

Nov. 27, 1934.

T. BIRKENMAIER ET AL

1,982,281

CLAMP

Filed April 4, 1932

2 Sheets-Sheet 1

FIG. 1.

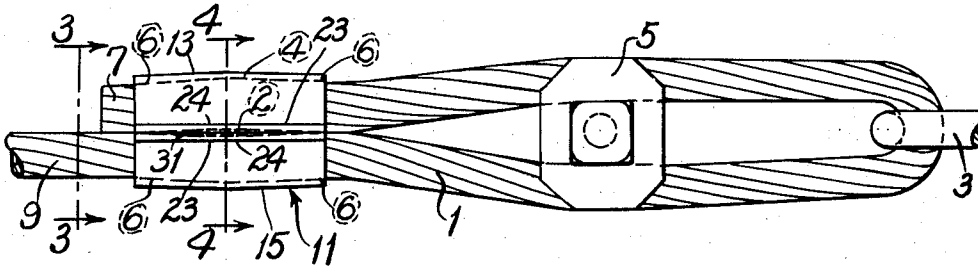


FIG. 2.

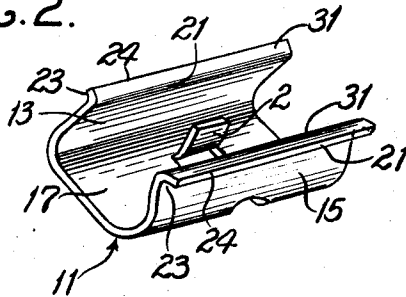


FIG. 3.

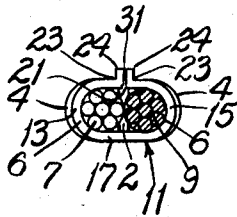


FIG. 4.

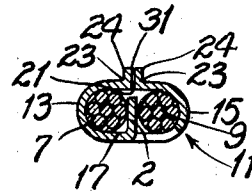
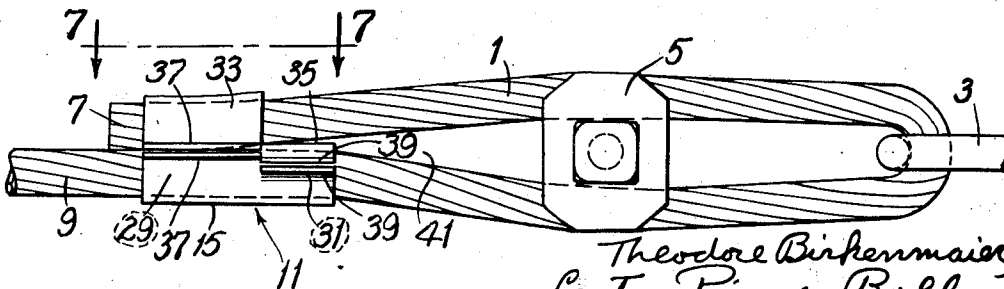


FIG. 5.



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FIG. 6.

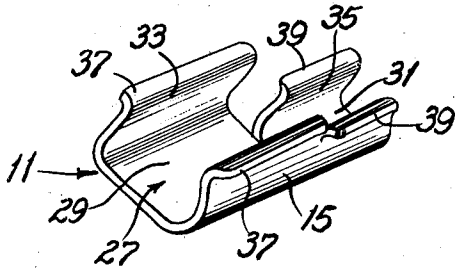


FIG. 7.

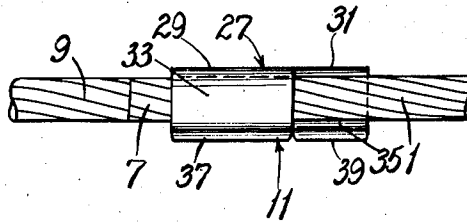


FIG. 8.

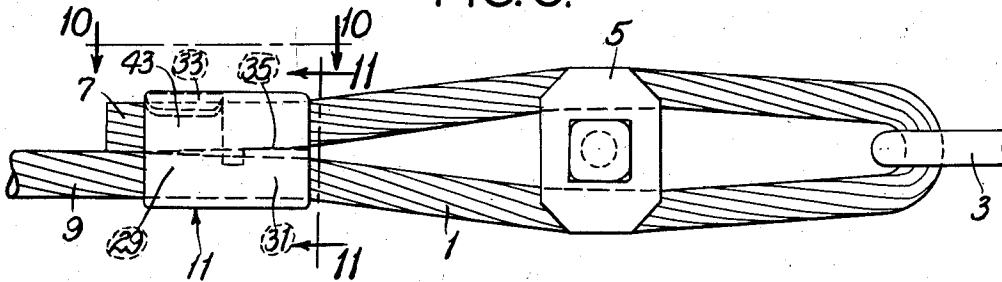


FIG. 9.

