Oct. 16, 1962 G. F. CLAYTON ET AL 3,058,185

CABLE CLAMP

Filed May 7, 1959

FIG. 1

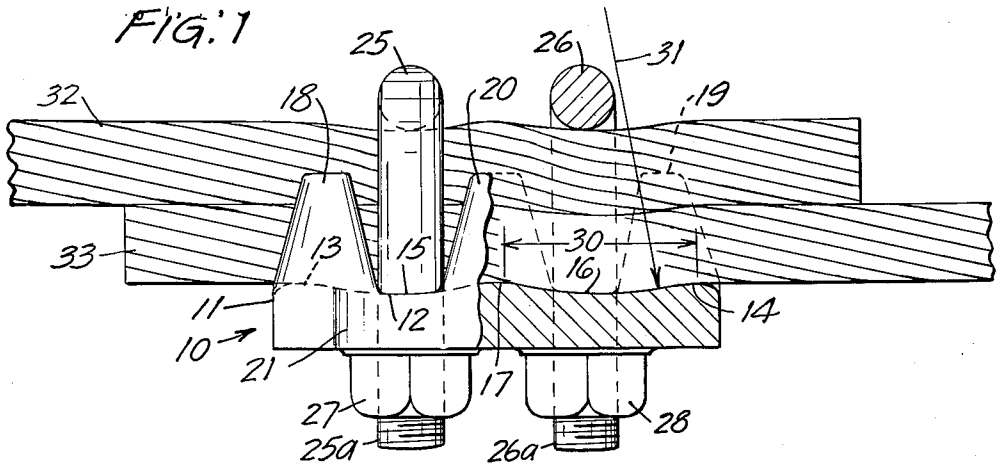


FIG. 2

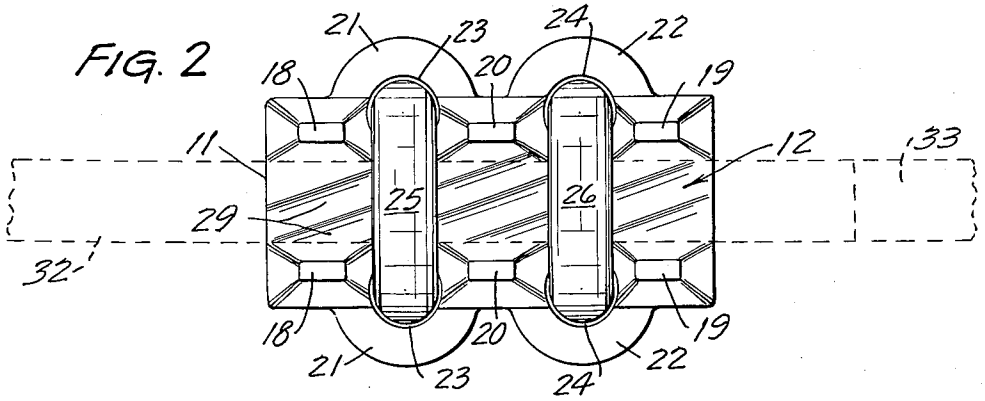
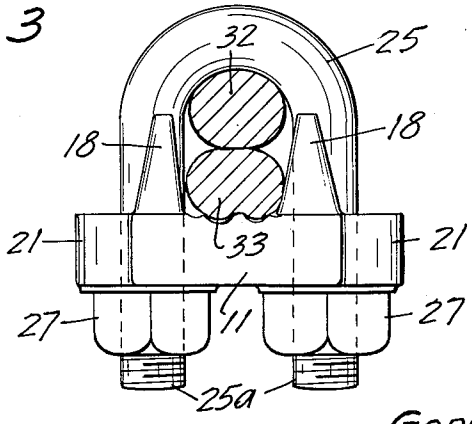


FIG. 3



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CABLE CLAMP

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This invention relates to clamps and more specifically to cable clamp structures.

One object of this invention is to provide a novel and improved cable clamp having a curvilinear cable engaging face for respectively holding a cable in clamped relation.

A more specific object of the invention is to provide a novel and improved cable clamp having a curvilinear face including a plurality of convex and concave portions for effectively securing a cable in clamped relation.

These and other objects and advantages of this invention will more fully appear from the following description, made in connection with the accompanying drawings, wherein like reference characters refer to the same or similar parts throughout the several views, and in which:

FIG. 1 is a side elevational view of the cable clamp applied to a cable, parts of the clamp being broken away to better show the gripping relation of the curvilinear face and other parts indicated by dotted lines;

FIG. 2 is a top elevational view of the clamp with the cable shown in dotted lines; and

FIG. 3 is an end elevational view of the cable clamp applied to cable elements shown in section.

Referring now to the drawings, the cable clamp is designated generally **10** and includes an elongated rigid body or base **11**. The elongated rigid body or base **11** may be formed of forged or cast metallic material when the clamp is to be used on a conventional wire rope or metallic cable. In some instances, however, it is desirable to have a clamp formed of a material having non-magnetic properties and it is contemplated that the novel clamp may be formed of a non-magnetic substance. It is also contemplated that this cable clamp may be formed of materials such as acid resistant plastics or the like.

