

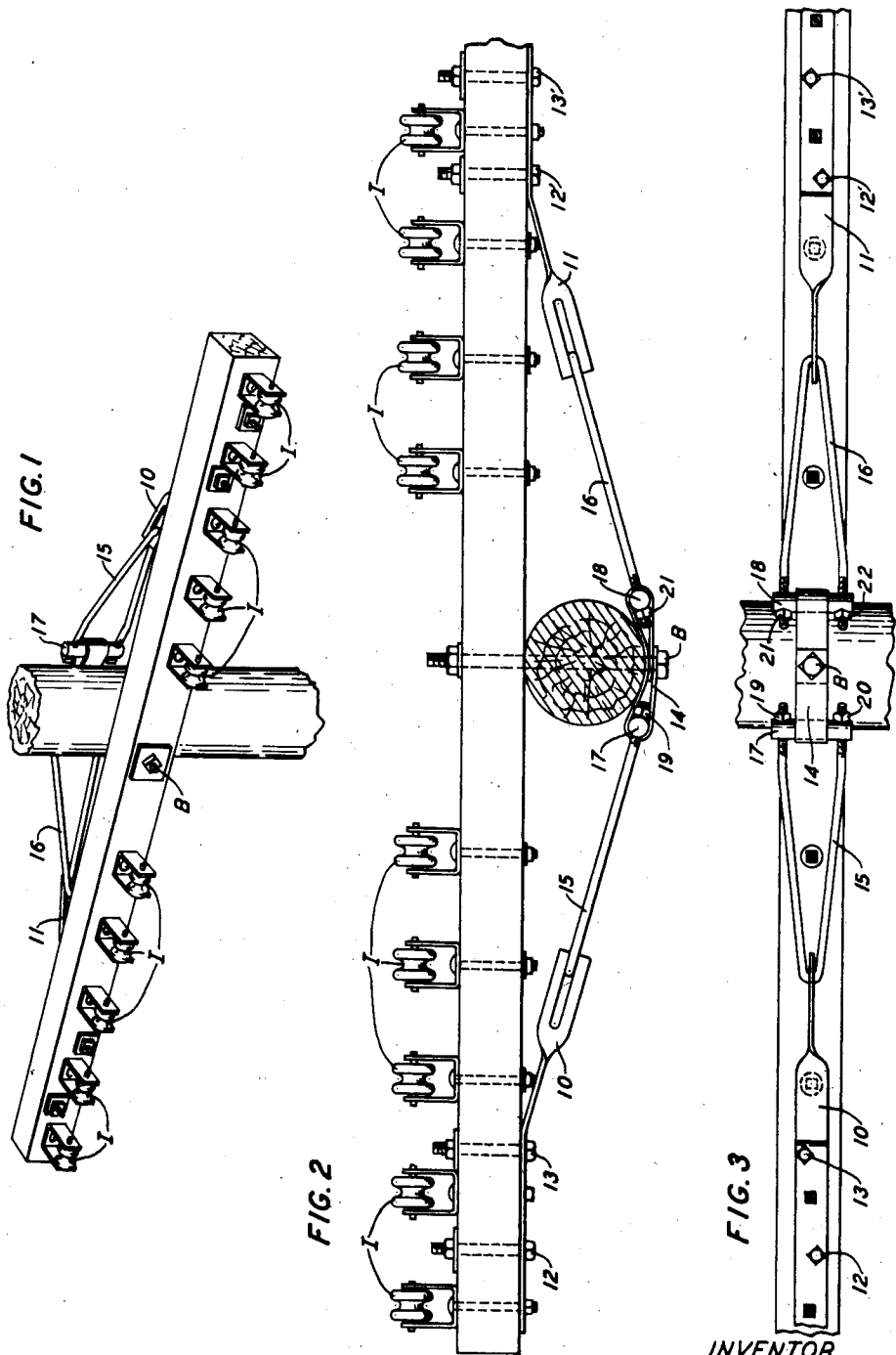
May 4, 1943.

L. G. HOYT

2,318,396

CROSS-ARM REENFORCEMENT

Filed Sept. 11, 1941



INVENTOR
L.G. HOYT
BY J. MacDmald
ATTORNEY

UNITED STATES PATENT OFFICE

2,318,396

CROSSARM REINFORCEMENT

Leon G. Hoyt, Summit, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

Application September 11, 1941, Serial No. 410,369

4 Claims. (Cl. 189—33)

This invention relates to back braces or cross-arm reinforcements used at dead end telephone poles and its object is to provide an improved device of this character.