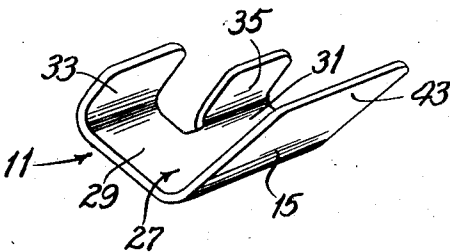


FIG. 10.

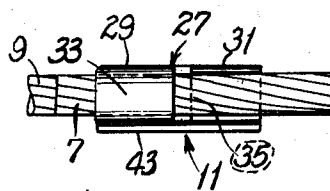
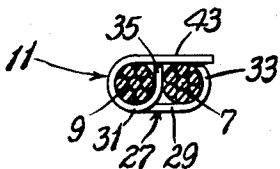


FIG. 11.



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UNITED STATES PATENT OFFICE

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CLAMP

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Application April 4, 1932, Serial No. 602,924

2 Claims. (Cl. 24—115)

This invention relates to clamps, and with regard to certain more specific features to a mousing clamp for fastening wire, rope, cable and similar strands.

- 5 Among the several objects of the invention may be noted the provision of an improved, simplified, non-sliding clamp particularly adapted to be used as a guy cable mousing and more generally to hold a variety of strands; the provision of a clamp of the class described which is formed in one piece and which is applied by a simple operation; the provision of a clamp of the class described which is adapted to tightly and positively clamp a strand without becoming accidentally removed or sliding, but which is relatively easily willfully removable; and the provision of a clamp of this class which is inexpensive to manufacture. Other objects will be in part obvious and in part pointed out hereinafter.

- 10 The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structure hereinafter described, and the scope of the application of which will be indicated in the following claims.

- 15 In the accompanying drawings, in which is illustrated several of various possible embodiments of the invention,

- 20 Fig. 1 is a plan view of one form of the invention applied to a guy strand;

- 25 Fig. 2 is a perspective view of said form of the invention;

- 30 Fig. 3 is a cross section taken on line 3—3 of Fig. 1;

- 35 Fig. 4 is a cross section taken on line 4—4 of Fig. 1;

- 40 Fig. 5 is a view similar to Fig. 1 showing another form of the invention;

- 45 Fig. 6 is a view similar to Fig. 2 showing said second form;

- 50 Fig. 7 is a side elevation of the device shown in Fig. 6 as applied to mousing a guy cable, the view being taken along line 7—7 of Fig. 5;

- 55 Fig. 8 is a view similar to Fig. 1 showing a third form of the invention;

- Fig. 9 is a view similar to Fig. 2 showing said third form;

- Fig. 10 is a view similar to Fig. 7 showing said third form, said view being taken substantially along line 10—10 of Fig. 8; and,

- Fig. 11 is a cross section taken on line 11—11 of Fig. 8.

- Similar reference characters indicate corre-

sponding parts throughout the several views of the drawings.

Referring now to Fig. 1, there is shown at numeral 1 a cable or strand passed through an eye 3 of a guy rod or the like and clamped by a guy clamp 5. The end 9 of the guy strand 1 is terminated at an object to be guyed by the strand 1, and the loose end 7 is secured to the strand 1 by means of a mousing clamp 11 comprised in the invention herein.

The term "strand" in the present specification and claims is inclusive of strands adapted to function for all purposes and includes wire, rope, cable and the like.

Formerly, the means used to secure a loose end such as 7 comprised winding wire or the like around the two strand ends 7 and 9. This method of fastening the end 7, however, was unsatisfactory for the reason that undue amount of time was consumed in completing such a binding of the loose end 7 to the main strand, and furthermore, there was difficulty incurred in removing the mousing in the event that it became necessary to tighten the strand 1. This involved removing the clamp 5, pulling the loose end 7 farther through the eye 3 and replacing the clamp 5. One of the objects of the mousing is to protect anything which may come in contact with the strand 1 from becoming engaged with the loose end 7, and the wire that was used to bind the loose end 7 to the strand 1, of itself provided loose ends which were also likely to touch or endanger objects coming in contact with the binding. We have overcome the difficulties which ensued in using the old form of mousing and have provided a one-piece band or clamp for such purposes as hereinafore mentioned by way of example. This mousing is easily applied to fasten the loose end 7 and is also easily removable therefrom, in the event that such removal becomes necessary, but will not slip out of location.

Referring now more particularly to Fig. 2, there is shown at numeral 11 a clamp formed from a preferably soft, metal stock such as aluminum, copper, galvanized iron, or the like. The clamp 11 has walls 13 and 15 extending from the plane of the back 17.

Each wall of leg 13 and 15 has ledges 21 bent out therefrom. The ledges extend far enough out to provide the relatively flat areas 23 and, as shown in Fig. 2, extending along the sides of the walls 13 and 15.

