Sept. 24, 1929. A. A. C. OHLSEN 1,729,276

SAFETY DEVICE FOR HIGH TENSION WIRES

Filed June 17, 1924

Fig. 1.

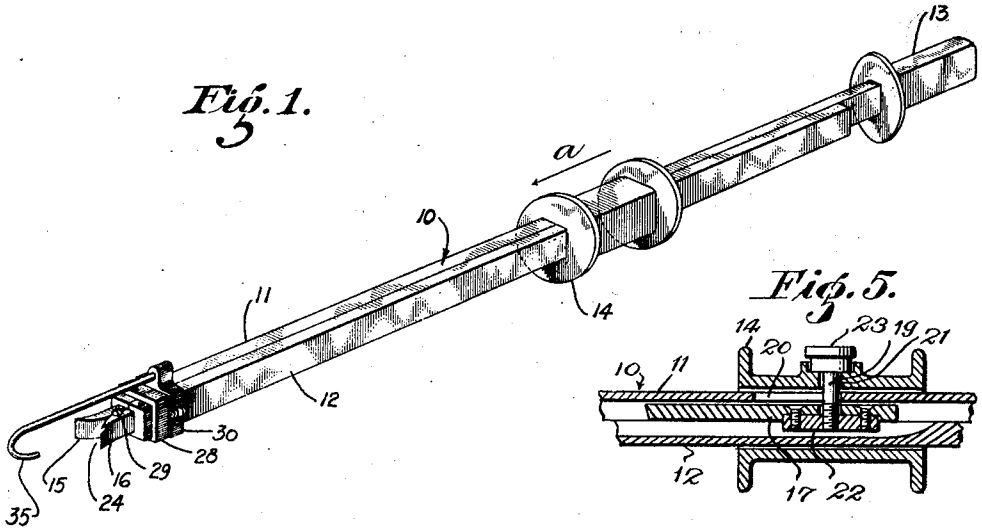


Fig. 5.

Fig. 2.

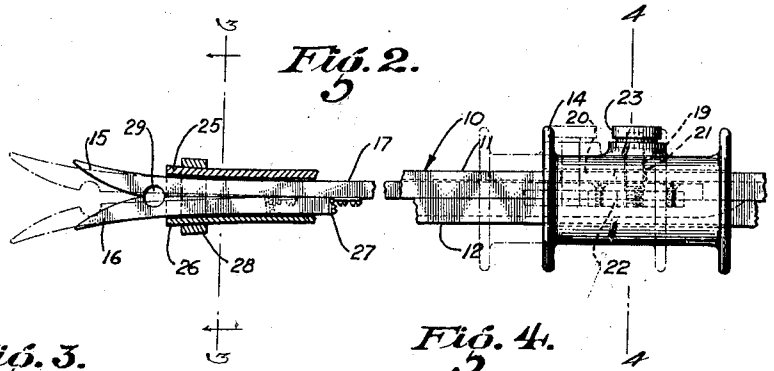


Fig. 3.

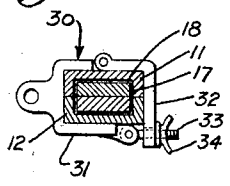
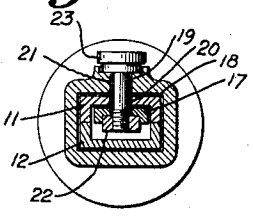


Fig. 4.



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UNITED STATES PATENT OFFICE

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SAFETY DEVICE FOR HIGH-TENSION WIRES

Application filed June 17, 1924. Serial No. 720,559.

This invention relates to a safety device for emergency use in handling high tension wires, and particularly pertains to a pair of tongs of the general class as shown in my co-pending application entitled Safety device for high tension wires, filed January 14, 1924, and bearing the Serial No. 685,994.

It is the principal object of the present invention to provide means by which charged high power electric wires may be safely handled in an emergency, as for example, during the burning of a building, when the supports for wires are destroyed, and it becomes necessary for firemen to enter the wreckage and clear away the débris.

The present invention contemplates the use of a pole or handle of considerable length which is made of dielectric material, and at one end is fitted with a pair of reciprocable clamping jaws adapted to be manipulated from the opposite end of the handle, the manipulating means, as well as the handle, being impervious to moisture and also constructed of dielectric material.

The invention is illustrated by way of example in the accompanying drawings, in which:

Fig. 1 is a view in perspective showing the complete device embodying the present invention.

Fig. 2 is a fragmentary view in section and elevation with parts broken away showing the clamping jaws and the manner of operating the same and showing the sliding grip in section.

Fig. 3 is a view in transverse section through the handle portion of the structure as seen on the line 3—3 of Fig. 2.

Fig. 4 is a view in transverse section through the manipulating member provided to operate the clamping jaws, as seen on the line 4—4 of Fig. 2.

Fig. 5 is a fragmentary view in longitudinal section showing the sliding grip.

Referring more particularly to the drawings, 10 indicates a handle structure here shown as formed of two lengths of hard wood indicated at 11 and 12 and having a central opening 18 extending laterally of it for a desired distance. This wood is preferably maple which has been impregnated with paraffin. It will be understood that other wood may be used, and that the construction of the handle might vary from the two piece structure here disclosed.

