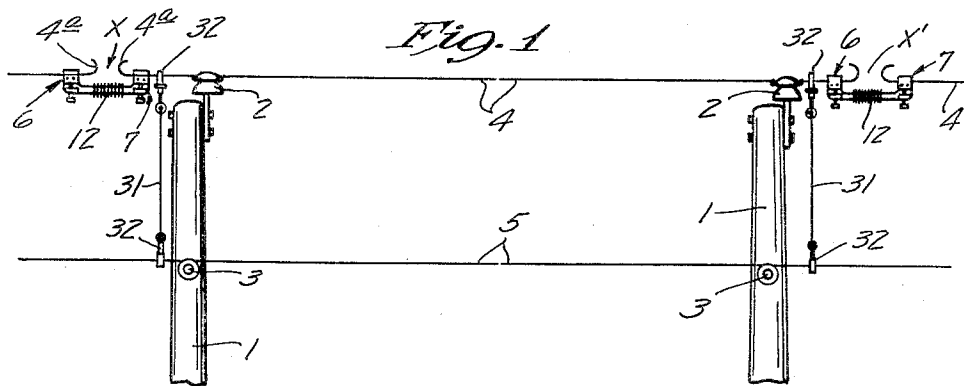
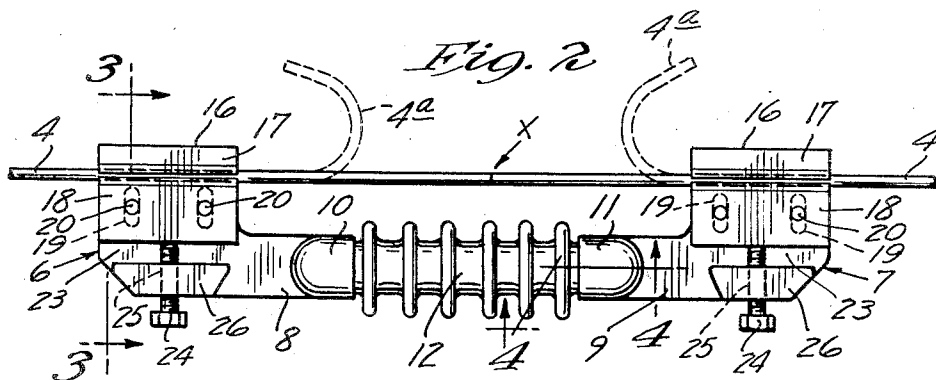
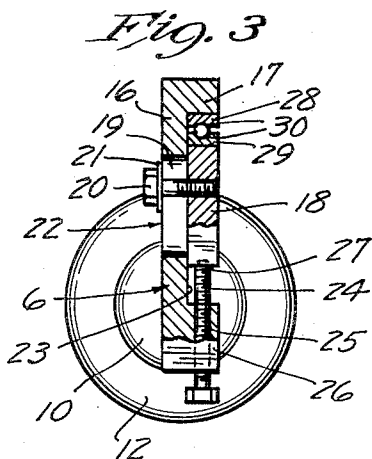
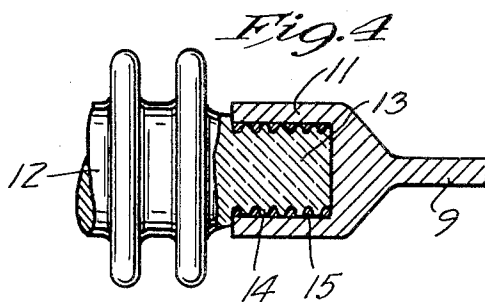


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L. E. PARKYN  
POWER CONDUCTOR ISOLATOR

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INVENTOR.

*Lionel E. Parkyn*

BY

*Merchant & Merchant*  
ATTORNEYS

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## POWER CONDUCTOR ISOLATOR

Lionel E. Parkyn, Waterville, Minn.

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1 Claim. (Cl. 174-138)

My invention relates generally to lineman's equipment for use in power conductor work, and more specifically, is in the nature of a device for holding adjacent ends of a severed power conductor or line in spaced relationship.

