

Feb. 28, 1939.

F. J. POINAN

2,149,070

SUSPENDING LINE WIRE

Filed Feb. 7, 1938

2 Sheets-Sheet 1

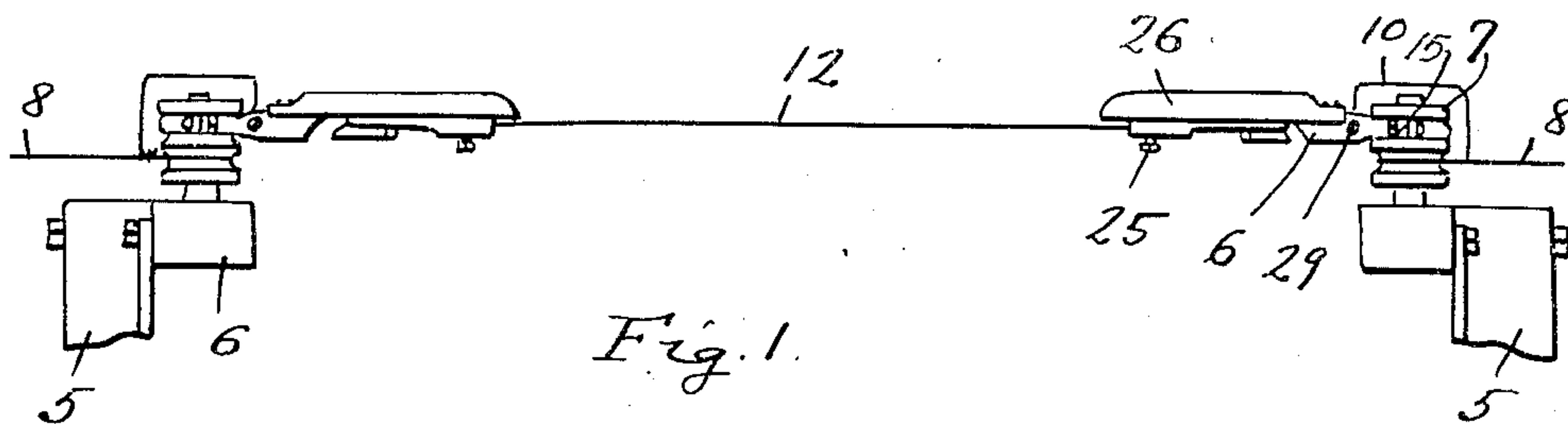


Fig. 1.

