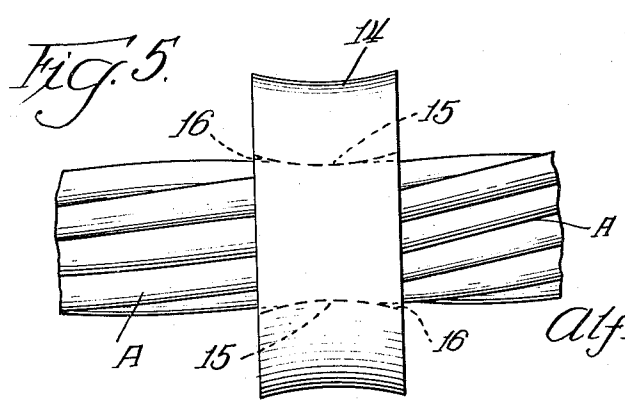
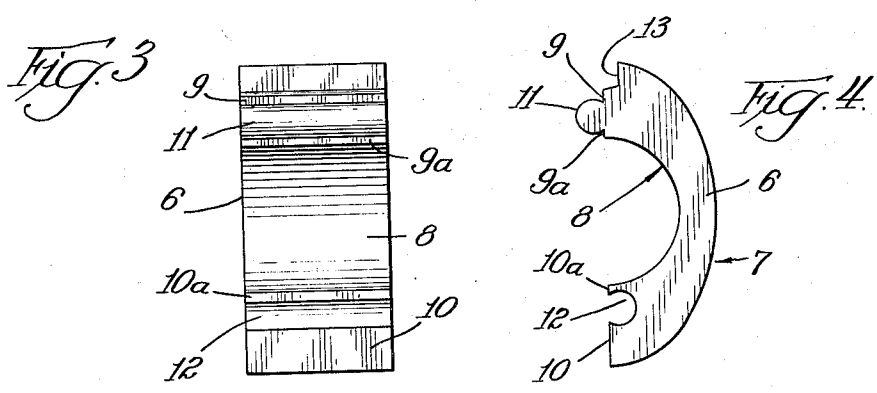
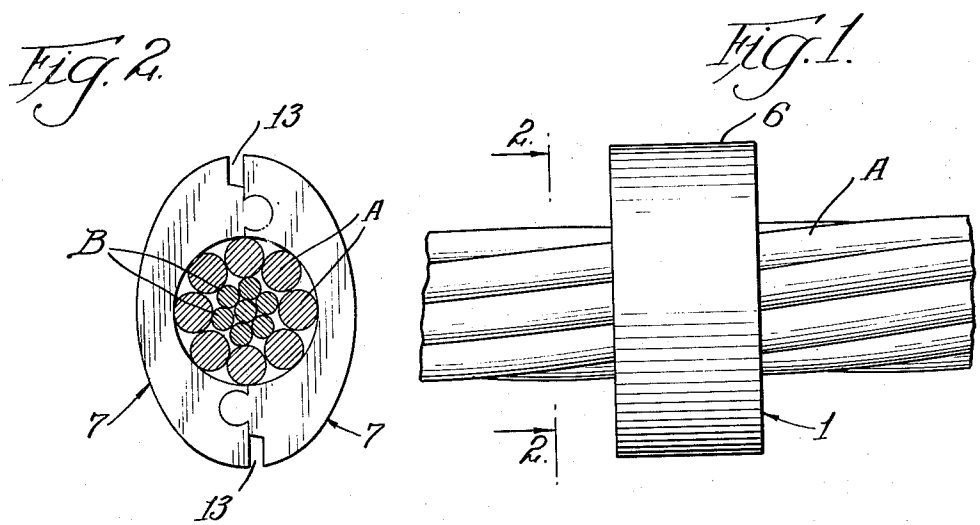


Sept. 5, 1950

A. H. TESSMANN
ARMOR ROD CLAMP
Filed March 11, 1947

2,521,192



INVENTOR.
Alfred H. Tessmann
BY *Albert G. McCab.*
att'y.

UNITED STATES PATENT OFFICE

2,521,192

ARMOR ROD CLAMP

Alfred H. Tessmann, Chattanooga, Tenn.

Application March 11, 1947, Serial No. 733,847

2 Claims. (Cl. 24-122.3)

1

My invention contemplates and provides improved clamps admirably suitable for securing armor rods to their associated conductors.

