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J. P. JORGENSEN ET AL

3,481,008

CLAMPING DEVICE

Filed March 14, 1968

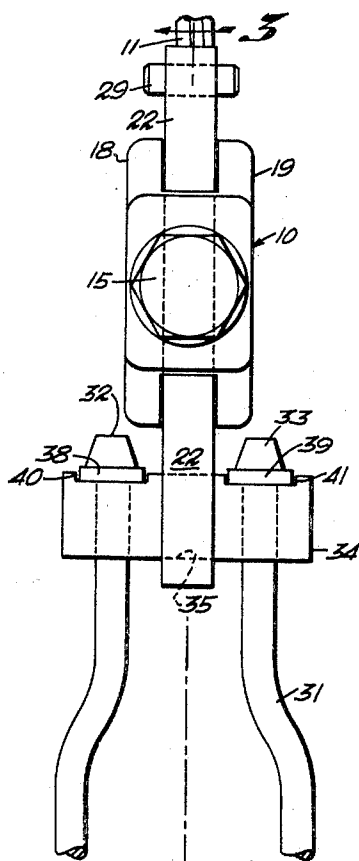


Fig. 1

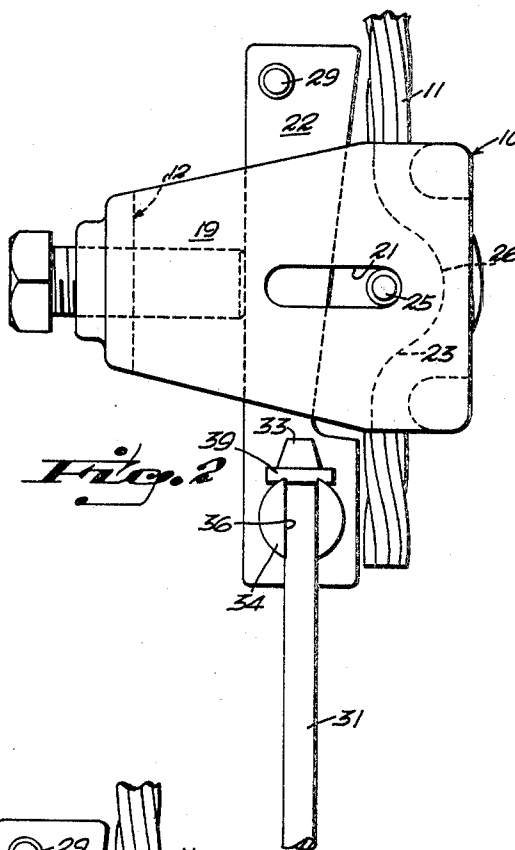


Fig. 2

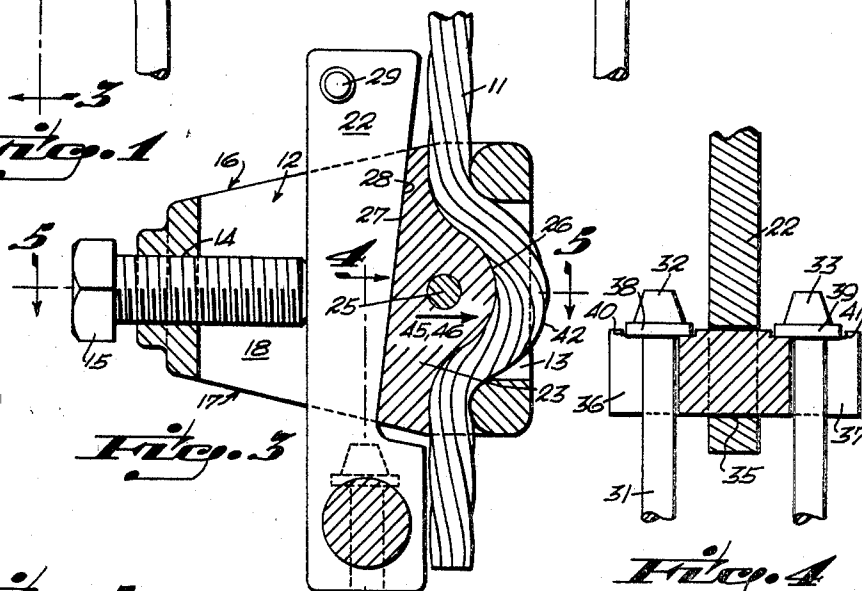


Fig. 3

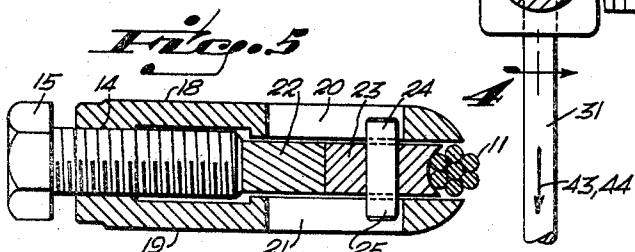


Fig. 5

INVENTOR.
JOHN P. JORGENSEN
OLAF E. KLING
BY 
ATTORNEY.

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John P. Jorgenson, 4047 NE. 5th Terrace, Fort Lauderdale, Fla. 33308, and Olaf E. Kling, 651 Busse Highway, Apt. 2C, Park Ridge, Ill. 60068

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1 Claim

ABSTRACT OF THE DISCLOSURE

A clamping device for wire ropes and the like including means to engage a rope in a clamped position and cam means to increase the clamping pressure as the strain exerted by the rope is increased. The device comprises a body member having a bottom base including an opening against which a rope may be clamped by a slidable jaw having an arcuate portion. A movable wedge engages the jaw and includes a screw pressure means.

