April 18, 1950 M. E. VAN AUKEN 2,504,360

CLAMP MEANS

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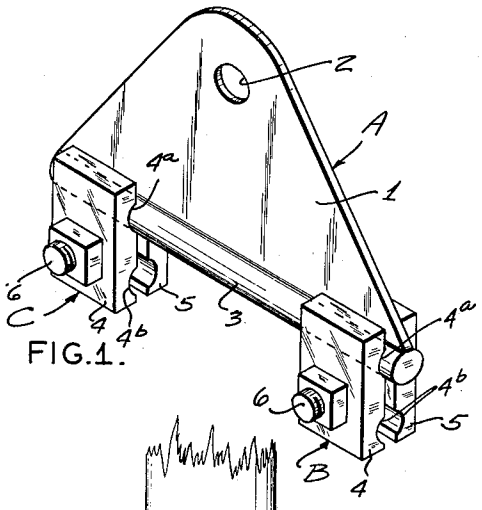


FIG. 1.

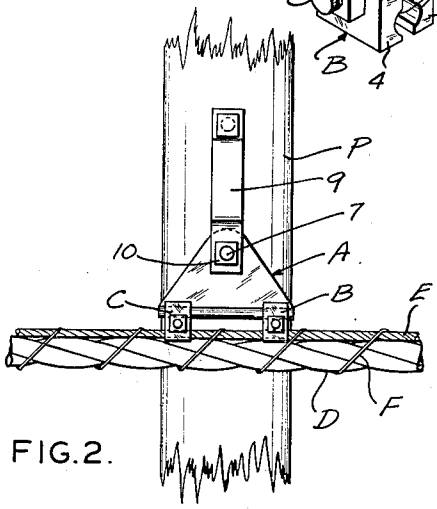


FIG. 2.

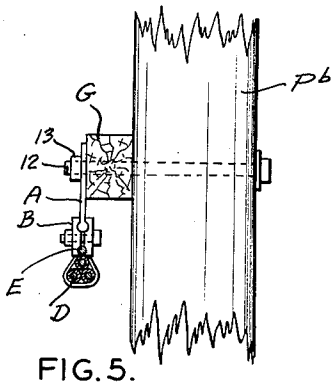


FIG. 5.

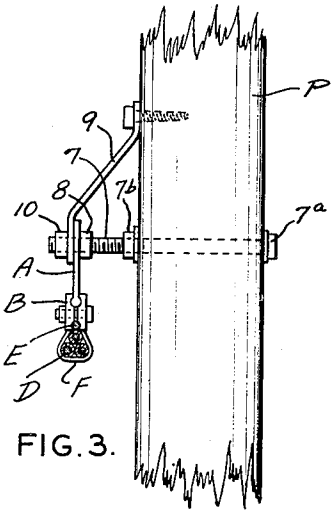


FIG. 3.

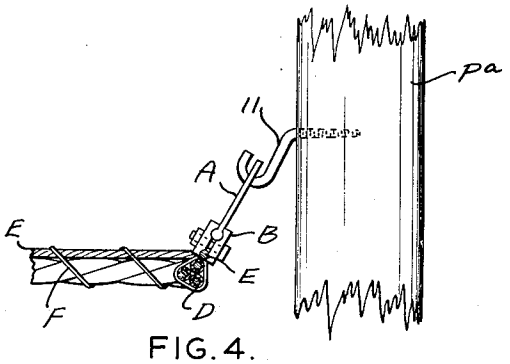


FIG. 4.

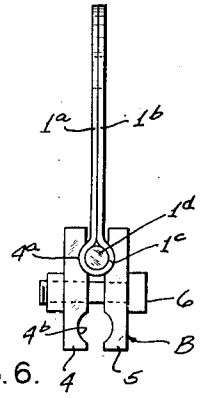


FIG. 6.

INVENTOR

MILO E. VAN AUKEN

By Ellis Harrington,

ATTORNEY

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CLAMP MEANS

Milo E. Van Auken, St. Louis, Mo., assignor to James R. Kearney Corporation, St. Louis, Mo., a corporation of Missouri

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2 Claims. (Cl. 248—63)

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This invention relates generally to supporting means for overhead electrical power lines and more specifically to clamp means for supporting from a pole, or other support, a power line of the type known as a self-supporting aerial power cable which is comprised of one or more electrical conductors bound to a messenger, which forms part of the cable, through the instrumentality of a spirally extended binding tape, the predominant object of the invention being to provide improved clamp means which may be conveniently and effectively employed for supporting a power line of the type mentioned, without necessitating that the binding tape of the power line be cut in order that the clamp means may be applied to the messenger thereof, as was frequently the case heretofore.