Elongated base **11** includes a curvilinear face **12** extending the entire length thereof and which has a convex end portion **13** at the left and a convex end portion **14** at the right as seen in FIG. 1 of the drawings. Curvilinear face **12** also includes an intermediate concave portion **15** at the left and an intermediate concave portion **16** at the right with an intermediate convex portion **17** located therebetween and co-linear with the two concave portions as also viewed in FIG. 1 of the drawings. It will also be noted from the drawings that the longitudinal dimensions of each of the intermediate concave portions **15** and **16** respectively are greater than the longitudinal dimension of the intermediate convex portion **17**. In the embodiment shown the longitudinal dimensions of each of the concave portions are approximately four times the longitudinal dimension of the intermediate convex portion **17**. This relatively narrow intermediate convex portion **17** functions to impart a crimping effect or action when U-bolt members are tightened in place against the cable. The arc of curvature of each of the convexed end portions **13** and **14** respectively, and the intermediate convexed portion is substantially equal to the radius of the cable to be clamped. This particular arc has been found to be desirable since smaller arcuate convex surfaces tend to cause the cable to rupture and fail when subjected to great tension and compression stress loads while larger arcuate surfaces fail to provide an effective gripping surface.

Rigid base **11** is also provided with a pair of upstanding arms **18** positioned on opposite sides of convex end portion **13** and a pair of upstanding arms **19** positioned on opposite sides of convex end portion **14**. Another pair of upstanding arms **20** are longitudinally spaced from arms **18** and **19** and are positioned on opposite sides of intermediate convex portion **17**. Referring now to FIG. 3 of the drawings, it will be seen that the inner surfaces of the upstanding arms are inclined downwardly and inwardly and are convexly curved in a transverse direction. These arms serve to hold a cable in place against the cable engaging face **12** and also aid in the seating of the cable.

Rigid base **11** is also provided with laterally extending arcuate portions **21** positioned on either side of intermediate concave portion **15** and laterally extending arcuate portions **22** positioned on both sides of intermediate concave portion **16**. Arcuate portions **21** and **22** are integral with base **11** and have openings **23** and **24** respectively formed therein for receiving a pair of U-bolts **25** and **26**. U-bolt **25** has its ends threaded as at **25***a* to receive a pair of nuts **27** while U-bolt **26** has its ends threaded as at **26***a* to receive a pair of locking nuts **28**. Referring now to FIG. 1 it will be seen that U-bolts **25** and **26** when positioned within their respective openings **23** and **24** respectively are disposed in vertical planes bisecting concave portions **15** and **16** respectively. Reference is now made to FIG. 2 wherein it will be noted that the curvilinear face **12** is corrugated to thereby define grooves and corrugations **29** for effectively nesting and holding a wire rope or cable in gripped relationship. The grooves shall be made in a manner whereby the corrugations will run in the direction of the rope strands thus insuring proper grip in the longitudinal direction with the rope remaining straight.

Each of the intermediate concave portions **15** and **16** respectively has a longitudinal dimension or length designated by line **30** substantially equal to twice the diameter of the cable to be clamped. This particular relationship permits a cable to be clamped evenly along the entire length of each of the intermediate concave portions. The arc of curvature of each of the intermediate concave portions has a radius designated by line **31** substantially equal to four times the diameter of the cable to be clamped.

Cable clamps of the class described are commonly used in cable loops, in end-to-end connections and other cable joints where splicing is not feasible. When the clamps are used in the formation of cable loops, the U-bolts are positioned to bear against the dead end of the cable while the live end of the cable is clamped against the cable engaging face of the clamp as is well known in the art. Refering now to the drawings, it will be seen that U-bolts **25** and **26** are positioned to bear against the dead end or upper cable portion **32** while the live end or lower cable portion **33** is disposed in bearing relationship against the curvilinear face **12**. Tightening of the nuts **27** and **28** causes the U-bolts to move towards the curvilinear face **12** to thereby compress the cable portion therebetween.

When the clamp is applied to superimposed cable portions as, for example, in a cable loop, the cable is compressed against a curvilinear face **12** at five distince pressure points which are the end convex portions, the intermediate concave portions directly beneath the U-bolts, and the intermediate convex portion. The relatively narrow intermediate convex portion imparts a crimping action upon the cable. Many of the conventional cable clamps terminate in sharp or knife-like edges which bite into or rupture the strands of the cable when the same is subjected to stress loads. The convex end portions of this cable clamp present rounded surfaces to thereby overcome this particular problem.

It will be seen from the preceding paragraphs that I have provided a novel and improved cable clamp structure having a uniquely constructed cable engaging face for effectively holding a cable in clamped relationship.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of the invention which consists of the matter shown and described herein and set forth in the appended claims.

What is claimed is:

1. A cable clamp comprising a rigid base having an elongate curvilinear face, said elongate face including a pair of intermediate concave portions and an arcuately-shaped intermediate convex portion located between and cooperating with said concave portions, said elongate face terminating outwardly in arcuately-shaped convex end portions, said intermediate and end convex portion having their respective crests disposed in co-planar relation and said intermediate convex portions having a longitudinal dimension substantially less than one half the longitudinal dimension of either of said intermediate concave portions, said base including a plurality of longitudinally-spaced upstanding arms arranged on opposite sides of said face and defining opposed pairs each being disposed on opposite sides of one of said convex portions, said base having arcuate portions extending laterally from opposite sides of each of said intermediate concave portions, each arcuate portion having an aperture therein, locking means for locking a cable in clamped relation against said curvilinear face including a pair of U-bolts disposed within said openings and each lying within a plane extending substantially normal to the general plane of the base and disposed equidistant from said intermediate convex portion and one of said convex portions, nuts cooperating with said U-bolts for retaining the same in clamped relation.

2. The structure as defined in claim 1 wherein said intermediate concave portions are of substantially the same length and each of said intermediate and end convex portions are of substantially the same length.

References Cited in the file of this patent

UNITED STATES PATENTS

261,296	Berger	July 18, 1882
284,390	Curtis	Sept. 4, 1883
1,002,893	Wood	Sept. 12, 1911

FOREIGN PATENTS

331,797	Germany	Jan. 14, 1921
585,674	Germany	Oct. 7, 1933
601,283	Germany	Mar. 26, 1935
115,815	Great Britain	Mar. 22, 1918