Aug. 19, 1941. T. F. JOHNSON 2,253,432

TAP CLAMP

Filed Jan. 11, 1939

Fig. 1

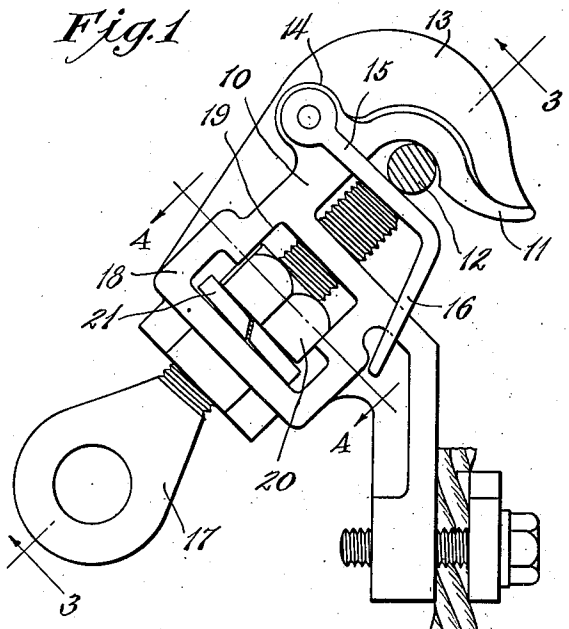


Fig. 2

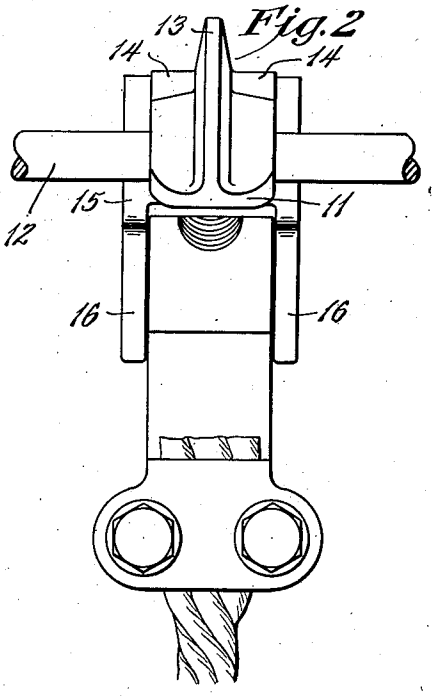


Fig. 3

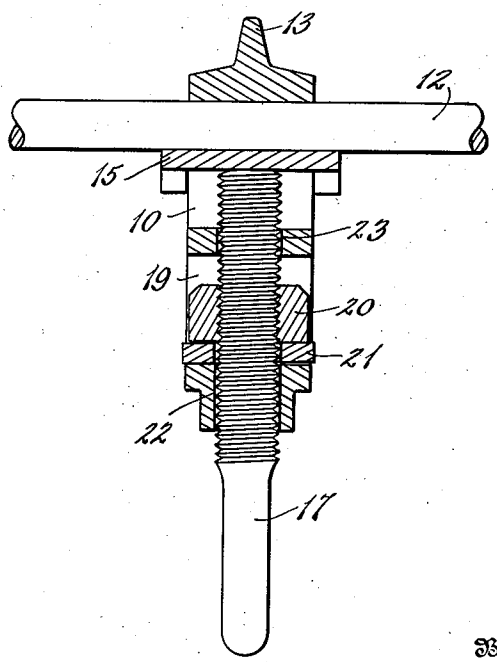
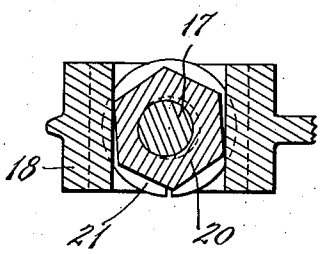


Fig. 4



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TAP CLAMP

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3 Claims. (Cl. 173—273)

This invention relates to tap clamps for high voltage transmission lines and aims, among other objects, to provide novel means to hold a screw clamp firmly gripped on a conductor and to prevent it from becoming loose on account of vibrations of the conductor caused by the wind or other disturbances. This application relates to important improvements on the general type of clamp disclosed in my Patent No. 1,900,990, of March 14, 1933, and is a continuation in part for my application Ser. No. 54,131, filed December 12, 1935.

Other aims and advantages of the invention will appear in the specification, when considered in connection with the accompanying drawing, in which—

Fig. 1 is a side elevation of a clamp embodying the invention;

Fig. 2 is a front elevation of the clamp shown in Fig. 1;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1; and

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1.

Referring particularly to the drawing, the clamp there shown for illustrative purposes, is of the same general type as that covered by the aforesaid patent. It comprises a hook-shaped body 10 having a curved bill 11 adapted to engage a conductor 12. The hook is reinforced by a vertical rib 13 having lateral bosses 14 to which an H-shaped clamping member 15 is pivoted. The clamping member has downwardly bent arms 16 to guide the hook on the conductor and presents a face of substantial length to engage the conductor.