Modern electric power conductors usually are in the form of cables consisting of a plurality of wire strands twisted around a center strand. These conductor cables, which ordinarily are formed of aluminum wire, are not well adapted to withstand vibration at or near the points where they are attached to insulators. Therefore, it has become approved practice to reinforce these conductor cables, against the effects of excessive vibration, by wrapping them with armor rods in the regions of their attachment to insulators. Sometimes these armor rods have been preformed helices of hard drawn wire or other suitable material which have been concavo-convex in transverse section and have presented their concave surfaces to the conductor cable (for example see U. S. Patent No. 2,275,019). More commonly, however, the armor rods have been strands of heavy gauge round wire, usually of aluminum; several strands of this heavy gauge wire being twisted around the conductor cable to sheath it (for example see U. S. Patent No. 2,210,587). In each case the armor rods are secured to the conductor by clamps—the common practice being to provide a clamp at or near each end of each group of cable-sheathing armor rods. It is with the provision of improved clamps for securing armor rods to their associated conductors that my instant invention is concerned.

Among the objects of my invention may be enumerated the following:

(1) A generally improved clamp for the purpose stated;

(2) A clamp for the purpose stated consisting of cooperating parts, capable of being economically manufactured, which readily may be interengaged with each other in girdling relationship to a group of armor rods and, after being suitably deformed with an appropriate tool, become reliably secured to each other and squeeze the armor rods with predetermined optimum pressure;

(3) A clamp for the purpose stated composed of two identical halves;

(4) A clamp for the purpose stated consisting of two identical halves provided with integral means for inter-engaging them with each other;

(5) A clamp for the purpose stated which when properly applied to a group of armor rods defines a passage occupied by such armor rods

2

which is characterized by outwardly flaring or belled ends;

(6) A clamp for the purpose stated which suitably and desirably may be formed of a malleable or deformable metal such as aluminum or an aluminum alloy;

(7) A clamp for the purpose stated which, when occasion requires, readily may be pried asunder with a screw driver nib or like part presented by a suitable tool.

Further objects, features and advantages of my invention will appear from the following description in which a preferred embodiment of the invention has been described in conjunction with the accompanying sheet of drawings. The appended claims are to be accorded a range of equivalents consistent with the prior art.

In the accompanying sheet of drawings:

Fig. 1 is a side elevational view illustrating one of my improved clamps as it appears after its components have been interengaged with each other in girdling relationship to a group of armor rods but before those components have been distorted, as hereinafter explained; to prevent their accidental separation and to cause them to squeeze the armor rods with an optimum predetermined pressure;

Fig. 2 is an end view, partly in section and partly in elevation, which may be regarded as taken on the line 2-2 of Fig. 1;

Fig. 3 is an inner face view of one of the identical halves or units whereof the clamp is composed;

Fig. 4 is an end elevational view of one of those halves or units; and

Fig. 5 is a view similar to Fig. 1 but illustrating the clamp as it appears after being deformed to prevent accidental separation of its components and to squeeze the embraced armor rods as aforementioned.

Similar characters of reference refer to similar parts throughout the several views.

Referring first to Figs. 1 and 2, at A I have depicted a group of armor rods in conventional relationship to a conductor cable B. Usually, but not necessarily, the conductor cable B will be composed of aluminum wire and the armor rods A of relatively heavier gauge aluminum wire.

A clamp embodying my present invention consists of two cooperating identical halves or units 6 which are formed of a metal, preferably aluminum or an aluminum alloy, which is malleable or deformable as and for the purpose hereinafter described. In end view each of the

3

halves or units 6 is concavo-convex, the convex exterior surface 7 of such half or unit being semi-ovoidal and its concave interior surface 8 being semi-cylindrical.

Each of the halves or units 6 is provided with two pairs of longitudinally extending plane faces 9 and 9a and 10 and 10a. When each unit 6 is assembled with an identical unit to constitute an armor rod clamp, its faces 9 and 9a are adapted to abut or lie in immediate juxtaposition to the faces 10 and 10a of the other unit; and similarly its faces 10 and 10a are adapted to abut or lie in immediate juxtaposition to the faces 9 and 9a of the other unit.

Projecting outwardly from between the plane surfaces 9 and 9a is a longitudinally extending bead 11; and bounded by the plane surfaces 10 and 10a is a longitudinally extending groove 12. When the unit 6 is assembled with an identical unit to constitute a conductor cable clamp, the bead 11 of each unit cooperates dovetailwise with the groove 12 of the other unit.