The present methods of reinforcing cross-arms at dead end poles by another arm or a steel angle back brace in tension or compression are not entirely satisfactory from a strength and installation standpoint. Furthermore with the line wires dead ended on insulator pins, the cantilever loading causes the arms to bow in a horizontal plane and also causes the arms to twist so that the pins lean toward the span and changes the sag of the line wires. This change of sag is particularly objectionable in high grade circuits. In addition, both the double arm and steel back brace methods require considerable fitting in the plant to care for different diameter poles.

A feature of the invention consists in providing an adjustable design of tensioning back brace for cross-arms which automatically adjusts itself to the range of pole diameters normally encountered. Also by applying the line load to the neutral axis of the cross-arm, the twisting and canting of the cross-arm is eliminated. The improved back brace of this invention comprises a pair of slotted brackets secured to the cross-arm on opposite sides of the pole, clevis tie rods assembled in the slots in the brackets and connected to a yoke by perforated clevis pins positioned in opposite ends of the yoke through which perforations in the pins the ends of the clevis tie rods project, and locking means cooperating with the ends of the rods for securing the assembly and tightening the same until the cross-arm is properly positioned. The insulators to which the wires are dead ended are secured to the cross-arm on its vertical face, along the neutral axis of the arm.

Referring to the drawing:

Fig. 1 is a perspective view of a cross-arm reinforced by the adjustable back brace of this invention;

Fig. 2 is a plan view; and

Fig. 3 is a front view.

Referring to the figures, the device consists of two slotted end brackets 10 and 11, a yoke 14, and two clevis tie rods 15 and 16. The end brackets 10 and 11 are secured to the cross-arm, which carries the insulators I on its vertical face instead of its horizontal face as in the prior art, by bolts 12, 13 and 12', 13' staggered to provide the greatest strength in the wood fibres of the arm. The yoke 14 is secured to the pole by the same cross-arm bolt B which secures the arm to the pole. The clevis tie rods 15 and 16 are assembled in

the slots of the end brackets 10 and 11 and connected to the yoke by the round clevis pins 17 and 18. The nuts 19, 20, 21 and 22 screwed on the threaded ends of the clevis tie rods are tightened until the cross-arm is properly positioned.

The end brackets of adjustable back brace are attached to the cross-arm at points where the brace is most effective in developing the maximum strength of the arm. Drilling of the necessary holes and attaching of the end brackets and insulators can be done on the ground. Adjustments and removal of slack can be performed at the pole where it can be most conveniently performed. The round clevis pins, and slotted end brackets, provide pivoted connections for the threaded clevis tie rods and care for variations in pole diameters and align the load in the back brace in both the horizontal and vertical planes.

What is claimed is:

1. A brace for reinforcing cross-arms on telephone poles and the like comprising a pair of brackets secured adjacent the ends of the cross-arm on opposite sides of the pole, a yoke member secured to the pole on the side opposite the cross-arm by the same bolt which secures the cross-arm to the pole, a coupling member located in each end of the yoke, a pair of longitudinally extending tie rods adjustably secured to said coupling members and said brackets, and insulators secured along the vertical face of the cross-arm opposite to the brace.

2. A brace for reinforcing cross-arms on telephone poles and the like comprising a pair of angular brackets secured adjacent the ends of the cross-arm on opposite sides of the pole, a yoke member secured through its mid-portion to the pole on the side opposite the cross-arm by the same bolt which secures the cross-arm to the pole, a coupling member located in each end of the yoke, a pair of longitudinally extending U-shaped tie rods adjustably secured to said coupling members and said brackets, and insulators secured to the vertical face of the arm opposite to the brace.

3. A brace for reinforcing cross-arms on telephone poles and the like comprising a pair of slotted brackets secured adjacent the ends of the cross-arm on opposite sides of the pole, a yoke member secured to the pole on the side opposite to the cross-arm, a pair of longitudinally extending clevis tie rods each connected at one end to the corresponding bracket and at its other end adjustably connected to the yoke, and insulators secured to the vertical face of the arm opposite to the brace.

4. A brace for reinforcing cross-arms on telephone poles and the like comprising a pair of slotted brackets secured adjacent the ends of the cross-arm on opposite sides of the pole, a yoke member secured to the pole on the side opposite the cross-arm, a pair of longitudinally extending clevis tie rods each connected at one end to the corresponding bracket by threading the tie rod

through the slots therein, and a pair of clevis pins located in the opposite ends of the yoke each having a pair of perforations to receive the ends of the clevis tie rods which are screw-threaded to receive nuts whereby the assembly may be secured and adjusted.

LEON G. HOYT.