The type of overhead power line which is known as a self-supporting aerial power cable has of late come into extensive use, due, largely, to the fact that such cable includes as a part thereof a messenger for supporting electrical conductors which also are parts of the cable. As stated above, the electrical conductors and the messenger of the self-supporting cable are bound together by binding tape which extends spirally about said conductors and said messenger so as to convert the various elements of which the cable is comprised into a unitary cable structure, and if the cable is to be possessed of the required strength and durability, this binding tape must remain uncut when the cable is in use. However, prior to this invention the problem of anchoring such self-supporting cable to a pole, or other support, was a very troublesome one, and in the absence of a better solution of the problem, linemen were cutting the binding tape and separating a short length of the messenger from the electrical conductors of the cable so as to permit of clamps, of the types then available, being applied to the messenger. Such cutting of the binding tape of the cables was highly objectionable and the practice was strongly opposed by manufacturers of the cable.

The prime purpose of the present invention, therefore, is to provide clamp means of such improved construction and arrangement that the messenger of the self-supporting cable may be engaged by the clamp means without any necessity that the binding tape of the cable be cut, or any parts thereof displaced. This is accomplished by providing the improved clamp means with messenger engaging parts which are adjustable so that they may be brought to positions where they may engage the messenger at points

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between turns of the spirally arranged binding tape, thereby leaving the binding tape of the supported cable unimpaired.

Fig. 1 is a perspective view of the improved clamp of the present invention.

Fig. 2 is a front elevation of the improved clamp showing same as it appears in use, a portion of a pole and a portion of a self-supporting aerial power cable being shown in Fig. 2 in association with the clamp illustrated therein.

Fig. 3 is a side elevation of the assembly illustrated by Fig. 2.

Fig. 4 illustrates a different method of attaching the improved clamp to a pole.

Fig. 5 illustrates still another method of attaching the improved clamp to a pole.

Fig. 6 illustrates a modified construction of the clamp shown in Figs. 1 to 5, inclusive.

In the drawing, wherein are shown for purposes of illustration, merely, two embodiments of the invention, A designates the improved clamp generally, in Figs. 1 to 5, inclusive. The clamp A comprises a plate 1 which is shaped as illustrated to good advantage in Figs. 1 and 2; that is to say said plate is of tapered formation when viewed in front elevation, with the wider portion thereof located at the bottom of the plate and having an opening 2 formed therethrough at a point adjacent to the top of the plate. Associated with the plate 1 at its bottom edge is a guide rail 3 which preferably, though not necessarily, is circular in cross-section, said guide rail 3 being extended from end to end of said bottom edge of the plate 1. The plate 1 may be provided with the guide rail 3 in any suitable manner, such, for instance as by forging said guide rail thereon, or by welding the guide rail to said plate. Also, if desired the plate may be produced, as is shown in Fig. 6, from a boiler plate stamping which is folded double to bring similar plate portions 1*a* and 1*b* into contacting parallelism, with an integral tubular portion 1*c* being formed at the bottom of the plate in which is disposed a rod section 1*d*. In the form of the plate shown in Fig. 6 the plate portions 1*a* and 1*b* are spot welded, or otherwise secured together, and the rod section 1*d* may be a drive fit within the tubular portion 1*c* or said rod section may be otherwise secured within said tubular portion 1*c*.

The plate 1 of the clamp A supports a pair of similar clamping structures B and C that engage and are supported by the guide rail 3 of said plate 1, and which are adjustable longitudinally of said guide rail. Each of the clamping structures B and C comprises a pair of related clamping ele-

ments 4 and 5, and each clamping element of each clamping structure is provided with an upper groove 4a and a lower groove 4b, said grooves being extended horizontally from side to side of the clamping element and being of semi-circular cross-sectional shape. The upper grooves 4a of the clamping elements of each clamping structure are alined with each other so that they are combined to provide an elongated and substantially circular opening, while the lower grooves 4b of the clamping elements of each clamping structure are likewise alined with each other so that they are combined to provide a similar elongated and substantially circular opening. The clamping elements 4 and 5 of each clamping structure B and C are drawn toward each other to clamping positions by a bolt and nut assembly 6, the bolt of the bolt and nut assembly of each clamping structure B and C having a shank which extends through alined apertures formed through the related clamping elements and being provided with a head that engages one of the related clamping elements, there being a nut mounted on said bolt shank which engages the other of the related clamping elements.

The clamping structures B and C of the improved clamp A are so applied to the plate 1 of the clamp that the guide rail 3 of said plate extends through the elongated openings provided by the combined upper grooves 4a of the related clamping elements 4 and 5 of the respective clamping structures B and C. It is obvious that when the nuts of the bolt and nut assemblies 6 of the clamping structures B and C are drawn up tight, the walls of the upper grooves of the clamping elements 4 and 5 of said clamping structures will be forced into tight, frictional engagement with surface portions of the guide rail 3 so as to securely anchor said clamping structures B and C in fixed positions with respect to said guide rail. It is obvious, also, that the nuts of said bolt and nut assemblies may be backed up slightly to release the frictional engagement of the walls of the grooves 4a of the clamping elements of the clamping structures B and C, whereupon said clamping structures may be adjusted longitudinally of the guide rail to desired positions where said clamping structures may be anchored in fixed positions by again drawing the nuts of the bolt and nut assemblies up tight.