Each unit 6 is provided adjacent its bead 11 with a longitudinally extending recess 13.

In order to provide an armor clamp, two of the identical halves or units 6 are caused to inter-engage each other, in girdling relationship to the armor rods A and their sheathed conductor B, as depicted in Figs. 1 and 2. It will be noted that the recesses 13, being opposed by plane faces 10, are now outwardly opening slots. These slots retain their identity as such despite the deformation of the clamp now to be discussed.

The clamp consisting of the two inter-engaged halves or units 6 is now squeezed by and between the jaws of any suitable deforming tool (not shown) which acts to provide circumferentially extending concavities 14 in the convex exterior surfaces 7 and resultant circumferentially extending convexities 15 in the concave surfaces 8. See Fig. 5. The deforming tool may or may not be of the so-called "hot line" variety, as desired. Such deformation of the clamp bends each bead 11 and its cooperating groove 12 laterally of themselves and inwardly toward the clamp passage occupied by the armor rods and thus dependably locks each bead 11 against endwise displacement from the groove 12 by which it is received, causes the clamp to squeeze the armor rods A with an optimum pressure predetermined by the properly limited amount of clamp deformation which the deforming tool is capable of effecting, and accords outwardly flaring or belled ends 16 to the clamp passage occupied by the armor rods. The length of such clamp passage should not be substantially less than its diameter; desirably such length and diameter are substantially equal before deformation of the clamp, as illustrated.

When and if it becomes necessary to release the armor rods from the embrace of one of my clamps, the latter effectively may be opened by inserting in either of its outwardly opening slots a screw driver nib or like part carried by a "hot line" or other suitable implement.

That the clamp of my invention, in its preferred embodiment, consists of but two parts and they identical, as distinguished from prior clamps usually consisting of a multiplicity of non-identical parts, is of great practical advantage; so also is the fact that my clamp, when deformed by an appropriate tool, cannot over-squeeze and thus damage the armor rods and the conductor sheathed thereby as prior art clamps frequently have done; and so also is the fact that

4

the outwardly flaring or belled ends of the clamp prevent cutting and minimize chafing of the armor rods at the points where they emerge from the clamp.

It is not absolutely essential that the surfaces 7 and 8 have dissimilar curvatures. For example, they both may be semi-cylindrical surfaces struck from a common center. However, the relationship of these surfaces, as depicted in the drawings, affords ample room between their corresponding extremities for surfaces 9 and 9a and bead 11, and for surfaces 10 and 10a and groove 12, while still maintaining the total mass of unit 6 desirably low.

Having thus illustrated and described a preferred embodiment of my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. The method of clamping a group of conductor armor rods about a conductor, comprising placing the rods in position about the conductor, then encircling such rods with a plurality of arcuate units of deformable malleable metal connected end to end by axially extending dovetailed tongues and grooves at their contiguous edge portions, and deforming the units and constrictively squeezing the enclosed parts by exerting constrictive pressure inwardly on intermediate portions of the outer faces of the units, said pressure serving by bending the engaged tongues and grooves to lock the units against movement out of engagement with each other longitudinally of the conductor and serving to conform the malleable metal of the units to the rods at the circle of greatest constriction while causing the inner edges of the malleable units to flare away from the adjacent armor rods.

2. In combination a conductor, armor rods grouped around and extending alongside said conductor, and a collar encircling said conductor and rods and consisting of a plurality of arcuate units of malleable metal connected end to end by axially extending dovetailed tongues and grooves which are interlockingly deformed against their separation, the armor rods and their associated conductor being constrictively squeezed by said collar with the malleable metal of the units conforming to the armor rods at a circle of greatest constriction and with the inner edges of the units flaring away from their adjacent armor rods.

ALFRED H. TESSMANN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
509,129	Johnson	Nov. 21, 1893
555,512	Johnson	Mar. 3, 1896
650,860	McTighe	June 5, 1900
977,720	Ellis	Dec. 6, 1910
1,151,131	Starliper	Aug. 24, 1915
1,332,626	Henegar	Mar. 2, 1920
1,492,561	Gabriel	May 6, 1924
1,770,971	Conner	June 22, 1930
1,858,284	Schwartz	May 17, 1932
2,109,517	Xenis	Mar. 1, 1938
2,312,989	Laverack	Mar. 2, 1943

FOREIGN PATENTS

Number	Country	Date
243,660	Great Britain	Dec. 3, 1925
477,310	Germany	June 5, 1929