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LINEMAN'S SAFETY BRIDGE

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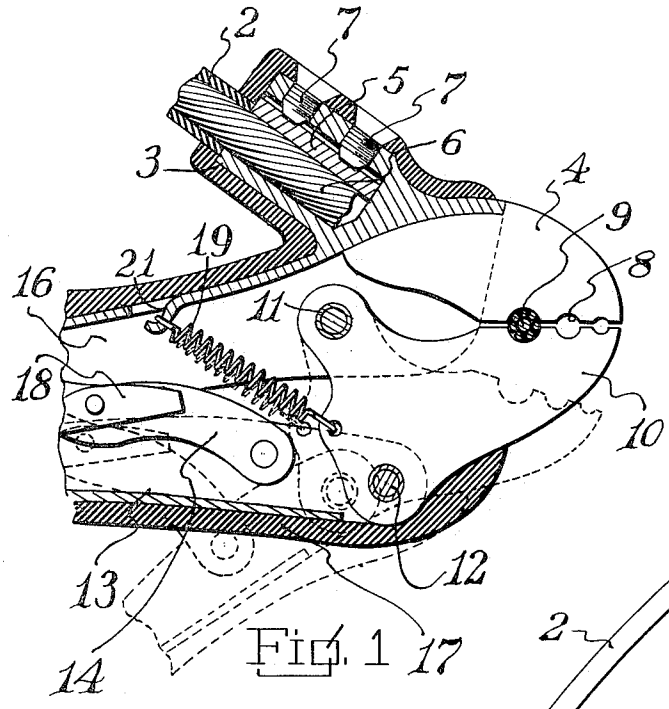


Fig. 1

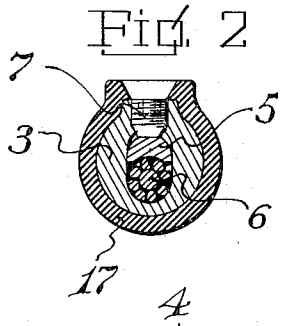


Fig. 2

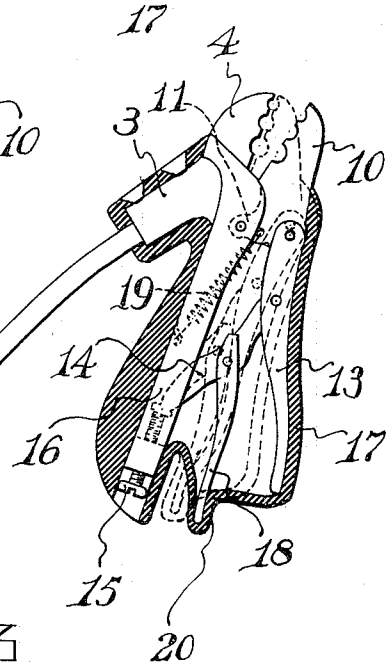
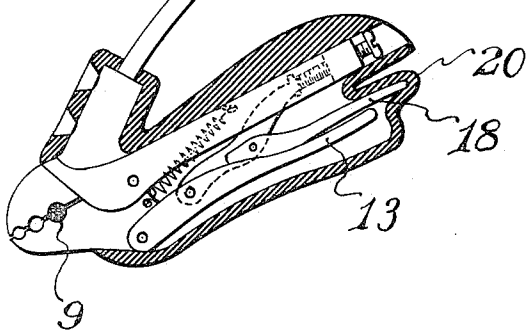


Fig. 3



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LINEMAN'S SAFETY BRIDGE

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1 Claim. (Cl. 339—110)

The present invention relates to safety bridges or jumpers and more particularly of the type adapted to permit ready engagement and disengagement to and from connections to heavy electrical transmission lines of large conductors.

It is an object of the present invention to provide an electrical bridge or jumper which is not subject to accidental displacement while in use.

It is an object of the present invention to provide an electrical bridge or jumper in which the connector terminals are of the positive locking plier type.

Another object of the present invention is the provision of a safety bridge or jumper which will be relatively simple to operate, easy to install, and rugged and durable in use.

Other objects and advantages of the present invention will become apparent from a consideration of the following description, taken in connection with the accompanying drawing, in which:

FIGURE 1 is a cross sectional view of the head portion of one of the connectors terminals, showing the jaws in the gripped position on the line conductor.

FIGURE 2 is a cross sectional view along the line 2—2 in FIGURE 1, showing the conductor of the jumper secured to one of the connector terminals.

FIGURE 3 is a view of the entire safety bridge, or jumper, with the connector terminals shown in partial section, the lower one of which is shown gripping the line conductor, and the upper one with its jaws open, ready to grip the line conductor.

