Sept. 3, 1940. B. J. LENNERT 2,213,604

CROSS-ARM JACK

Filed Feb. 12, 1940

Fig. 4.

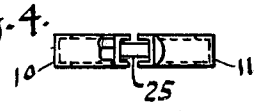


Fig. 3.

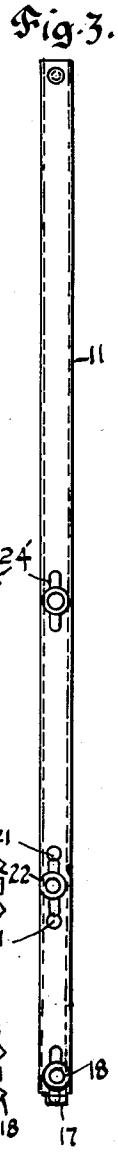


Fig. 2.

Fig. 7.

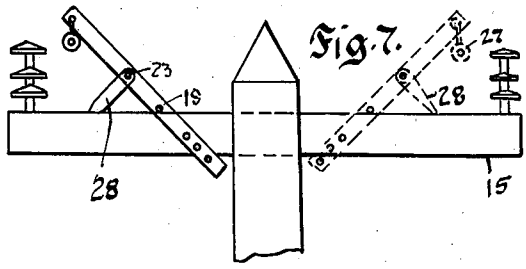


Fig. 6.

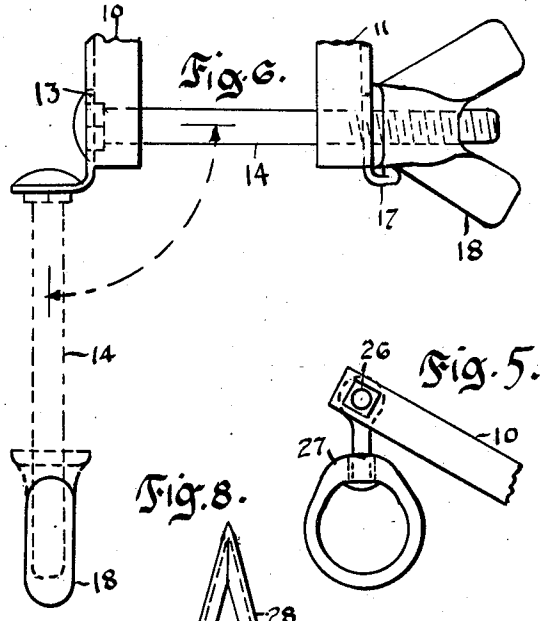


Fig. 5.

Fig. 8.

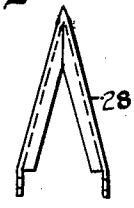
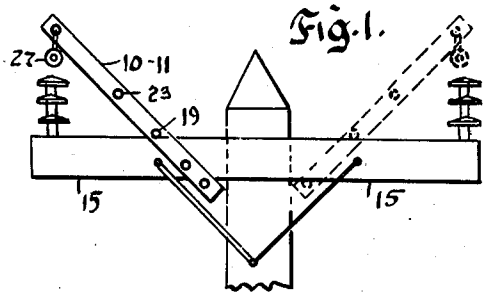


Fig. 1.



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Patented Sept. 3, 1940

2,213,604

UNITED STATES PATENT OFFICE

2,213,604

CROSS-ARM JACK

Benjamin J. Lennert, Inglewood, Calif.

Application February 12, 1940, Serial No. 318,574

2 Claims. (Cl. 248—214)

My invention relates to that class of apparatus which is used in connection with the installation of transmission lines or other lines adapted to be strung on the cross-arms of pole lines.

The purpose of my invention is as follows: In the present practice of stringing electric wires from pole to pole, cross-arms of lengths up to ten feet are now commonly used. Mounted on these cross-arms at a point near each end of the arm is a peg and a group of insulators mounted thereon and adapted to receive and have tied thereto the electric wire or conductor. These insulators weigh from thirty-five to fifty pounds or more, and it will be readily seen that it is very difficult for a man on the pole to reach out five feet to the end of the cross-arm and either install or remove these insulators. The purpose of my invention, therefore, is to provide a means whereby the lifting of the insulators and the lifting of the electric wire itself can be easily guided by the man on the pole, the ground crew doing the actual lifting by means of a ground rope attached to the insulator or to the wire to be strung.

I accomplish these objects by means of the device illustrated in the accompanying drawing in which Figure 1 shows the upper part of a pole with a cross arm provided with insulators mounted thereon. This view also shows the side elevation of the jack in position. Figure 2 is an end elevation of my device. Figure 3 is a side elevation of the device. Figure 4 is a top view with the swivel omitted. Figure 5 is an enlarged detail of the swivel. Figure 6 is an enlarged detail of the lower end of the device, with the gate bolt shown in its locked position and with dotted lines showing the gate bolt in its open position. Figure 7 is a side elevation of my device with a supporting brace added. Figure 8 is a detail end view of the supporting brace.

