Sept. 18, 1945. H. C. NIELSEN 2,385,225

CABLE CLAMP

Filed Dec. 4, 1942

Fig. 1

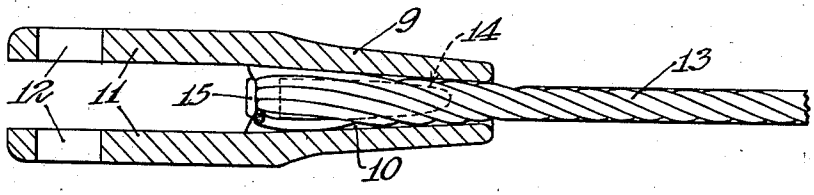


Fig. 2

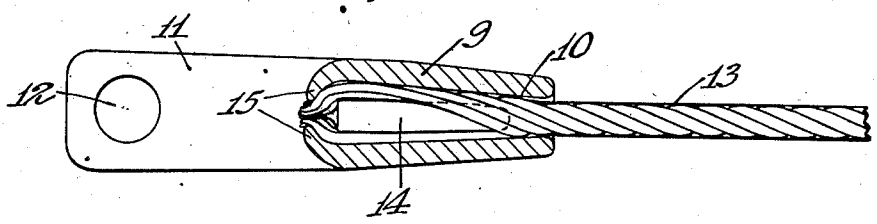


Fig. 3

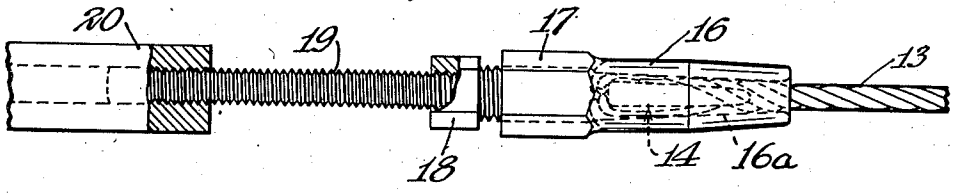


Fig. 4

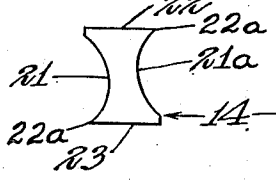


Fig. 5

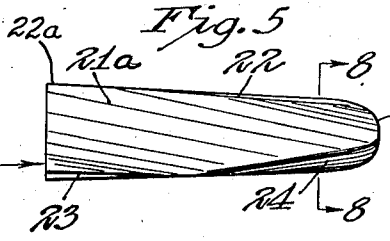


Fig. 6

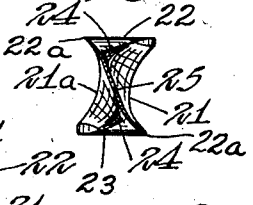


Fig. 7

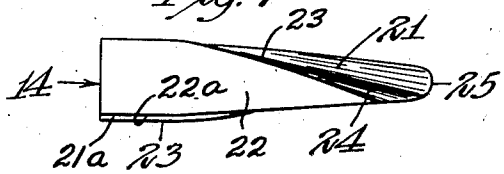
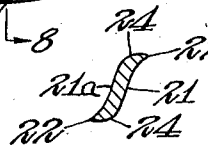


Fig. 8



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CABLE CLAMP

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Application December 4, 1942, Serial No. 467,829

7 Claims. (Cl. 24—123)

This invention relates to cable clamps.

Cable clamps have been constructed previously with sockets into which the end of the cable is inserted and wedges for spreading the strands at the end of the cable so that they will not slip out of the sockets. Experience has proven that many of the wedges used in such cable clamp constructions are improperly constructed so that when heavy tension is placed upon the cable the strands will part inside of the socket. This is due to the fact that the strands of the cable which are normally spirally twisted are improperly gripped between the wedge and the inner wall of the socket.

It is an object of my invention to provide a cable clamp having a cable receiving socket and a wedge which is so constructed that the spiral windings of the cable are properly gripped so that the strands of the cable will stand up under heavy use and will not break inside of the socket.

Another object of the invention is to provide a socket member for a cable clamp wherein the cable is prevented from slipping out of the rear end of the socket in the event pressure is applied to the cable instead of tension.

