Jan. 8, 1952 M. W. MANSON 2,582,050

ATTACHING PARTS TO WOODEN POLES

Filed Sept. 7, 1946

FIG. I.

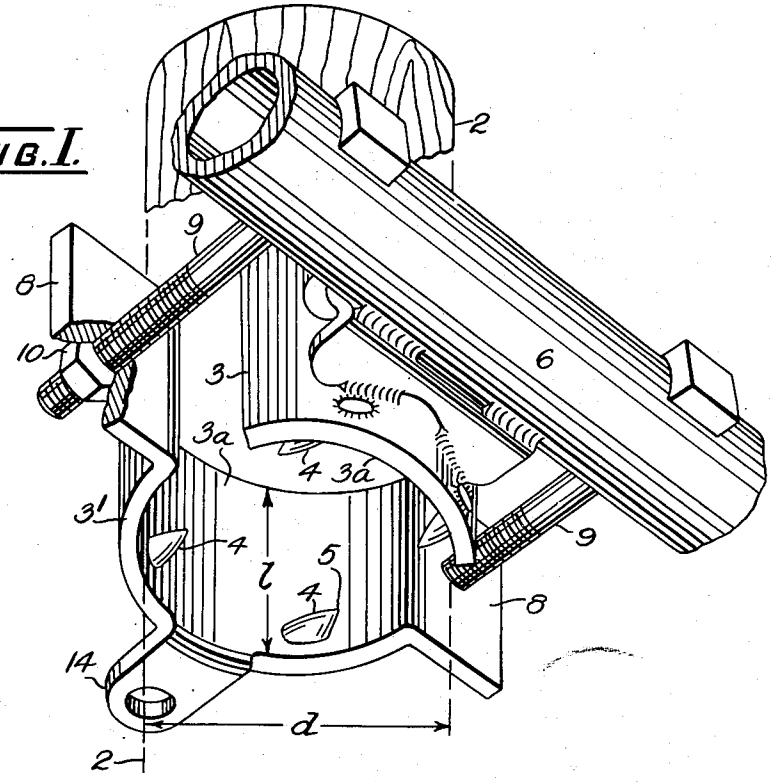
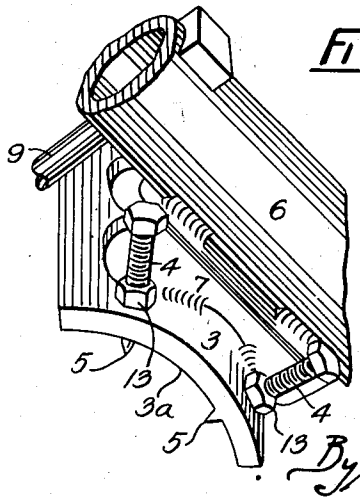


FIG. II.



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ATTACHING PARTS TO WOODEN POLES

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1 Claim. (Cl. 287—54)

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This invention relates to means whereby parts such as cross arms for wire lines, pole stays and other fittings are attached to wooden poles.

Cross arms for telephone and telegraph lines are sometimes attached by means of a bolt passed through a hole bored in the wood and are stabilized by cutting a flat in the surface of the pole, which forms a seating for the cross arm or other part rigidly connected to the cross arm. In either case cutting of the wood mechanically weakens the pole and exposes the timber to deteriorating influences. Moreover if the pole warps by twisting, the cross arm is thrown out of perpendicularity with the line of wires, necessitating the pole being loosened in the ground and rotated to compensate for the twist.

Cross arms are also attached to wooden poles by a halved clamp device, one half of the clamp being provided as a saddle welded to the arm and presenting a series of seating edges, which in practice make little more than point contacts with the pole. The other half of the clamp is a straight bar of channel section that presents the channel edges to the pole and accordingly also makes virtual point contacts with a pole. As a consequence of these contact formations the surface fibres of the pole are crushed; destroying the native resilience of the timber which is a factor in maintaining the tight grip of the clamp on the pole. Thereafter periodical weather changes cause alternate diametral expansions and contractions of the good timber remaining within the crushed zone. These increase the radial extent of the initial damage and the rate of destruction in this manner is accelerated by the repeated retightenings of the clamp which are thus rendered necessary in order to maintain the arm rigidly at its initial position on the pole and to prevent its slipping down the pole.

It is an object of the present invention to overcome the drawbacks mentioned and to provide means by which cross arms can be attached to wooden poles with minimum destruction of the timber and in a manner which renders the attachment secure over long periods.