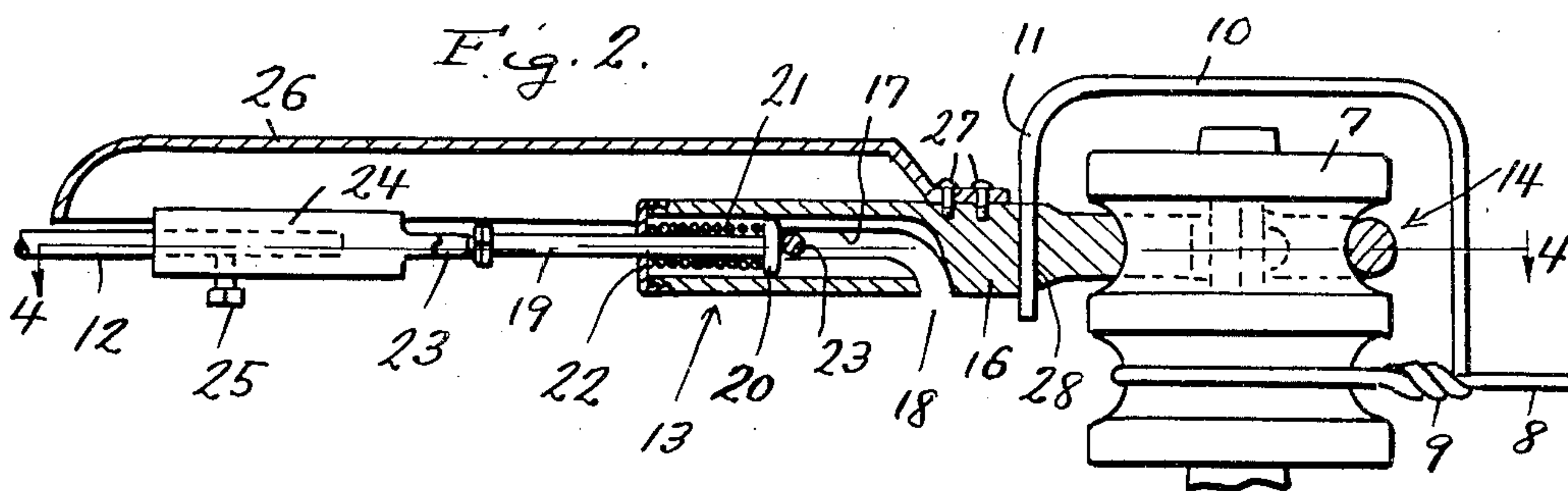


Fig. 2.

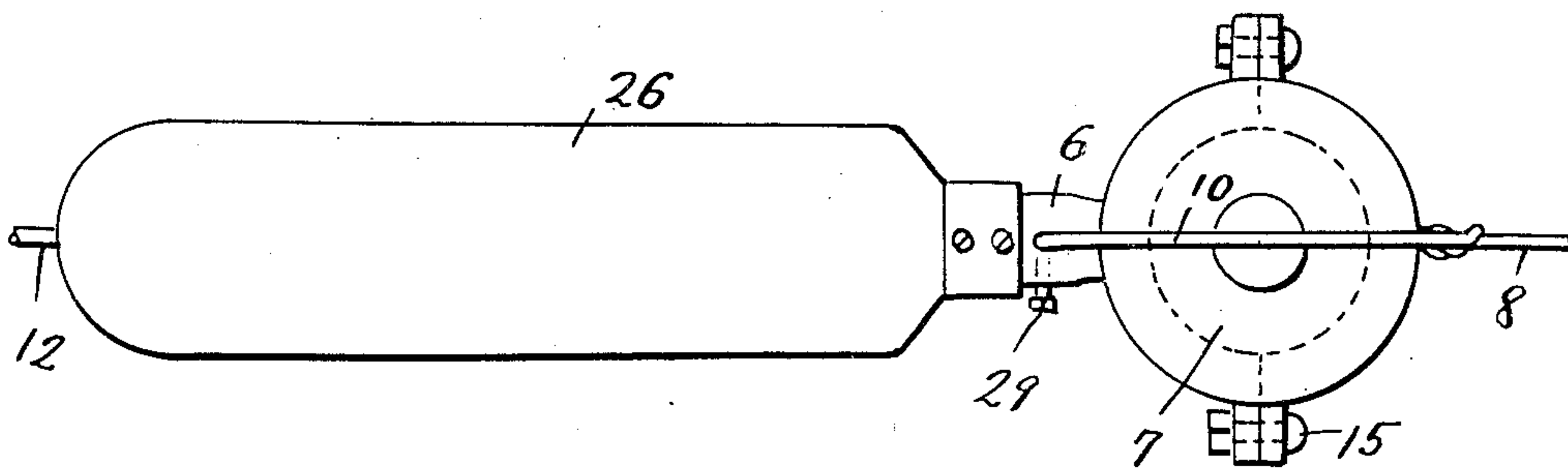


Fig. 3.

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2 Sheets-Sheet 2

Fig. 4.

