REINFORCEMENT FOR POLES

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By

ATTORNEY:
This invention relates to reinforcements for telegraph poles and the like, and is an improvement on the construction shown in my United States Letters Patent No. 1,561,193, dated November 10, 1925, and No. 1,584,405, dated May 11, 1926.

The desirability of anchoring the embedded portions of the reinforcement to the poles has been shown in practice, and it is therefore the object of the present invention to provide means whereby each reinforcement may be locked to the embedded portion of the pole at one or more points for example, near the lower end of the reinforcement and at a point intermediate the ends thereof, but below the surface of the earth so that the resistance which the earth offers to the embedded portion of the pole may be added to the resistance which the earth offers to the reinforcement in preventing swaying movement of the pole in case the pole is pretty well rotted through at the surface of the earth.

With the foregoing object in view, my invention comprises a reinforcing member provided with means such as a dog for securely anchoring the member to the pole after the same has been set, and it will be understood of course that the invention is applicable to new poles, as well as old ones which have become weakened by decay.

My invention comprises various other improvements hereafter more fully described and pointed out in the appended claims for simplifying the constructions shown in my prior patents and increasing the efficiency of the same.

In the drawings accompanying and forming a part of this specification—

Fig. 1 is a side view of a reinforcing member embodying my invention;

Fig. 2 is a front elevation of said member;

Fig. 3 is a side view showing two of the members illustrated in Figs. 1 and 2 applied to a telegraph pole;

Fig. 4 is a section taken on the line 4—4 of Fig. 1;

Fig. 5 is a horizontal section taken on the line 5—5 of Fig. 3;

Fig. 6 is a side view of a modification;

Fig. 7 is a front elevation of said modification;

Fig. 8 is a section taken on the line 8—8 of Fig. 6;

Fig. 9 is a section taken on the broken line 9—9 of Fig. 6;

Fig. 10 is a side view of another embodiment of my invention;

Fig. 11 is a front elevation of the reinforcing member shown in Fig. 10;

Fig. 12 is a vertical section on an enlarged scale of the lower portion of the reinforcing member shown in Fig. 10 illustrating the application of the same to a wooden pole.

In the particular drawings selected for more fully disclosing the principle of my invention and which of course are to be taken as illustrative rather than restrictive, 20 is a reinforcing member having a concave face or flange 21 shaped generally to conform to the contour of the pole 22 and provided with a centrally-arranged longitudinally-extending web 23. Preferably two such members 20 are applied to the opposite sides of a pole, as indicated in Fig. 3, and the upper ends thereof may be clamped to the pole by any suitable means such as the plates 24 and dogs 25, as more fully described in my prior Patent No. 1,584,405, referred to above.

The reinforcing members preferably are formed with side ribs 26 to strengthen the construction, as indicated in my Patent 1,561,193, above mentioned, and oppositely-disposed enlargements or flange wings 27, 27 preferably are formed thereon near the lower end thereof, and also at a point intermediate its ends and just below the ground line to increase the bearing surface of the reinforcing member on the pole.

Associated with each reinforcing member 20 is a device which may be driven into the pole after the same has been set and the reinforcing members have been driven in place in order securely to anchor or lock the pole and reinforcing members together. Several such locking devices are shown in the accompanying drawings.

In that embodiment of my invention illustrated in Fig. 1, the locking device is a dog 28 pivotally connected at 29 to the web 23,
the outer end of said dog being provided with a trigger 29 with which a driving rod such as the rod 30, may engage to rotate the dog about its pivot and cause its sharpened inner end to enter the pole, as shown in Fig. 3. In order to guide the driving pole, guiding means are provided, such as for example, as the lug 31 bored to receive the lower end of the rod, said lug being in the present instance formed integral with the reinforcing member, and the upper guide 23 secured to the web 23 by the nut 33, or other suitable means. A housing 24 is formed integral with the web immediately below the dog for protecting the latter while the reinforcing member is being driven into the earth. The rod 30 is inserted in the guides 31, 32 before the reinforcing member is placed in position against the pole, either by driving or else by digging out the earth around the pole, as set forth in my prior Patent No. 1,561,183.

The upper ends of the reinforcing members are then clamped to the pole by the plates 24 and dogs 25, and then by means of a sledge hammer, the rod is driven downwardly, thereby driving the outer end of the pivoted dogs into the pole and securely locking the embedded portions of the reinforcing members to the embedded portion of the pole.

It will be noted that the reinforcing member has its greatest width approximately at the ground line where it is subjected to the maximum strain and tapers therefrom toward both ends. The web 23 preferably has its greatest width approximately at the ground line and tapers toward its ends. This web 23 offers considerable earth resistance to any lateral movement of the reinforcing members. In other words, the resistance of the earth against the web 23 will resist any tipping of the reinforcing member in the earth caused by swaying of the pole.