In the distribution of electrical current, it is sometimes necessary or desirable to deenergize a given length of power conductor so that connections may be made thereto, or that the same may be serviced or converted in one way or another, without danger of electrical shock to the lineman. Heretofore, in so deenergizing the required section of the conductor, it has been necessary to secure wire grips or clamps to spaced portions of the conductor, apply a so-called "coffin hoist" or other winch means to the wire grips to hold the same in desired spaced relation when the conductor therebetween is severed. After severing the conductor between the wire grips, a pair of dead end clamps, connected to each other by insulators, were attached to the severed ends to hold the severed ends in spaced relationship, after which the coffin hoist and wire grips were removed. This procedure was carried out at both end portions of the portion of conductor to be isolated. The isolated conductor was then grounded adjacent both ends to a neutral line of a conductor system. In reconnecting the severed portions of the conductor, the wire grips and coffin hoist were again connected to the adjacent severed end portions and the hoist manipulated to cause tensile strain of the conductor to be removed from the dead end clamps which were then removed. The end portions of the conductor, which were weakened by being bent in the dead end clamps, were cut away and a length of conductor spliced in to fill the gap left by the cut away portions. This operation required two spliced joints at each end of the formerly isolated portion. The severing of the conductor and the reconnecting thereof required the services of a lineman and a groundman inasmuch as the coffin hoist and dead end clamps were too heavy and cumbersome to be carried to the top of the conductor supporting pole by the lineman during his climb thereof. Furthermore, these combined operations consumed an undue amount of time, and the reconnected conductor was often placed under uneven tension between adjacent poles due to pulling thereon by the coffin hoist and splicing in of conductor sections of improper length, resulting in chafing between the conductor and the mounting insulators therefor.

An important object of my invention is the provision of a device which may be quickly and easily attached to a power conductor at spaced points thereon, between which spaced points the conductor may be severed to deenergize or isolate one section of the conductor from the other sections thereof, and which will hold said severed portions in such relationship that the same may be rejoined when desired.

Another object of my invention is the provision of a power conductor isolator as set forth having spaced clamping means for attachment to spaced portions of a

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power conductor and of means for insulating said clamping means from each other.

A still further object of my invention is the provision of a device as set forth which is relatively simple and inexpensive to manufacture, which is relatively light in weight, which may be quickly and easily applied to and removed from a power conductor, and which is highly efficient in operation and durable in use.

The above and still further highly important objects and advantages of my invention will become apparent from the following detailed specification, appended claim and attached drawings.

Referring to the drawings, which illustrate the invention, and in which like characters indicate like parts throughout the several views:

Fig. 1 is a fragmentary view in side elevation of a power conductor line illustrating the use of my novel isolator in deenergizing a section of the conductor line;

Fig. 2 is a view corresponding to a portion of Fig. 1 on an enlarged scale;

Fig. 3 is an enlarged transverse section taken substantially on the line 3-3 of Fig. 2; and

Fig. 4 is an enlarged fragmentary section taken substantially on the irregular line 4-4 of Fig. 2.

Referring with greater detail to the drawings, a pair of supporting poles are shown fragmentarily and each indicated by the numeral 1. Insulators 2 and 3 are mounted at the top and sides respectively of the poles 1 in vertically spaced relationship. Power conductors 4 and 5 are secured to and supported by their respective insulators 2 and 3. For the purpose of the present example, the power system may be assumed to be of the single phase type, the conductor 4 being the so-called "hot line" and the conductor 5 being "neutral."

My novel power conductor isolator is an elongated structure comprising a pair of heads 6 and 7 that are preferably made from flat plate metal such as steel or the like, and which are formed to provide opposed necks 8 and 9 respectively which project toward each other. The necks 8 and 9 terminate in spaced opposed sockets 10 and 11 respectively, which receive the reduced opposite ends of a body 12 which is preferably made from suitable insulating material such as porcelain or the like. Preferably, and as shown in Fig. 4, the reduced ends 13 of the insulating body 12 are corrugated as indicated at 14, and a suitable cement, indicated at 15, anchors the corrugated ends 14 securely in their respective sockets 10 and 11. Although but one of the ends 13 of the body 12 is shown, it may be assumed that the end thereof received within the socket 10 is identical to that which is received in the socket 11. It will further be understood that any other suitable means, not shown, for anchoring the opposite ends of the insulating body 12 to the necks 8 and 9 of the heads 6 and 7 respectively, may be employed, the above described connections being but a preferred example thereof.

Welded or otherwise rigidly secured to the upper offset ends 16 of the heads 6 and 7 are a pair of relatively stationary clamping jaws 17. Mounted for sliding movements on the same side of the heads 6 and 7 are relatively movable jaws 18 which cooperate with their respective stationary jaws 17 to clamp longitudinally spaced portions of the power conductor 5 therebetween. The heads 6 and 7 are each provided with a pair of slots 19 through which extend mounting bolts 20 that are screw threaded into the movable jaws 18. Washers 21 are interposed between the heads of the mounting screws 20 and the back surfaces 22 of the heads 6 and 7. The mounting screws 20 are screwed into the jaws 18 just sufficiently to bring the jaws 18 into sliding engagement with the front surface 23 of the heads 6 and 7.