Mounted on the end of the member 11 is a handle grip 13. This handle grip is preferably formed of rubber. By an examination of Figs. 3 and 4, it will be seen that the cross section of the assembled handle is substantially square. At a point along the length of this square handle is mounted a movable grip 14 by which jaws 15 and 16 may be simultaneously actuated. The jaw 15 is carried upon the end of a wooden shaft 17, which in turn extends within the central opening 18 formed in the handle structure and terminating substantially in the portion of the handle surrounded by the movable grip 14.

A lock screw 19 extends through a boss in the grip, passes through a slotted opening 20 in the handle, a hole 21 through the shaft 17, and is engaged by a nut 22. This screw has a knurled head 23 by which it may be rotated so that the shaft 17 and the movable grip 14 may be temporarily locked against movement longitudinally of the handle. It is to be understood that the shaft 17 and the movable grip 14 are both made of dielectric material, so that high tension electric current will not pass along the various parts of the device and reach the operator.

Movably positioned relative to the jaw 15 formed at the end of shaft 17 is the jaw 16. These two jaws have outwardly flaring end portions forming a V-shaped throat 24 into which a wire may readily find its way so that it may come into a position between the jaws permitting it to be gripped by their opposing faces. The back faces of the jaws are slightly tapered and engage complementary faces 25 and 26 formed in the opening 18 extending longitudinally of the handle for their accommodation. It will therefore be evident that as the shaft 17 is forced forwardly, the two jaws 15 and 16 will move outwardly from the position in which they are wedged, and will be free to accommodate a wire or other object forced into the throat 24.

As here shown, the jaw 16 is pivoted relative to the jaw 15 by a hinge 27 fastened to the shaft 17. In order to reinforce the end of the handle 10 and to prevent splitting thereof when the jaws wedge against the faces 25 and 26, a ferrule 28 is positioned around the end of the handle, as shown in Fig. 2. This ferrule is preferably made of material having suitable dielectric properties.

By an examination of Fig. 2, it will be seen that the opposing faces of the jaws are formed with semi-circular recesses 29 within which the wires may seat, and by which they will be securely held when the jaws are clamped together. In some instances the wire will be further clamped after becoming seated in the recess by being drawn against the end face of the handle as the jaws are pulled inwardly by manipulation of the movable grip 14.

It sometimes occurs that firemen or other persons become entangled among high tension wires and cannot be extricated without danger to those endeavoring to effect a rescue. For that reason the present invention is provided with an auxiliary device by which the clothing of a person may be grasped and the person drawn away from a dangerous position. This structure comprises a clamp 30 formed of members 31 and 32 which may embrace the handle 10 at a point near the ferrule 28. The clamp may be secured in position by an eye-bolt 33 and a wing nut 34 as shown in Fig. 3. This clamp carries a hook 35 which projects beyond the end of the handle when in proper position, and may be used as a grappling hook. The hook preferably is formed with a rigid metal core covered by vulcanized rubber or other electrical insulating material.

In the operation of the present invention, when the structure is to be used to manipulate wires, the operator grips the handle grip 13 by one hand and the movable grip 14 by the other. By shoving on the movable grip in the direction of the arrow —*a*— as indicated in Fig. 1, the shaft 17 will be similarly moved, provided that the set screw 19 has been loosened. As the shaft moves longitudinally of the handle, the jaws 15 and 16 will be projected outwardly from the end of the handle, and will be free to separate. A wire or other article to be gripped will drop into the throat 24 between the jaws, after which the movable grip 14 may then be moved in the opposite direction. This will draw the jaws inwardly forcing their inclined faces against the walls 25 and 26 to clamp the wire between them. The wire will find a seat in the recesses 29 and may be further clamped as it is drawn against the end of the handle 10.

When the hook 35 is to be used it may be instantly placed in position by passing the members 31 and 32 around the handle and securely clamping them by the action of the bolt 33 and the nut 34.

It will thus be seen that the device here disclosed affords a substantial and rigid member which may be easily manipulated to reach and firmly grasp a wire without danger of electrocuting the operator.

While I have shown the preferred form of my invention as now known to me, it is to be understood that various changes may be made in its construction without departing from the spirit of the invention as claimed.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A safety device for handling high tension wires comprising a shaft having a handle grip formed upon one end thereof, and terminating in a jaw at the opposite end thereof, a complementary jaw member extending parallel to the jaw on the shaft and articulately connected therewith, said jaws having opposed converging faces forming a V shaped throat between them, said converging portions terminating in transversely extending complementary arcuate recesses whereby a wire may be forced between the converging faces of the throat and will set itself in the recesses, a handle structure within which said shaft extends and into one end of which the two jaw members extend whereby relative longitudinal movement between the jaw members and the sleeve will release or clamp said members to hold a wire in gripped relation thereto, all of the parts of said device being formed of dielectric material.

2. A safety device for handling high tension wires comprising a longitudinally extending shaft formed of dielectric material and having a handle grip on one end thereof, and a jaw formed on the other end thereof, a complementary jaw formed of dielectric material and articulately connected to the jaw formed on the end of the shaft, said jaws having outwardly flaring back faces and inwardly converging clamping faces forming a V shaped throat into which a wire may be forced as the shaft is manipulated, the abutting portions of the jaws adjacent the point of convergency between the clamping faces being formed with complementary arcuate recesses into which the wire may move and may be held, a handle structure of dielectric material within which the shaft extends and into one end of which said jaws may extend, whereby relative movement between the jaws and the open end of the handle structure will cause them to clamp or release a wire to be grasped thereby, a dielectric handle upon the handle structure for the manipulation of the tool and means carried by the handle portion to lock the shaft with relation to the handle structure when in its gripping position.

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