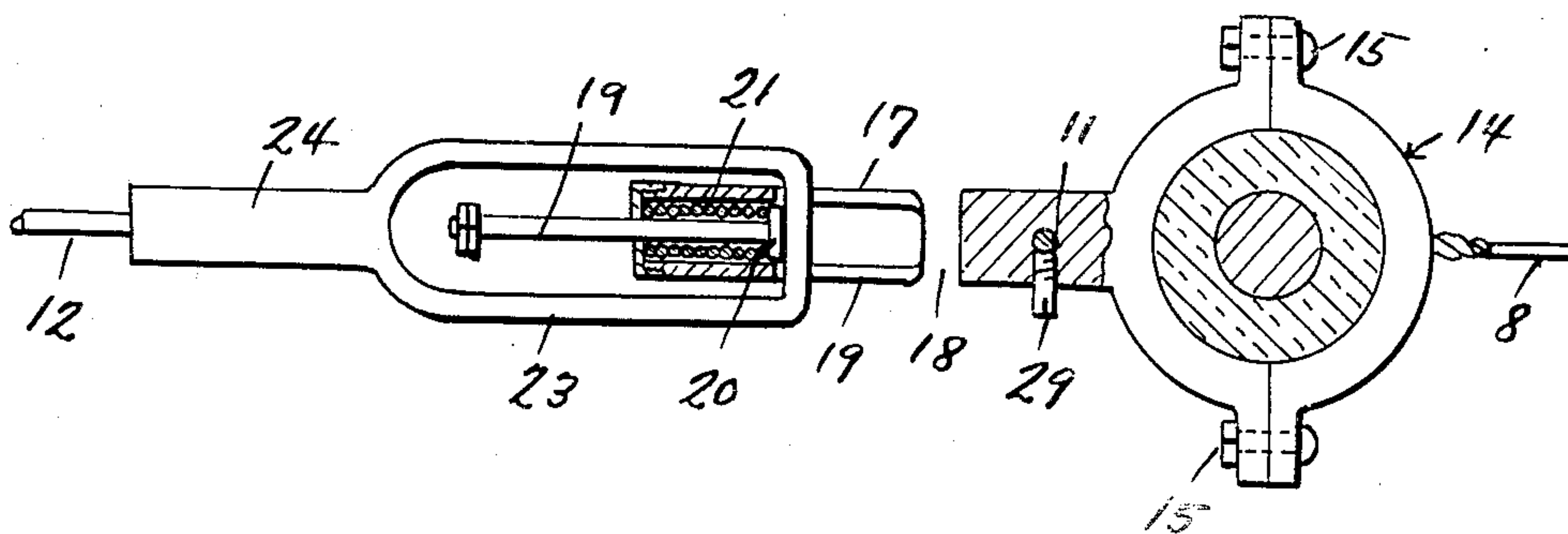


Fig. 5.