This invention relates to a clamping means of a form generally known in the art as a dead end clamp, and in this field, is an improvement on our clamp shown in our Patents 3,069,079, issued Dec. 25, 1962, and 3,222,741, issued Dec. 14, 1965.

One of the objects of the invention is to provide a simple, efficacious clamp of the dead end type which will withstand pressures to the extent that breakage of the cable will occur before slippage develops in the clamp. This result is achieved by the novel arrangement of the various components of the clamp hereinafter more particularly described.

Referring now to the drawings, FIG. 1 is a plan view of our preferred form of clamp with the bail thereof broken away; FIG. 2 is a side elevational view of the clamp; FIG. 3 is a view, partly in section and partly in side elevation, along the line 3—3 of FIG. 1; FIG. 4 is a view partly in section and partly in side elevation along the line 4—4 of FIG. 3; FIG. 5 is a view partly in section and partly in side elevation along the line 5—5 of FIG. 3.

Referring now particularly to the drawings, our clamp comprises a body member, 10, usable for clamping a cable 11. The body member contains an internal cavity indicated generally by 12, FIG. 3, having a bottom opening, 13, a tapped opening 14 for a bolt, 15, and end openings, 16 17. In the sides 18 19 of the body member 10, are a pair of cam slots, 20 21, see FIGS. 2 and 5.

Within the internal cavity of the body member, 10, are a pair of cams, designated as the upper cam 22, and the lower cam, 23. Protruding from either side of the lower cam, 23, are a pair of cam guides, 24, 25, which ride in the cam slots, 20, 21.

It will be noted that the lower cam 23, designated as a first clamping means in the claim, has an arcuate portion having a slidable relationship through the riding of the lower cam guides in the cam slots, 20, 21, with the bottom opening 13. Opposite the arcuate portion, 26, on the lower cam 23, is a cam surface 27 having an angular relationship to the vertical axis of the body member 10, substantially as shown in FIG. 3.

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The upper cam 22 has a cam surface 28, supplementary to the cam surface 27 on the lower cam, or first clamping means 23, so that a slidable relationship exists between the upper 28 and the lower 27 cam surfaces. At one end of the upper cam 22 is a cam stop, 29, which protrudes from either side of the upper cam a sufficient distance so that it may make contact with the sidewalls of the body member at end opening 16. On the end of the upper cam 22 opposite to the cam stop 29 is a bail, 31, pivotally connected to the upper cam 22 in the manner shown in FIG. 4. The bail is U-shaped, the ends of the U terminating in end heads 32, 33, which bear against a bail pivot 34, journaled in a bail pivot opening 35, the bail being insertible in the bail pivot through the bail pivot slots 36, 37, FIGS. 2 and 4, flanges 38, 39 on the bail end heads 32, 33, riding in the recesses, 40, 41 on either side of the bail pivot.

Our device functions in the following manner: a cable is inserted into the body member as shown in FIGS. 2 and 3, one end thereof protruding through the end opening 17 and a bight 42 thereof protruding through the bottom opening 13 of the body member 10. The bight takes the same arcuate form as that of the arcuate portion 26 of the lower cam or first clamping means, 23. The bolt 15 is then tightened and through contact with the upper cam 22, or second clamping means, which forces the bight of the cable 10 into the bottom opening 13 in the manner shown in FIG. 3. In this position, even though no force is being exerted in the direction of the arrow 43—44, FIG. 3, the cable 11 will be firmly held in position in the clamp. It will then be observed that when force is exerted in the direction of the arrow 43—44 of FIG. 3, the end of the bail 31 being engaged by a fixed object, the greater the force, the greater the pressure that will be exerted by the action of the cam surfaces 27, 28 in the direction of the arrow 45—46, FIG. 3.

We have found from subjecting the device to tests that a 3/8 inch wire rope having a minimum breaking strength of 11,500 lbs. will break while the end portion continues to be held in clamped position by the clamp.

While we have disclosed the preferred embodiment of the clamp in the within specification, it will be obvious to persons skilled in the art that various designs thereof may be employed without departing from the spirit of the invention.

We claim:

1. An article of manufacture comprising, in combination
 - a body member having
 - (a) an internal cavity defined by sidewalls, said sidewalls having slots therein indexed with the long axis of the body member,
 - (b) end openings, and
 - (c) a top and bottom base with an opening in said bottom base;
 - a first clamping means having an arcuate portion contiguous to the opening in the bottom base, and having projections on either side of the first clamping means riding in said sidewall slots;
 - a second clamping means extending through said end openings in the body member and having

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- (a) means at each end thereof to restrict its lateral movement within said end openings, and
(b) one of said means being adaptable to engage a fixed external object;
- a cam surface on said second clamping means at an acute angle to the long axis of the body member in the direction of the bottom base thereof;
- a cam surface on the first clamping means supplementary to the cam surface of the second clamping means and adapted to make contact therewith, and pressure means operable from beyond the top base one end thereof being adapted to apply pressure to the second clamping means through contact therewith.

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BERNARD A. GELAK, Primary Examiner

U.S. Cl. X.R.

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