect the joint afterward because the insulation has not been broken except at a point within the clamp.

The pins being so arranged that their points slide along the wire when the clamp is being closed also insures a positive metal to metal contact because of the shearing action of such sliding.

It will be understood that some changes may be made in the construction and arrangement of the parts, without departing from the spirit of my invention, and it is my intention to include in this application all such changes as may be included within the reasonable scope of the claims.

I claim as my invention:

1. In a wire clamp comprising two coacting members, a pair of clamp members having longitudinal grooves therein in their adjacent surfaces whereby a passageway between the members is formed, an insulating wire extended through said passageway and a plurality of cutting devices extended outwardly from a central longitudinal line of each groove, said cutting devices of one clamp member being in staggered relation to the cutting devices of the other clamp member whereby bringing said clamp members together will cause said cutting devices to penetrate through the insulation of the wire and the point of each cutting device and to move longitudinally along the surface of said wire.

2. In a wire clamp adapted to secure together and form a contact between two insulated wires, two members movable toward and from each other, said members having pairs of registering grooves in their adjacent faces, a plurality of cutting devices extending from a central longitudinal line in each groove a distance substantially equal to the depth of the groove, the cutting devices of one clamp member being spaced longitudinally from the cutting devices on the other clamp member, and means for fastening said clamp members together.

3. In a device of the class described, an upper clamp member having a pair of longitudinal grooves in its lower surface and a downwardly projecting flange at each lateral edge, a lower clamp member having its upper lateral edges adapted to be received between said flanges, said member having a pair of grooves adapted to register with the grooves in the upper member, a plurality of cutting devices projecting from a central longitudinal line of each groove a distance substantially equal to the depth of the groove, the cutting devices of the upper member being spaced longitudinally from those of the lower member, and means for fastening the clamp members together.

4. In a device of the class described, an upper clamp member having a pair of spaced longitudinal grooves in its lower surface, a lower clamp member having a pair of spaced longitudinal grooves in its upper surface adapted to coact with the grooves of the upper clamp member to form parallel passageways through the entire device when the clamp members are brought together, a plurality of cutting devices extending from a central longitudinal line of each groove, the cutting devices of the upper clamp members being staggered, relative to the cutting devices of the lower clamp members and an insulated wire extended through each of the passageways formed by said grooves, parts being so arranged that when the clamp members are squeezed together the cutting devices will cut through the insulation and push the wire toward the opposite clamp member whereby the cutting edge of each cutting device will be slid along the surface of the wire.

Des Moines, Iowa, November 17, 1916.

HARRY CULP STATON.