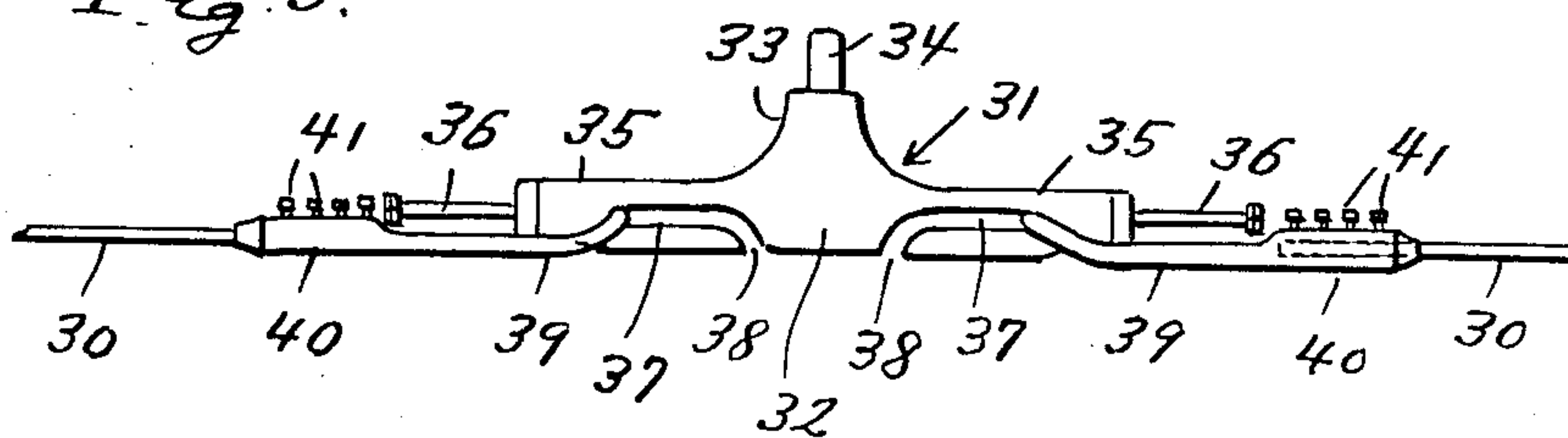
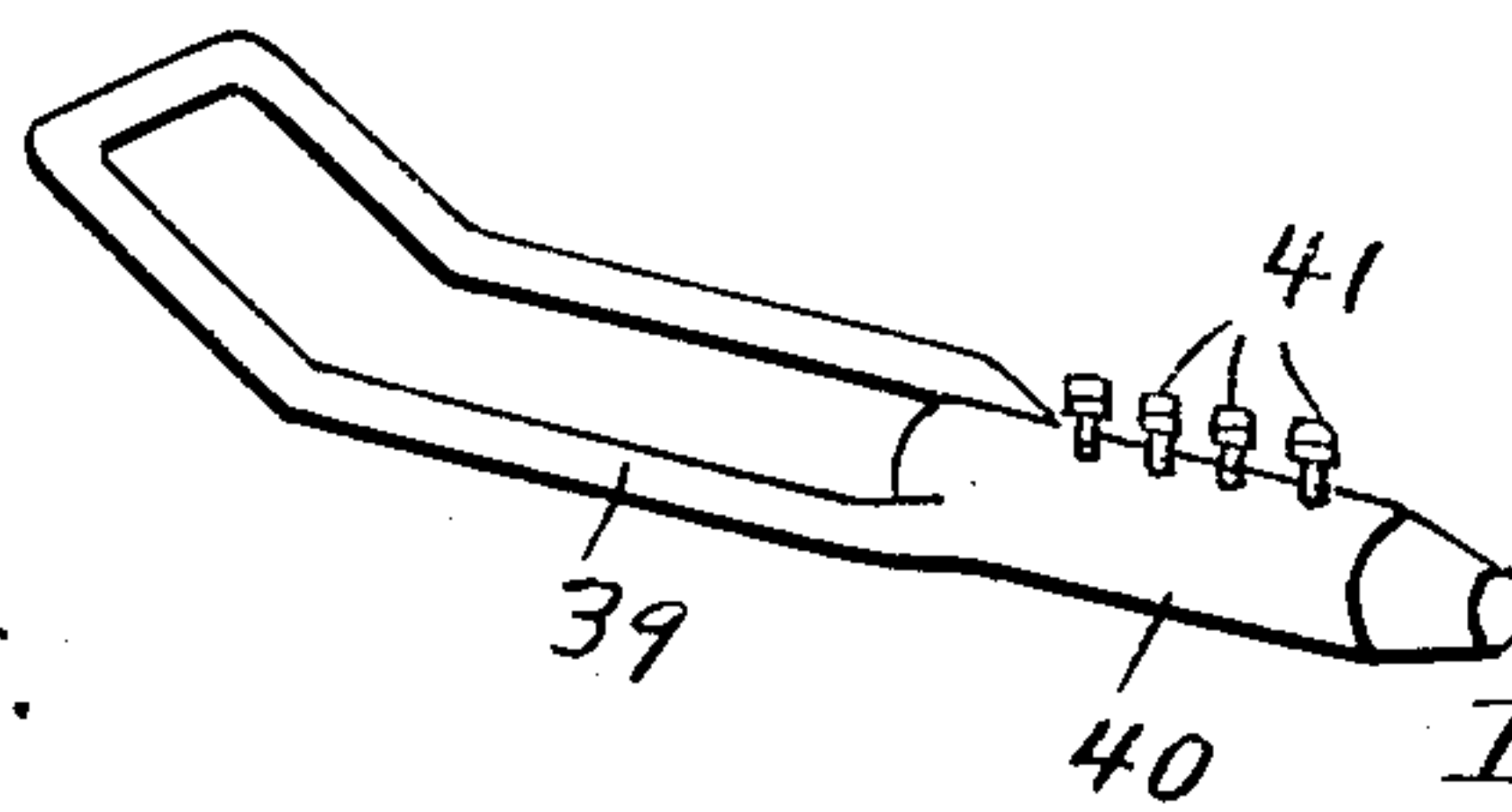


Fig. 6.



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SUSPENDING LINE WIRE

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5 Claims. (Cl. 200—79)

This invention relates to suspending telegraph, telephone, and like wires of all electrical transmission lines charged with electricity in such a manner that if one should in any manner become broken between the poles, towers or buildings, upon which they are strung the connections between that wire and the poles between which it is strung are immediately broken thus permitting both sections of the broken wire to fall to the ground to the end that the dangers now attendant broken wires charged with electricity being left suspended from the poles, will be eliminated.

Obviously the objection to leaving charged wires suspended from their supporting poles is the danger of causing death or serious injury to a person upon coming into contact with such broken wires.