A device according to this invention comprises clamp elements which may be two or more in number and which collectively encircle and make internal contact with a considerable circumferential extent of the substantially cylindrical surface of the pole. The internal contact surface has a definite cylindrical character in that its extent parallel to the axis and relatively to its diameter, is materially greater than that of the known clamps referred to above. Such longitudinal extent relatively to the diameter is such as to provide a contact area large enough to make the clamping pressure per unit of area of such low value as not to cause significant breaking of the surface wood fibres.

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The internal contact surfaces are provided with pointed pins which penetrate the surface of the pole to a substantial depth and thereby anchor the assembly of clamp elements against its gravitational tendency to slip down the pole. The pins penetrate the timber by spreading the fibres apart rather than by severing the individual fibres. With the object of causing the least necessary disturbance to the fibre structure said pins are directed parallel with the radial direction in which the particular clamp element to which they are attached, approaches the pole during the tightening movement of the clamp elements.

The clamp elements are themselves provided with tightening means and constitute the clamp. They are formed with laterally extending ears through which clamping bolts are passed, and a cross arm is secured to one of the elements, as by welding, and the clamping bolts pass through the ears provided on the other, or another, element, and through holes in the cross arm.

Two forms of the invention are illustrated in the accompanying drawings, in which

Figure I is a perspective view from beneath of an arrangement in which the cross arm is connected directly to one of the clamp elements;

Figure II is a fragmentary perspective view showing an alternative arrangement of the penetrating pin formations.

In the drawings, the pole is numbered **2**, and the clamp elements **3**, **3'**, the clamp shown consisting of two elements which collectively constitute the clamp assembly. Each of said elements **3** and **3'** is provided with a pair of pins **4** welded to it, the said pins passing through the element and the pointed ends **5** penetrating the timber of the pole **2** when the assembly is tightened around the pole.

To enable the pins **4**, **5** to penetrate the said timber by spreading the timber fibres apart, rather than by severing them, the said pins are, preferably, arranged parallel with one another and with the radial direction in which the clamp element **3** or **3'** approaches the pole during the tightening of the assembly around the pole.

Said clamp elements **3**, **3'** are formed with internal pole contacting surfaces **3a** which are of definite cylindrical character in that the extent "*e*" of the surface in a direction parallel with

the assembly axis is, relatively to the diameter "*d*" of the assembly, materially greater than is the case with the regular clamp presently used. The cylindrical character of the elements ensures contact between said contact surfaces **3***a* and the pole over substantially all the area of said surfaces and over a substantial area of the pole surface. Further, the extent "*e*" of said surface **3***a* relatively to the diameter "*d*" of the clamp assembly is such as to provide a contact area large enough to make the clamping pressure per unit of area of such low value as not to cause significant breaking of the surface fibres of the pole **2**.

The cross arm **6** is shown as welded to a saddle **7** which in turn is welded to the element **3**. The other of the elements **3'** is formed with radially extending lugs **8**, and cross bolts **9** pass through said lugs and through holes in the cross arm **6**, the clamp assembly being tightened around the pole **2** by means of the nuts **10**.

If it be required to rotate the cross arm **6** about the pole, in the arrangement of Figure I it is necessary to pry the elements out of the pole **2** before said rotation can take place. Accordingly, the arrangement of Figure II is provided to enable rotation to be readily effected.

In Figure II the pins **4** are shown as screw threaded and they are screwed through threaded holes provided in the elements **3**, **3'** and held in position against unintentional unscrewing by lock-nuts **13**. In attaching the clamp elements to the pole, the pins **4** are initially retracted, and when the clamp has been tightened in position, the pins are screwed in to penetrate the pole. Preferably, said pins are, in this arrangement, positioned so that the pointed ends **5** penetrate the pole radially.

If it is required to rotate the cross arm about the pole, the pins are again retracted, the necessary rotation is effected, and the pins are again screwed into the pole.

I claim:

A device for attaching parts to wooden poles, comprising clamp elements adapted collectively to encircle the pole and make internal contact with a considerable circumferential extent of the substantially cylindrical surface of the pole, the internal contact surface of the clamp assembly having a definite cylindrical character in that its extent parallel to the axis of the clamp assembly and relatively to the diameter of the assembly is materially greater than that of the clamps at present in common use; pointed pins at the internal contacting surface adapted to penetrate the surface of the pole to a substantial depth; a cross arm rigidly attached to one element of the clamp assembly and having a hole at each side of the element, lateral ears on the opposite element of the assembly; and clamping bolts passed through the ears and through the holes in the cross arm.

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