Referring now to the drawing in greater detail, there is here shown a safety bridge, or jumper, comprising two connector terminals, each mounted on an opposite end of an insulated cable **2**. Each connector terminal is comprised in part by a jaw **4**, which is integrally formed with a fixed lever **16**. A projecting hollow boss **3**, which is integral with the jaw **4** of the connector terminal, is provided with an elongated shoe **5**, which is brought to bear on and clamp the exposed end **6** of the cable **2** by means of set screws **7**, thereby providing a secure contact. The terminal jaw **4** is provided with transverse grooves **8** of several radii to accommodate various diameters of the transmission line conductor **9**. A complementary jaw **10** has formed therein similar transverse grooves, which latter grooves are in proper register with the grooves **8** in the fixed jaw **4**. The movable jaw **10** is pivotally mounted on a pin **11**, which also extends through a suitable hole in the jaw **4**, forming a fulcrum. The jaw **10** is brought into clamping contact with the jaw **4** by means of a movable lever **13**, which is connected by a pin **12** to the jaw **10**, and this lever is also pivotally connected to a toggle link **14**, the rear end of which abuts against the forward end of an adjustment screw **15**. The movable jaw **10** is also connected to the fixed lever **16** by a coiled tension spring **19**, which is secured at one end to the lever by an instruck lug **21** on the latter. When the lever **13** is brought towards locking engagement with the stationary lever on the jaw **4**, locking pressure is brought to bear upon the transmission line conductor **9** and, at the same time, because of reverse alignment, as shown in phantom lines, the result is a rigid connection with the transmission line conductor **9**.

For releasing the connector terminal from the transmission line conductor **9**, a release arm **18** is provided,

which is pivotally connected at its inner end to the toggle link **14**.

This entire operation can be accomplished in perfect safety due to the fact that a flexible insulating sheath **17** covers the entire connector terminal, except the extreme ends of both jaws **4** and **10**. To release the jaws from line conductor **9**, it is only necessary to press the end of the release arm **18** toward the stationary lever **16**. This action will return the toggle link **14** through the dead center position, moving the lever **13** away from the fixed lever **16** and a spring **19** will act to bring its jaw **10** to the open position. It will be noted that the insulating sheath **17** extends from a transverse line across the jaws **4** and **10**, inwardly of the innermost semi-cylindrical grooves **9** in the jaws, and around the hollow boss **3**, and the movable lever **13**, the release arm **18**, and the fixed lever **16**. The sheath **17** is very flexible and loosely fits around the levers **13** and **16** and the release arm **18**, thereby allowing free movement of all parts. By referring to the connector terminals in FIGURE 3, there is here shown the loose bellows formation **20** of the sheath **17**, the double outward fold around the end of the release arm **18**, and the double inward fold between the release arm and the fixed lever **16**, and it can be seen that the free end of the release arm can be easily actuated by the operator's thumb.

By adjustment of the abutment screw **15** against the end of the toggle link **14**, various degrees of pressure can be exerted against the transmission line conductor **9** by the jaws **4** and **10**.

In view of the foregoing disclosure, it will be obvious that all of the initially recited objects of this invention have been achieved.

Although the present invention has been described and illustrated in connection with a preferred embodiment, it will be understood that modifications and variations may be resorted to without departing from the spirit of the invention, as those skilled in this art will readily understand. Such modifications and variations are considered to be within the purview and scope of the present invention as defined by the appended claim.

What is claimed is:

A connector terminal of the pliers type for transmission line jumpers comprised by a movable jaw having at least one transverse semi-cylindrical groove therein for receiving the line conductor and having a pivotal mounting, a spring connected at one end to the movable jaw for biasing same to the open position, a movable lever pivotally connected at one end to the movable jaw for moving same to the closed position, a toggle link pivotally connected at one end to the movable lever intermediate the ends of the latter, a release arm pivotally connected at one end to the toggle link intermediate the ends of the latter for moving same through the dead center position; a fixed lever having a jaw at its outer end with at least one transverse semi-cylindrical groove therein and complementary to the movable jaw, a hollow boss adjacent to the fixed jaw for receiving the conductor of the jumper, a pivot pin intermediate the fixed jaw and the inner end for receiving the pivotal mounting of the movable jaw, a lug intermediate the pivot pin and the inner end for attachment of the other end of the spring, an adjustable abutment on the inner end for receiving the other end of the toggle link, and a sheath of electrical insulating material extending from a line to the rear of the transverse semi-cylindrical grooves in the movable and fixed jaws, around the hollow on the fixed jaw, and the movable lever, the release arm and the fixed lever, over the ends of the latter and folded outwardly over the end of the release arm and folded inwardly between the release arm and the fixed lever.

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