Further in accordance with the present invention improved means is provided whereby the end of a wire may be so connected to a pole, or the ends of two wires so connected together so that in the event of breakage the wire, or wires, as the case may be, will be wholly released thus permitting the same to fall bodily to the ground.

The invention together with its objects and advantages will be best understood from a study of the following description taken in connection with the accompanying drawings wherein:—

Figure 1 is a side elevational view illustrating the application of the invention in the suspension of a wire between two poles,

Figure 2 is a sectional view showing the connection between a wire and its supporting insulator,

Figure 3 is a top plan view of the connection,

Figure 4 is a sectional view taken on the line 4—4 of Figure 2 and looking in the direction of the arrows,

Figure 5 is a side elevational view showing the application of the invention in the connecting of the ends of two wires together, and

Figure 6 is a perspective view of a combination yoke and socket member forming part of the assembly shown in Figure 5.

Referring to the drawings by reference numerals and particularly to the form of the invention as illustrated in Figures 1 to 4 inclusive, it will be seen that the reference numerals 5 indicate poles provided with cross-arms 6 that in turn are equipped with insulators 7.

In accordance with the present invention line wires 8 have end portions thereof disposed about the insulators 7 with the terminals of the wires extending from the windings 9 bent into substantially U-shaped form as shown at 10 to clear the

insulators 7 and to present ends 11 as and for a purpose hereinafter made manifest.

The line wire to be supported between the poles 5—5 is indicated by the reference numeral 12 and the manner in which the line wire 12 at the ends thereof is to be connected to the supporting poles 5 and electrically connected to the line wires 8 will now be described.

To the end just mentioned there are provided connectors 13 and each connector 13 comprises a two-part clamp 14 the parts of which are provided with apertured ears through the medium of which and bolts 15 the clamp is engaged with the insulators 7 as shown. The parts of the clamp 14 are of conductive material and one part of the clamp has integral therewith a substantially tubular arm 16 that is provided in opposite sides thereof with slots 17 that at one end connect with a transverse slot 18 in the underside of the arm 16.

An ejector plunger 19 is provided with a head 20 that has a sliding fit in the arm 16 and is normally urged inwardly of the arm 16 through the medium of a coil spring 21 that is interposed between the head 20 of the plunger 19 and an end cap 22 provided for the free end of the arm 16 as shown to advantage in Figure 2.

Further the connector 13 includes an integral yoke 23 and connector socket 24. The yoke 23 has one end thereof engaged with the arm 16 by passing said end of the yoke into the arm through the slot 18, with the yoke being accommodated by the slots 17 in a manner clear from a study of Figures 2 and 4. The end of the yoke 23 engaged with the arm 16 is arranged in the path of the plunger head 20 as shown and the socket 24 is adapted to receive therein one end of the wire 12 which is secured within the socket through the medium of a set screw 25 as clearly shown in Figures 1 and 2.

As is obvious, and as shown in Figure 1, two connectors 13 are used for securing or suspending the wire between the post 5 and through the medium of the springs 21 the wire 12 is held in a taut condition. It will thus be seen from the above that in the event the wire 12, because of the weight of snow or from any other reason, breaks, springs 21 will act on the plunger heads 20 to move the plungers inwardly of the arms 16 and consequently force the inner ends of the yokes 23 in a corresponding direction so that the yokes guided by the slots 17 will be caused to move out of engagement with the arms 16 through the slots 18 with the result that the sections of the wire 12 carrying with them the yokes 23 and sockets 24 will fall bodily to the ground. Thus the danger

of charged wires, as a result of breakage in the wires, being left dangling or depending from their supports, is completely obviated as are the consequent dangers incidental to dangling or freely pendant charged line wires.

Further in accordance with the present invention each connector 13 is equipped with a suitable shield 26 that is of a length to extend over the yoke 23 and socket 24 as well as over the major portion of the arm 16 in order to protect these parts from sleet, snow, etc.

The shield 26 is secured to the arm 16 by rivets or any other suitable fastening means and as indicated generally at 27 in Figure 2.

Also in this form of the invention the wire 12 is in electrical connection with the line wires 3 through the medium of the elements of the connectors, all of which elements are formed of conducting material, arms 16 of the connectors being provided with vertical holes or openings 28 therethrough which receive the terminals 11 of the U-shaped ends 10 of the wires 3 as shown in Figure 2. Terminals 11 are secured within the holes 28 through the medium of set screws 29. Thus an efficient electrical connection between the wires 3 and 12 is provided for.