In this instance, powerful spring pressure is applied to the clamping member 15 to maintain good electrical contact when the clamp tends to loosen, due to vibrations or relative movements of the conductor and clamp. This is accomplished by a clamping screw or an ordinary eye-bolt 17 which is used to transmit spring pressure to the clamping member. In accordance with this invention, the lower portion of the hook body is enlarged to provide an integral nut-holding frame 18 in the form of an integral yoke having a non-circular or rectangular opening or pocket 19 to receive a nut 20 on the eye-bolt and hold it against rotation. This pocket extends through the opposite side walls of the clamp body so that the nut can be inserted from either side and grasped between the fingers of an operator. The lower part of the opening is enlarged to receive a powerful spring 21 of greater size than the nut which is preferably made of rust-proof metal in the form of a spring washer. A powerful spring of this type having only one convolution is sufficient to provide the necessary spring pressure. The bottom wall of the enlargement provides a flat seat for the spring. The bolt extends freely through holes 22 and 23 in the bottom and top walls of the enlargement.

As shown in the aforesaid patent, No. 1,900,990, the clamp body has an integral tap arm 24 extending downwardly from and at an angle to the bight portion. In this instance, the tap arm is integral with the front wall of the enlargement. Its arrangement is such that an operator may apply the clamp to a live line by means of an ordinary operating tool or stick while standing behind and a safe distance from the depending tap conductor 25.

Now, it will be noted that the nut 20 is free to slide axially in its opening or pocket 19. When the eye-bolt is turned to loosen the clamp, the nut slides upwardly first to release the spring 21 and permit it to expand to its limit; then, the nut rests on the spring and the bolt backs out of it, so that the clamping member is free to swing down. When the bolt is tightened or screwed up, its end first engages the clamping member and, then, the nut compresses the spring until the necessary gripping pressure is applied. The washer is usually fully compressed to serve as a rigid abutment and its spring action serves to prevent the clamp from loosening. In other words, the nut acts as a movable spring abutment. When the conductor is clamped in this manner, the clamp cannot be loosened even though relative vibratory or oscillatory movements of the clamp and conductor may cause some wear. The spring will always maintain a good grip and, hence, good electrical contact, within the limits of its compression.

From the foregoing description, it will be seen that the improved clamps are very simple and rugged in construction. They are as easy to manipulate as the ordinary clamps and will last almost indefinitely. All of the parts may be made of bronze or other suitable rust-proof metal. Moreover, they can be manufactured and sold at a very reasonable cost.

Obviously, the present invention is not restricted to the particular embodiment thereof herein shown and described.

What is claimed is:

1. A tap clamp for high tension transmission conductors comprising, in combination, a hook-shaped body having an integral enlargement be-

low the bight portion opposite the hook; a movable conductor gripping member cooperating with the hook; a substantially rectangular opening extending transversely through the enlargement at right angles to the hook; a nut inserted in said opening through either side of the body and held against rotation by the front and rear walls of the opening; a clamping bolt extending through the enlargement threaded through the nut and engaging said gripping member; a powerful spring member on the bolt between the nut and the bottom wall of the pocket exerting sufficient pressure on the gripping member to prevent ordinary vibrations of the clamp relative to the conductor; and a tap arm on the front side of said enlargement.

2. A tap clamp for high tension transmission conductors comprising, in combination, a hook-shaped body having an enlargement opposite the hook; a conductor gripping member having substantial gripping surface coacting with the hook; a non-circular pocket formed in said enlargement and providing a nut-receiving opening extending transversely through the body at right angles to the plane of the hook; a nut inserted in said pocket and held against rotation therein; a clamping bolt extending loosely through the enlargement and threaded through the nut with its end engaging said clamping member; a powerful washer-like spring member on the bolt of larger diameter than the nut and seated in the bottom of the pocket to apply firm gripping pressure to a conductor and prevent the clamp from loosening due to ordinary vibrations; and a tap arm on the front of the enlargement opposite the end of the hook arranged to suspend a tap conductor vertically when the clamp is connected.

3. A tap clamp for high tension transmission conductors comprising, in combination, a hook-shaped body having an enlargement opposite the hook; a conductor gripping member having substantial gripping surface coacting with the hook; a non-circular pocket formed in said enlargement and providing a nut-receiving opening extending transversely through the body at right angles to the plane of the hook and having an enlarged pocket portion at its lower end; a nut inserted in said pocket and held against rotation therein; a clamping bolt extending loosely through the enlargement and threaded through the nut with its end engaging said clamping member; a powerful washer-like spring member on the bolt of larger diameter than the nut and seated in the bottom of the enlarged pocket portion to apply firm gripping pressure to a conductor and prevent the clamp from loosening due to ordinary vibrations; and a tap arm on the front of the enlargement opposite the end of the hook arranged to suspend a tap conductor vertically when the clamp is connected.

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