Means for imparting movement to the jaws 18 toward and away from clamping engagement with the stationary jaws 17 comprises a pair of clamping screws 24 which are screw threaded through threaded holes 25 in laterally outwardly projecting lugs 26 welded or otherwise rigidly secured to the bottom portions of the heads 6 and 7. The upper ends of the clamping screws 24 engage the bottoms of the movable jaws 18 as indicated at 27. By reference particularly to Fig. 3 it will be seen that the jaws 17 and 18 are provided with conductor engaging face plates or the like 28 and 29 respectively. These face plates 28 and 29 are rigidly secured to their respective jaws 17 and 18 by suitable means such as welding or the like, and are each provided with opposed concave conductor engaging surfaces 30 which define opposed relatively shallow channels extending longitudinally of the device and of the conductor 5.

When it is desired to deenergize a given section of the system, the lineman first connects an end portion of the hot line 4 of said given section to the neutral line 5. For this purpose, a jumper wire 31, having commercially available hot line clamps 32 at its opposite ends, is used, one of said clamps being clamped to the hot line 4 and the other thereof being clamped to the neutral line 5. My novel conductor isolator is then applied to the hot line 4, as shown, and the clamping screws 24 are tightened to securely anchor spaced portions of the conductor 5 between the clamping jaws of the heads 6 and 7. The portion of the conductor wire between the heads 6 and 7 is then severed at a point approximately centrally between the heads 6 and 7 as indicated at X, and the severed ends bent away from each other as shown by dotted lines in Fig. 1 and 2 and indicated at 4a. With the use of another one of my novel isolators above described and a second jumper wire 31, the hot line 4 may be severed at a point X' remote from the point X leaving a given length of conductor entirely free from the source of potential. The workmen are then able to make desired connections for other circuits into the isolated portion of the conductor 4 without danger of electrical shock. The jumper wires 31 serve as protective devices against shock to the linemen in the event that another hot line is accidentally connected to the deenergized or isolated portion of the line 4.

When it is desired to reconnect the severed ends 4a of the power conductor or hot line 4, the severed ends 4a are bent back into alignment and connected together by any one of several well known coupling devices not shown. After the severed ends have been rejoined, the clamping bolts 24 are loosened, the devices are removed from the conductor and the jumper wires 31 are disconnected from the lines 4 and 5. It will be understood, that the rigid insulator body 12 is of a length and insulating quality to prevent current from flowing between the heads 6 and 7 when the conductor 4 is severed therebetween. It will further be noted that the clamping jaws are laterally offset from the central insulating body 12 sufficiently to permit ample working clearance between the body 12 and the overlying conductor 4.

In the event that more than one working day is required to perform the necessary work in connection with the deenergized portion of the line, said portion may be

reenergized for overnight service if desired, by disconnecting the clamps 32 from the neutral line 5 and connecting the same to the hot line 4 outwardly of my novel isolators so that the jumper wires 31 carry the current around the isolators to the otherwise isolated portion of the line 4.

From the above it will be seen that I have provided a power line isolator which may be readily applied to a power conductor and by means of which the severing and rejoining of a conductor may be quickly and easily effected. This operation can be quickly accomplished without requiring the services of a second lineman on the pole and without undue physical strain to the worker. In actual practice, a lineman can ground the hot line to the neutral line, install one of my devices, and sever the line 4 between the heads 6 and 7 and separate the same in less than three minutes; whereas heretofore, with available equipment, such an operation required from fifteen minutes to one-half hour's time. A comparable savings in time is effected in the rejoining of the severed portions of the hot line 4 when work on the line is finished.

While I have shown and described a preferred embodiment of my novel power conductor isolator, it will be understood that the same is capable of modification without departure from the spirit and scope of the invention as defined in the claim.

What is claimed is:

A power conductor isolator comprising, an elongated rigid insulator, a pair of longitudinally spaced clamping heads each having a neck at its lower end extending longitudinally of said insulator, the inner ends of said necks being rigidly secured to the adjacent ends of said insulator, the upper ends of said heads defining laterally outwardly projecting longitudinally extending relatively stationary jaws having aligned downwardly directed faces adapted to engage longitudinally spaced upper surface portions of a power conductor, whereby the isolator is suspended from said conductor, a pair of relatively movable jaw elements each mounted on a different one of said heads in underlying relation to a cooperating relatively stationary jaw element for generally vertical movements toward and away therefrom, and means for independently moving said relatively movable jaws upwardly toward their respective relatively stationary jaws to rigidly anchor said spaced portions of the power conductor therebetween against longitudinal movement relative to each other when the power conductor is severed between said heads.

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