In Figure 5 I have illustrated the application of the invention in connecting the ends of two charged wires 30, such as trolley wires and the like. In this form of the invention the connector, indicated generally by the reference numeral 31, comprises a body member 32 of conductive material and provided intermediate its ends with a socket 33 for receiving one of the usual branch wires 34 and through the medium of which branch wire current is fed from the main line wires (not shown) to the trolley wires 30.

Body 32 also embodies oppositely extending substantially tubular arms 35 which have slidable therein the heads of plungers 36 in substantially the same manner in which the heads 20 of plungers 19 are slidably accommodated within the arms 16 of the connectors 13 hereinbefore described in detail.

Arms 35 are also provided at opposite sides thereof with slots 37 which at their inner ends curve downwardly and merge with transverse slots 38 whereby to receive the offset ends of yokes 39.

The yokes 39 are formed integral with coupling sockets 40 that receive therein the ends of wires 30. The ends of the wires 30 are secured within the sockets 40 through the medium of set screws 41 or in any other suitable manner.

It will thus be seen that should a wire 30 break the plunger 36 for that wire will act on the yoke 39 to eject the same out of engagement with its associated arm 35 thus freeing the wire 30 to permit the latter to fall bodily and harmlessly to the ground.

It is believed that the construction, utility, and advantages of an invention embodying the features of the present invention will be understood and appreciated without a further detailed description thereof.

Having thus described the invention what is claimed as new is:—

1. For use in suspending or connecting line wires, a connector embodying a tubular arm having elongated slots in opposite sides thereof and a transverse slot in the underside thereof, with the longitudinal slots having curved ends merging into said transverse slot, a yoke member engag-

ing said arm and ejectable out of engagement with said arm through the slots in said arm, a spring tensioned ejector device operating with said arm and engageable with said yoke and normally acting on the latter to effect a disengagement of said arm and yoke, and said yoke being provided with means for electrically connecting a line wire thereto.

2. For use in suspending and connecting line wires, a conductor member embodying a tubular arm, a spring-pressed plunger operating within said arm, said arm being provided for receiving therein a yoke member, a yoke member normally engaging said arm and said plunger in a manner to cause said yoke member to be forcibly disengaged from said arm in response to the action thereon by said plunger incidental to the release of a pull on said yoke member in opposition to the spring tensioning said plunger, and a socket integral with said yoke member and having secured therein one end of a line wire whereby on breaking of said line wire said spring influenced plunger frees the yoke from the arm to fall freely to the ground with the broken wire.

3. A connecting means comprising a clamp of conductive material engaging an insulator and provided with a tubular arm having elongated slots in the sides thereof and a transverse slot in the bottom thereof at the inner ends of the first-mentioned slots, a spring-pressed plunger working in said arm and normally urged in the direction of the inner end of said slots, a yoke member engaging said arm and the first-mentioned slots of said arm and having an end normally engaged by said plunger, said yoke also having a free end provided with means for electrically connecting a line wire thereto, and said arm having an opening therethrough for receiving a terminal of another line wire.

4. A connecting means comprising a clamp of conductive material engaging an insulator and provided with a tubular arm having elongated slots in the sides thereof and a transverse slot in the bottom thereof at the inner ends of the first-mentioned slots, a spring-pressed plunger working in said arm and normally urged in the direction of the inner end of said slots, a yoke member engaging said arm and the first-mentioned slots of said arm and having an end normally engaged by said plunger, said yoke also having a free end provided with means for electrically connecting thereto a line wire, said arm having an opening therethrough for receiving a terminal of another line wire, and a shield overlying the arm and secured at one end thereof to said arm.

5. A device for connecting the ends of electric wires comprising a body member having oppositely extending tubular arms provided with spring pressed plungers working therein, each of said arms being provided with longitudinal slots in opposite sides thereof and a transverse slot in the bottom thereof at the inner ends of said longitudinal slots, yoke members connected to electric wires and normally engaging said arms through the medium of said slots and having end portions normally contacted by said plungers to be forcibly ejected out of engagement with said arms upon breaking of the electric wires, and said yoke members having free ends provided with means for electrically connecting the electric wires thereto.

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