In the modification shown in Fig. 6, the pivoted dog 28 is housed within the slot 25 formed in the lower portion of the web 23, said dog being arranged to swing around the stud 36. In this instance, for guiding the drive rod 30, a guide 37 is formed integral with the web immediately above the lower pivoted dog, and an upper guide 38 is provided at a point about midway between the ends of the reinforcing member. A second locking device such as the dog 28' may be employed at an intermediate point, and in the present instance, such dog is shown housed within a slot in the web, and pivoted to the reinforcing member by the stud 39. The dog 28 being near the ground line, no guide is required for the drive rod 30. It will be understood of course that after the lower dog has been driven into the pole, the rod is removed and employed to drive the upper dog home.

In the construction shown in Fig. 10, the lower end of the reinforcing member is formed with a housing 40 curved downwardly to prevent undue resistance to driving the member in position and provided with a centrally-arranged passageway 41, terminating in an opening in the face of the member so that the curved spike 42 placed in said passageway may be driven home into the pole by the drive rod 30 after the reinforcing member has been driven in the ground beside the pole. A block of hard wood 43, or the like, may be used to wedge the spike in position while the reinforcing member is being driven into the ground; and during the operation of driving the spike into the pole, said block will act to keep the end of the drive rod against the spike.

The intermediate portion of the reinforcing member may be attached to the pole by a spike 44 driven through the opening 45 which passes through the flange and web of the reinforcing member at a point immediately below the ground line.

It is understood of course that a locking device such as the spike 44 may be employed instead of the upper dog 28' shown in Fig. 6, and that the ends of the pivoted rods 46 may be used in place of the lower dog 28 in the form shown in Fig. 6 in conjunction with the dog 28', and also that any suitable types of locking device relatively movable with respect to the reinforcing member and adapted to be driven into the embedded portion of the pole, may be used for locking the pole and reinforcing member together. If the pole has become pretty well weakened by decay at the surface of the earth then the strength of the pole at the weakened portion may be relatively small. If this condition obtains then the butt of the pole 47 may be encased with a device of embedded in the earth below the decayed portion would be of relatively little value in preventing any swaying of the pole and the entire resistance to swaying movement of the pole would have to come on the reinforcing members unless said reinforcing members are locked to the pole butt by means having sufficient strength to transmit the force of the swaying movement of the pole from the reinforcing members to the pole butt. My invention provides for just this. Any tendency of the reinforcing member to tip in the earth as the pole swings will be transmitted to the pole butt so that the earth resistance to the swaying of the pole will be that offered by the pole butt in addition to that offered by the reinforcing members.

Having thus described illustrative embodiments of my invention, without however limiting the same thereto, what I claim and desire to secure by Letters Patent is:

1. A reinforcement for poles comprising a reinforcing member constructed and arranged to be set into the earth opposite one side of a pole, means for clamping the reinforcing member to the pole above the earth,
and means relatively movable with respect to said member and constructed and arranged to be driven into the embedded portion of a pole for locking said member to said pole and by which the tilting force applied to the reinforcing member in resisting movement of the pole is transmitted to the embedded portion of the pole.

2. A reinforcement for poles comprising a reinforcing member constructed and arranged to be set into the earth against one side of the pole, means for clamping said member to the pole above the earth, and means pivotally connected to said member for locking said member to said pole below the earth.

3. A reinforcement for poles comprising a reinforcing member constructed and arranged to be set into the earth against one side of a pole, said member having a concave face to fit said pole, and a longitudinally-extending centrally-arranged web at right angles to said face, a dog pivotally connected to said web and having one end arranged to pass through an aperture in the face of said member, a trigger formed on the other end of said dog, a rod co-operating with said trigger and extending substantially the length of said member, and means for guiding the longitudinal movement of said rod.

4. A reinforcement for poles comprising a reinforcing member constructed and arranged to be set into the earth against one side of a pole, said member having a concave face to fit said pole, and a longitudinally-extending centrally-arranged web at right angles to said face, a dog pivotally connected to said web near the lower end thereof, a dog pivotally connected to said web intermediate the ends thereof, and means for moving said dogs about their respective pivots after the pole has been set to drive said dogs into said pole.

5. A reinforcement for poles comprising a reinforcing member constructed and arranged to be set into the earth against one side of a pole, said member having a concave face to fit said pole, and a longitudinally-extending centrally-arranged web at right angles to said face, the lower portion of said web being provided with a slot, and a dog arranged within said slot and pivotally connected to said web.

6. A reinforcement for poles comprising a reinforcing member constructed and arranged to be set into the earth at one side of the pole, means for clamping said member to the pole above the earth and a dog pivotally connected to said member and constructed and arranged to be driven into said pole below the earth.

7. A reinforcement for poles comprising a reinforcing member constructed and arranged to be set into the earth against one side of the pole, a dog pivotally connected to said member and constructed and arranged to be driven into said pole, a trigger on the end of said dog for co-operation with a driving member and a guide for said driving member.

8. A reinforcement for poles comprising a reinforcing member constructed and arranged to be set into the earth against one side of a pole, said member having a face shaped to fit said pole and a longitudinally-extending web and also having an aperture, and a dog pivotally connected to said web and having one end thereof adapted to pass through said aperture and be driven into said pole.

In testimony whereof, I have hereunto subscribed my name this 4th day of February, 1927.

GEORGE B. SPRING.