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

Fig. 1 is a longitudinal section through my improved clamp with a cable anchored therein;

Fig. 2 is a longitudinal section taken at right-angles to that shown in Fig. 1;

Fig. 3 is a modified form of construction in side elevation;

Fig. 4 is a rear end elevation of the wedge;

Fig. 5 is a plan view of the wedge;

Fig. 6 is a front end elevation of the wedge;

Fig. 7 is a side elevation thereof; and

Fig. 8 is a transverse section through the wedge taken approximately on the line 8—8 of Fig. 5.

My clamp includes a socket 9 having a longitudinal tapered bore 10 therein. Extending rearwardly from the socket 9 is a pair of spaced lugs 11 having apertures 12 to receive an anchoring bolt or the like. The socket 9 is shown with the end of a cable 13 positioned therein and the strands of the cable are shown spread out by means of a wedge 14 embedded in the strands. The wedge 14 keeps the strands spread apart and prevents the cable 13 from slipping forward to the right and out of the socket 9. In the event pressure is applied on the cable toward the socket 9 a pair of ears 15 on the rear or left-hand end of the socket 9 are bent over between the lugs 11 as shown in Fig. 2, thus preventing the end of the cable 13 and the wedge 14 from slipping out of the rear end of said socket 9.

In Fig. 3 there is shown an internally threaded socket 16 having a longitudinally tapered bore portion 16a and a hexagonal portion 17 on its rear end. In this form of socket I provide a threaded plug 18 which screws into the rear end of the internally threaded socket 16 to prevent rearward movement of the cable 13 and wedge 14 in said socket 16. The plug 18 is preferably internally threaded from its outer end to receive a bolt 19 which at its other end may be connected with a rod 20 or other anchoring member.

In Figs. 4 through 8 there is illustrated my improved cable strand spreading wedge. The wedge has a pair of oppositely disposed valleys 21 and 21a formed therein on opposite sides thereof. Each of the valleys 21 and 21a extends from the rear to the front end of the wedge 14, said rear end being illustrated in Fig. 4 and shown at the left-hand sides of Figs. 5 and 7. The valleys 21 and 21a are curved and concave transversely of the wedge and they deepen or slant downwardly and forwardly. As best shown in Fig. 5, said valleys 21 and 21a are slightly diagonally disposed with regard to the longitudinal center of said wedge 14. When the wedge is disposed with a valley side up and the wedge is viewed from the rear end forwardly the exposed valley extends from a point more closely adjacent the left rear corner of the wedge than the right rear corner thereof, and while extending generally longitudinally of the wedge it extends diagonally forwardly. The land 22 defining the left-hand side of each valley 21 and 21a is relatively thin and fairly sharp as at 22a but it thickens slightly toward the forward end of the wedge. The land 23 defining the right-hand side of each valley 21 and 21a, runs from the rear end of the wedge in gradually tapering relation to about the longitudinally midpoint of the right-hand side of the wedge, and from approximately said midpoint the right-hand side of the wedge increasingly falls away and is curved downwardly and laterally as at 24 until adjacent the forward end or bill of the wedge the right-hand edge curves downwardly from about the depth of the valley so that the forward part of the right-hand side offers no obstruction to receipt of cable strands into the valley as the wedge is forced into the cable.

The rear end of the wedge shown in Fig. 4 illustrates the shape of the valleys at said rear end, which general shape is maintained throughout

approximately half the length of the wedge except that said valleys slant downwardly or toward a horizontal plane longitudinally through the center of the wedge, as illustrated in the front end view of Fig. 6. Adjacent the forward tip or bill of the wedge the diminishing of the land **23** produces a shape at **24** as indicated in the section shown in Fig. 8 which is taken on the line 8—8 of Fig. 5. The valleys **21** come together at the forward end of the wedge producing at the bill a relatively sharp forward edge **25** which, as best shown in Fig. 6, is in the shape of a slightly reverse curve when viewed from the end.

As viewed in Fig. 7 which is a side elevation, it should be noted that the land **23** which extends along the far side of the valley underneath the wedge is somewhat lower than the edge **22***a* of the land **22** on the near side of the valley **21***a* on the underside of the wedge. The same relationship exists between the two lands defining the valley on the upper side of the wedge.

