

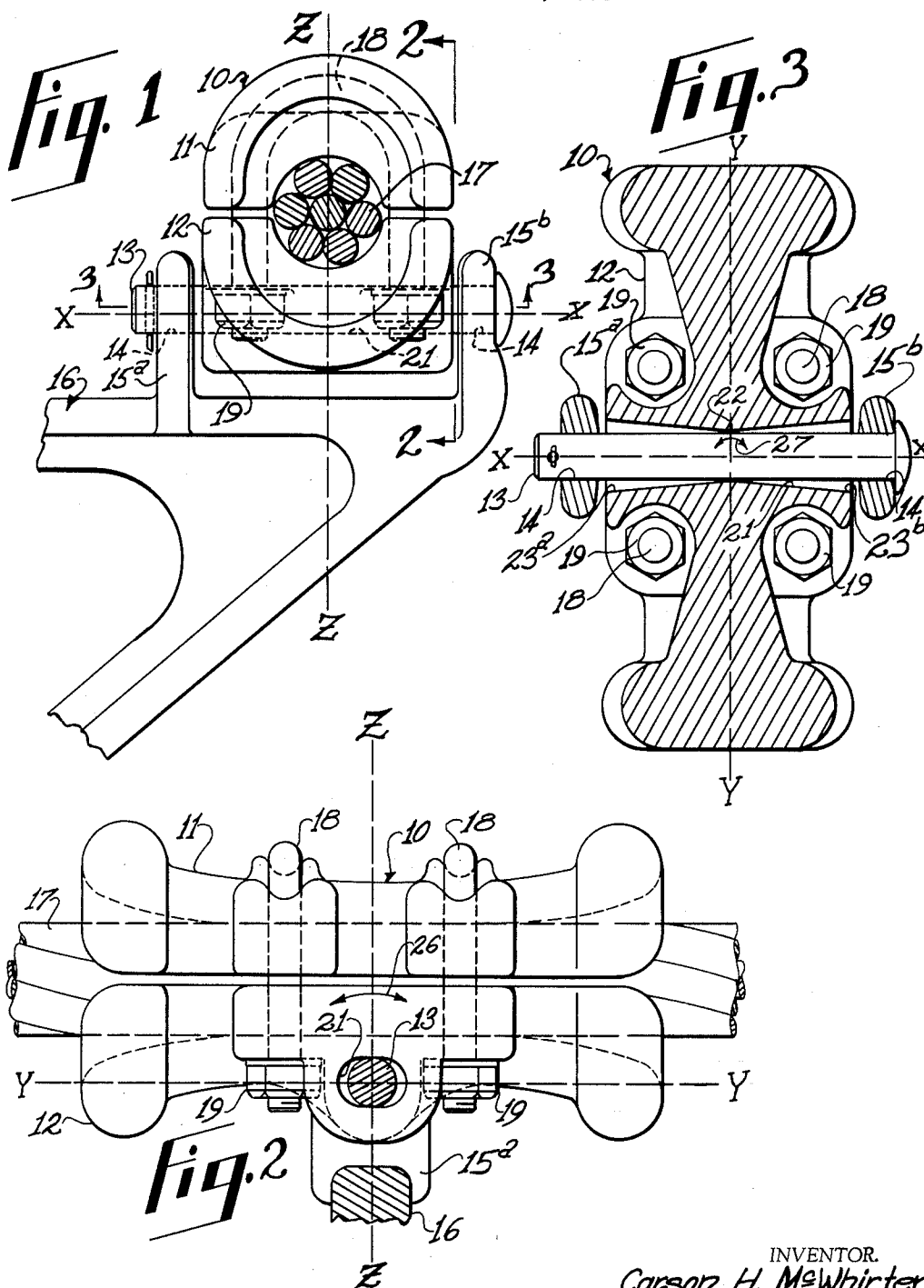
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MOUNTING FOR CONDUCTOR CLAMPS

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MOUNTING FOR CONDUCTOR CLAMPS

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This invention relates to a clamp for electrical conductors and more particularly to means for securing conductor clamps to the yoke plate of an assembly adapted to suspend electric power transmission cables from a supporting structure.

A primary object of my invention is to provide a clamp of the character designated having freedom of movement in two directions in order to relieve stresses on the yoke ears and clevis pin of the suspension assembly that are due to uneven loads, particularly in the case of multiple strand suspension bundles.

Another object of my invention is to provide a clamp of the character designated which can rotate horizontally through a total arc of approximately 10°, whereby lateral mechanical load on the conductor cable puts no undue stress on the clevis pin, yoke ears, or yoke itself.

A further object of my invention is to provide a clamp of the character designated in which rotation of the yoke itself due to relative lengthening or shortening of the conductor cables carried thereby prevents damage to the yoke ears, clevis pin and the clamp because the stresses caused by such rotation would be relieved by limited rotation of the clamp relative to the yoke.

A still further object of my invention is to provide a clamp of the character designated which is free to rotate vertically in response to wind load, ice load and the like.

A further object of my invention is to provide a clamp of the character designated which while having freedom of motion in two directions is restrained against rotation in a direction to twist the conductor cable.

A still further object of my invention is to provide a clamp of the character designated which shall be simple and economical to manufacture, easy to install and durable.