The construction of my device is as follows: Two side arms 10 and 11 are provided and are preferably made of channel iron, said arms being parallel in their lower portion and so bent as to approach each other in the upper portion. The lower end of the arm 10 has an extension 12 which is bent into a position at right angles to the said arm. At the lower end of the said arm and continuing into the bent extension is a slot 13 adapted to receive the square shank under the head of the gate bolt 14. This permits the bolt 14 to be located transversely to the arms 10 and 11 or to be swung through the slot 13 into a vertical position to allow the device to be assembled over a cross arm 15. The lower sides of the arm 11 are slotted, as at 16, and the end of the arm 11 terminates in small projecting lugs 17 adapted to receive the base of a wing nut 18. These lugs 17 prevent the release of the bolt 14 until the wing nut 18 is unscrewed sufficiently to clear said lugs. At a distance above the bolt 14 somewhat greater than the vertical thickness of the cross arm 15 is a carriage bolt 19 adapted to be inserted into square holes 20 in the arm 10 and through round holes 21 in the arm 11, a plurality of these holes being provided to correspond with cross-arms 15 of varying vertical depth. This bolt 19 is prevented from turning by the square shank under the head and is adjusted by the wing nut 22.

At a distance of approximately one-half the length of the jack is a transverse spacer bolt 23 having one end secured to the arm 10 by means of the nut 24 and having at its opposite end a wing nut 24' which provides adjustment to suit varying widths of cross-arm 15. At the top of the device the arms 10 and 11 are brought relatively close together and are spaced apart by means of a pipe bushing 25. A bolt 26 is passed through holes in the arms 10 and 11 and the bushing 25, securing the said arms at a fixed distance apart. A swivel 27 is provided having its loop adapted to be assembled over the pipe bushing 25 and to turn freely thereon. If desired, a supporting brace 28 can be provided having its ends rotatably mounted on the spacer bolt 23.

The operation of my device is as follows: The usual method of installing power transmission and distribution lines is to have the wires or conductors strung out on the ground and then pulled up on the cross-arms by hand, with hand lines, by linemen and ground men; but with the present use of cross-arms ten feet long and the extra-heavy conductors it is impossible for a lineman to lift the conductors into place as was done when shorter cross-arms and lighter conductors were used. With my device the lineman climbs the pole and carries a hand line or rope and sheave with him, and after he has secured himself in position on the pole the ground man pulls the jack up to the lineman with the hand line. The lineman then opens the gate bolt 14 to its vertical position and places the jack in position with the arms 10 and 11 on each side of the cross-arm, adjusting if necessary the bolts 19 and 23 to suit the width of the cross-arm. The bolt 19 then rests on the top of the cross-arm 15. The gate bolt 14 is then closed and secured by the wing nut 18, thus locking the jack onto the

cross-arm 15 in an inclined position with the bolt 19 resting on the top of the cross-arm and the bolt 14 underneath. The lineman then places the sheave of the hand line in the swivel 27 on the said jack. He is then ready to receive the conductor, and the ground man attaches the conductor to the hand line and pulls the conductor up to the sheave; then all the lineman has to do is to swing the conductor into place where it can be quickly and easily tied to the insulator. After the tieing-in operation has been completed, the jack is removed from the cross-arm and is ready for use on the next pole.

In a case of exceptionally heavy insulators and conductors my device may be provided with a supporting brace 28 as shown in Figure 7.

What I claim as my invention and desire to secure by Letters Patent is:

1. In a device of the class described, the combination of a pair of side members connected at their upper ends and adapted to have their lower ends disposed one on each side of a cross-arm with laterally adjustable means for securing said members on said cross-arm; means including a transverse bolt adapted to rest on the upper side of the said cross-arm, and a lower gate consisting of slots in the lower ends of each of the said side members; an outwardly extending lug at the lower end of one of the side members provided with a continuation of the said slot; a gate-bolt adapted to be mounted in said extended slot in such a manner that the said bolt may be swung under the cross-arm and engage the slot at the lower end of the opposite side member; lugs adjacent to said slot and a nut adapted to engage said lugs and secure said gate-bolt in said position; means for attaching lifting apparatus to the upper ends of the said side members, said means consisting of a hollow spacer located between the said side members, a bolt passing through said side members and the hollow spacer, and a swivel rotatably mounted on the hollow spacer.

2. In a device of the class described, the combination of a pair of side members connected at their upper ends and adapted to have their lower ends disposed one on each side of a cross-arm with laterally adjustable means for securing said members on said cross-arm; means including a transverse bolt adapted to rest on the upper side of the cross-arm, and a lower gate consisting of slots in the lower ends of each of the side members; an outwardly extending lug at the lower end of one of the side members provided with a continuation of the said slot; a gate-bolt adapted to be mounted in said extended slot in such a manner that the said bolt may be swung under the cross-arm and engage the slot at the lower end of the opposite side member; lugs adjacent to said slot and a nut adapted to engage said lugs and secure said gate-bolt in said position; means for attaching lifting apparatus to the upper ends of the said side members, said means consisting of a hollow spacer located between the said side members, a bolt passing through the side members and said hollow spacer, and a swivel rotatably mounted on the said hollow spacer; means for strengthening the device for use with heavy loads, said means consisting of a V-shaped brace, hingedly mounted on the said side members and adapted to extend from the side members to the cross-arm and having a sharp end to prevent slipping.

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