With a wedge constructed, as shown and described, it has been found that it will keep the cable strands spread so they will not slip out of the socket and it will press them against the inner wall of the socket evenly throughout the length of the wedge, and furthermore it permits the strands to come together where they are twisted tightly at a relatively sharp angle so that undesirable bending of the strands is eliminated, and pressure is never unduly concentrated on individual wires of the respective strands. Furthermore, the groups of strands in the valleys **21** and **21***a* are maintained more in their normal twisted position and are not straightened out or distorted as is true in the case of other types of cable clamps. The wedge **14** has only two valleys therein thus making it a simple matter to insert the wedge in the end of the cable. It is only necessary to work the sharp forward bill end **25** of the wedge between the strands approximately in the center of the cable to divide the strands into two groups. Actual tests have shown that the cable is so well seated in the socket when used with my wedge and that the gripping action is so well distributed over the strands that there is more tendency for the cable to break outside of the socket than inside thereof.

As stated above the clamp includes a socket which is so constructed that the cable and wedge cannot be pushed out of the rear end thereof. Two forms are disclosed, one wherein the ears **15** are bent over in back of the wedge and cable and the other wherein the threaded plug **18** is screwed into the back of the socket. The clamp with its wedge member is compact in construction, simple to manufacture and highly efficient in its function. It is particularly adapted for use on aircraft control cables and similar installations where compactness and lightness coupled with strength is a prime necessity.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of my invention.

What is claimed is:

1. A cable clamp comprising, an internally tapered socket and a wedge fitting therein, said wedge having two valleys in opposite sides thereof, which valleys, while running generally longitudinally of the wedge, slant laterally slightly in opposite directions from the true longitudinal axis of the wedge and terminate in a relatively sharp single edged bill at the forward end of the wedge, which bill is diagonally inclined relative to the sides of the wedge.

2. The structure in claim 1 and said valley being defined by lands at the sides thereof, and the forward parts of one land adjacent each valley being of progressively less height toward the forward end of the wedge and being lower than the land at the other side of the valley.

3. A cable clamp comprising, an internally tapered socket and a wedge fitting therein, said wedge having longitudinal valleys therein to receive strands of said cable, a land at one side of each valley, said land extending forwardly approximately to the midpoint of said wedge, and from said mid-point said side being of progressively less height forwardly and laterally as the forward end of the wedge is approached, and a land at the opposite side of each valley from said first mentioned land being substantially parallel to the longitudinal axis of said wedge.

4. A cable clamp comprising, an internally tapered socket and a wedge fitting therein, said wedge having a pair of valleys in opposite sides thereof to receive strands of said cable, said valleys extending forwardly along said wedge, a land defining one side of each valley and being of progressively less height forwardly and laterally as the forward end of said wedge is approached, a land defining the opposite side of each valley, and said lands and valleys terminating at one end of said wedge and producing an end edge lying on a reverse curve.

5. A cable clamp comprising, an internally tapered socket and a wedge fitting therein, said wedge having longitudinal valleys therein to receive strands of said cable, said valleys extending forwardly along said wedge and tapering toward the forward end thereof, and a land defining one side of each valley and extending forwardly approximately to the midpoint from said wedge and from said midpoint said side being of progressively less height forwardly and laterally as the forward end of the wedge is approached and producing a cross sectional wedge end portion on a reverse curve.

6. The structure in claim 5 and the bottoms of said valleys meeting at their forward ends to provide a relatively sharp bill at the forward end of said wedge.

7. A cable clamp comprising, an internally tapered socket and a wedge fitting therein, said wedge having longitudinal valleys adapted to receive strands of said cable, said valleys extending along said wedge and slanting downwardly to the forward end thereof, said valleys lying slightly diagonally to the longitudinal center of said wedge, a land at one side of each of said valleys extending forwardly approximately to the midpoint of said wedge and from said midpoint said side being of progressively less height forwardly and laterally as the forward end of the wedge is approached, complementary lands at the other sides of said valleys, and said lands at both sides being shaped to provide a reversely curved wedge in transverse section.

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