In Figs. 2 and 3 one arrangement is illustrated for supporting a self-supporting aerial power cable from a pole with the aid of the improved clamp means of the present invention. In accordance with this arrangement a long bolt 7 is extended through an opening formed through a pole P, one end portion of said bolt being extended a considerable distance outwardly beyond the pole (see Fig. 3) and the bolt being anchored to the pole by the bolt head 7a which engages one side of the pole, and by a nut 7b which is mounted on the outwardly extended portion of the bolt and engages the opposite side of the pole. The outwardly extended portion of the bolt 7 is extended through the opening 2 of the plate 1 of the clamp means A, the rear face of said plate abutting against a nut 8 which is mounted on said outwardly extended end portion of said bolt 7. A brace 9 is secured at its upper end to the pole P, and adjacent to its lower end said brace has an opening formed therethrough through which the outwardly extended portion of the bolt 7 extends, a nut 10 being mounted on said outwardly extended portion of said bolt 7 and being screwed into tight frictional contact with the outer face of a lower portion of the brace 9 so as to tightly confine a portion of the plate 1 of the clamping means A and a portion of the brace 9 between the nuts 8 and 10.

With the plate 1 of a clamp means A supported by a pole, as described above and as is shown in Figs. 2 and 3, the portion of a self-supporting aerial power cable D which is to be engaged by the clamp means A is elevated to the proper position. The clamping elements 4 and 5 of the clamping structures B and C are then applied to the guide rail 3 of the plate 1 and to the messenger E of the power cable D, portions of the guide rail of the plate of the clamp means A extending through the elongated opening produced by the combined upper grooves 4a of the related clamping elements 4 and 5 of the respective clamping structures B and C, while portions of the messenger E of the cable D extend through the elongated openings produced by the combined lower grooves 4b of the related clamping elements 4 and 5 of the respective clamping structures B and C. When the nuts of the bolt and nut assemblies of the clamping structures B and C are drawn up tight so that the clamping elements 4 and 5 of said clamping structures securely grip the guide rail 3 of the plate 1 of the clamp means A and the messenger E of the cable D, said cable is very securely anchored in place with respect to the pole P.

It is important to note that due to the fact that the clamping structures B and C are adjustable with respect to the guide rail 3 of the plate 1 of the clamp means A, said clamping structures may be shifted longitudinally of said guide rail so as to position them at points between the turns of the binding tape F of the cable D that extends about the messenger. Thus there is no necessity to cut the binding tape of the cable to permit application of a supporting clamp to the messenger of the cable as was frequently necessary heretofore.

Fig. 4 illustrates a method in accordance with which a self-supporting power cable may be supported where the pole line deviates from a straight line at a pole. In accordance with the method illustrated in Fig. 4 the pole Pa has anchored thereto and extended therefrom a hook 11. The clamp means A is attached to the hook by causing a portion of said hook to be extended through the opening 2 of the plate 1 of said clamp means. Also, the clamping structures B and C of the clamp means A are caused to engage the guide rail 3 of the plate 1 of said clamp means, and the messenger E of the cable D, as has been previously explained herein so as to securely attach the cable to the pole Pa.

In Fig. 5 is illustrated a method of anchoring a self-supporting cable to a pole Pb which is provided with a cross-arm G. In accordance with this method, an outer portion of a bolt 12, which secures the crossarm to the pole, is extended through the opening 2 of the plate 1 of the clamp means A, a nut 13 being screwed into engagement with a portion of the outer face of the plate of the clamp means. The clamping structures B and C of the clamp means A are caused to engage the guide rail 3 of the plate 1 of the clamp means and the messenger E of the cable D, as has been heretofore explained, so as to anchor said cable to the pole Pb with the aid of the improved clamp means.

I claim:

1. A device for anchoring a self-supporting

aerial power cable to a support, comprising a base portion, a guide rail forming a part of said base portion, and a clamping unit supported by said guide rail and adapted to engage a messenger forming a part of said self-supporting aerial power cable, said clamping unit being adapted for adjustment with respect to said guide rail to permit of same being positioned between turns of the spiral binding tape forming part of said self-supporting aerial power cable.

2. A device for anchoring a self-supporting aerial power cable to a support, comprising a guide rail adapted to be attached to the support, and a clamping unit supported by said guide rail and adapted to engage a messenger forming a part of said self-supporting aerial power cable, said clamping unit being adapted for adjustment longitudinally with respect to said guide rail to permit of same being positioned between turns of the spiral binding tape forming part of said self-supporting aerial power cable.

MILO E. VAN AUKEN.

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