In the following description of my invention reference is made to the accompanying drawing showing apparatus embodying features of my invention, which forms a part of this application and in which:

FIG. 1 is a front elevational view partly broken away and in section;

FIG. 2 is an elevational view taken generally along line 2-2 of FIG. 1 and partly broken away and in section; and,

FIG. 3 is a sectional view taken generally along line 3-3 of FIG. 1.

As shown in FIG. 1, I provide a clamp 10 comprising an upper portion 11 and a lower portion 12. The clamp 10 is mounted on a suspension assembly yoke plate 16 by means of a clevis pin 13 passing through holes 14 in up-standing ears 15^a and 15^b on the yoke plate. The clevis pin 13 passes through a hole 21 in the lower portion of the clamp 12 whereby the clamp is pivotally connected to the yoke 16 for movement in a vertical plane. The upper and lower portions 11 and 12 of the clamp 10 are secured to the conductor cable 17 by means of U-bolts 18 and nuts 19 thereon.

The hole 21 is generally circular in shape at its longitudinal mid-point 22, as shown in FIG. 3 and is of a diameter just slightly greater than the diameter of the clevis pin 13. At its outermost ends 23^a and 23^b the hole 21 is horizontally elongated as shown most clearly in FIG. 2. As a result of this horizontal elongation the hole 21 is generally elliptical in shape at its outer ends, having a vertical minor axis which is equal to the diameter of the

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hole 21 at its longitudinal mid-point 22, and a horizontal major axis substantially longer than the diameter of the hole at the point 22.

For the purpose of facilitating the description of the operation of my invention, coordinate axis of a spatial coordinate system have been placed on the drawing. In FIG. 1 the line Z-Z together with the line X-X defines a plane X-Z parallel with the surface of the paper and passing through the longitudinal center line of the clevis pin 13. In FIG. 2 the line Z-Z and the line Y-Y define a plane Z-Y which is parallel to the surface of the paper and passes through the longitudinal center line of the conductor cable 17. In FIG. 3 the line X-X and the line Y-Y define a plane X-Y parallel to the surface of the paper and passing through the center line of the clevis pin 13. The plane X-Z is a vertical plane normal to the longitudinal center line of the conductor. The plane Y-Z is a vertical plane in which is included the longitudinal axis of the clamp, and the plane X-Y is a horizontal plane through the center line of the clevis pin.

As is clearly shown in FIG. 2 the clamp when installed is free to rotate in the plane Z-Y in the direction indicated by the arrow 26 about the center line of the clevis pin 13. FIG. 3 illustrates the second degree of freedom provided by my invention. That is, the clamp is allowed to rotate within limits in the plane X-Y as indicated by the arrow 27. This rotation is limited by the elongation of the hole 21 at its outermost ends 23^a and 23^b but it is sufficient to prevent damaging lateral stresses when the conductors sway from side-to-side. As is clearly shown in FIG. 1 the clamp cannot rotate in the plane X-Z, it being so restrained by the confining dimensions of the hole 21.

From the foregoing it is seen that I have devised a new and improved mounting for conductor clamps and the like which allows the clamp freedom of movement in two directions, that is, freedom to rotate in a vertical plane passing through the center line of the conductor and freedom to rotate in a horizontal plane passing through the center line of the clevis pin which attaches the assembly to the suspension assembly yoke plate. The combination of these movements prevents undue stresses and strain on the clamp and yoke and suspension assembly thereby making the entire assembly more efficient and more durable. The manufacture of my improved mounting is simple and economical and the clamps embodying this mounting are easy to install.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are specifically set forth in the appended claims.

What I claim is:

1. The combination with a yoke plate of means to secure an electrical conductor clamp to said plate of:
 - (a) outwardly extending ears on the yoke plate between which the clamp is adapted to fit,
 - (b) a constant diameter pin carried by said ears,
 - (c) there being a hole through said clamp,
 - (d) said hole being generally circular at its longitudinal mid-point and at said mid-point of a diameter snugly to receive said pin, and
 - (e) said hole at the outermost portions thereof being horizontally elongated and generally elliptical with the minor axis vertically disposed and substantially equal to the diameter of said hole at its longitudinal mid-point and the major axis being horizontally disposed and substantially longer than said diameter whereby the clamp is allowed to pivot vertically about said pin and horizontally about the longitudinal mid-point of said hole.

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2. A conductor fastener and yoke plate assembly embodying a clamp proper and means mounting the clamp to the yoke plate including:

- (a) a single constant diameter mounting pin having its longitudinal axis disposed generally at right angles to the conductor and passing through a hole in said clamp, 5
- (b) said hole being elongated at each end in a horizontal plane generally parallel to said conductor and having sides converging toward the longitudinal midpoint of the hole at which point the hole is substantially circular and of a diameter snugly to receive said pin, whereby the clamp is mounted for pivotal movement in a vertical plane passing longitudinally through the conductor and also in a horizontal plane parallel to the conductor while being 10

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restrained against rotation in a plane perpendicular to the conductor.

References Cited by the Examiner

UNITED STATES PATENTS

1,889,812	12/1932	Salvi	248—63
1,905,967	4/1933	Milne	248—63
2,209,009	7/1940	Taylor	248—63
3,076,864	2/1963	Lantz et al.	174—149

FOREIGN PATENTS

43,853 5/1934 France.

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