The back 17 has struck up therefrom a spur 2, the plane of which is substantially centrally located with respect to the back 17 and which is

also longitudinally positioned. The spur 2 has for its purpose the separation of lengths of cable which are laid between the walls 13 and 15, and the spur 2 is of such a length that it extends above 5 or to the center lines of the cable, without entering into the helical channels between the strands composing said cable. The point is, that the spur 2 is tangent to the enclosed cables and does not depend for gripping upon prying into the 10 cable itself.

Referring to Figs. 1 and 3, the clamp 11 is shown positioned over the ends 9 and 7 of the strand 1 and pliers or a like tool are applied to the exterior ledges 21. It will be understood that 15 the central or interior spur 2 has been applied between the ends 7 and 9 of the cable, as shown in Fig. 4. In order to form or curl the clamp 11 over the ends 7 and 9, the jaws of the pliers are pinched together, and thereby force the walls 13 20 and 15 together and around the strand 1 until the ends of the walls are juxtapositioned; see numeral 31. A rocking contact between the plier jaws and the ledges 21 is provided by edges 24 of the ledges 21 so that as the walls 13 and 15 are 25 forced around into a substantially closing position over the cable ends 7 and 9, the jaws finally act directly on the flat areas 23 to further force the ends of the walls 13 and 15 together and consequently to clamp the clamp 11 tightly around 30 the two portions of the strand 1 (see U. S. Patent 1,853,891).

The resulting structure as shown in Fig. 1 wherein the interior spur or lug 2 functions as a separator to provide slight bulges 4 in the cable; 35 whereas the ends of the clamp in being pinched inwardly tend to compress together the lengths of cable, as shown at numeral 6. Figs. 1 and 3 show the clamp 11 thus tightly positioned or clamped around the ends 7 and 9. It is apparent that it is 40 not possible for the clamp to slip longitudinally along the cable without a positive endwise force being applied, that is to say, it will not creep of its own accord nor under vibration. This is because the holding in action of the ends of the 45 clamp, due to pinching in of the cable prevents the upstanding interior spur 2 from moving. There is a holding and wedging action preventing movement either way.

A relatively soft, though not wholly inelastic 50 metal is preferable because it is more easily formed and does not tend to reopen after being formed to its desired position. The metals enumerated have sufficient elasticity to effect the above-mentioned effects and are still soft enough 55 to be satisfactorily bent by the pliers.

Referring now to Figs. 5 to 7, there is shown a modification of the clamp 11 in which the wall 15 is used. However, the back, which has been 60 renumbered as 27 in general, has a wide portion 29 and a narrow portion 31, said wide portion 29 having a side wall 33 and said narrow portion 31 having a side wall 35. Sideward ledges 37 are formed from the walls 15 and 33 and such a separate pair of ledges 39 are formed from the side 65 walls 15 and 35. Two cables are adapted to lie within the confines of the walls 15 and 33 and only one of the cables within the confines of the walls 15 and 35, the other lying outside of said wall 35.

In Figs. 5 and 7 is shown how the device of Fig. 6 is applied. This is done by laying both of the lengths 7 and 9 of the cable between the walls 15 and 33, the continuous length 9 also passing 70 between the walls 15 and 35. The wall 35 thus is within the wedge shaped opening 41 formed by

the cable loop. Two pinching actions are then employed one on the ledges 37, and the other on the ledges 39. Thus the ledges 37 are pulled together over both lengths 7 and 9 of cable; whereas the ledges 39 are pulled together over only the 80 continuous length 9 of said cable.

It will be seen that the outer end of the clamp 11 draws together the cable; whereas the rearward end conforms to a slight separation thereof, said separation being due to the position of 85 the cable around the clamp 5. Thus the wall 35 prevents outward movement of the device, and inward movement toward the clamp 5 is prevented by the diverging arrangement of the guy wires 7 and 9. 90

In Figs. 8 to 11 is shown a form of the invention corresponding to that shown in Figs. 5 to 7 but in which the outer ledges 37 and 39 are eliminated. In this form the back wall 27 is retained 95 having the broad section 29 and the narrow section 31 with a common side wall 15 and an opposite side wall 33 for the broad section 29 with an opposite side wall 35 for the narrow section 31. However, a common side wall 15 is extended and shown at numeral 43, this portion being laid 100 over after applying the cable as above described with the wall 35 between them. That is to say, in this form, instead of having a portion on the walls 33 and 35 which meet the walls 15 midway after clinching, all of this meeting portion is 105 formed on the wall 15 which is bent over to reach the shorter walls 33 and 35.

In operation, the form of Figs. 8 through 11 has the two cables cradled in the broad back 29, one length 9 of cable being also cradled in the 110 narrow back 31; whereas the other length passes outside of the wall 35. Then the extension 43 is bent against the upper ends of the walls 33 and 35, as shown in Fig. 11.

In view of the above, it will be seen that the 115 several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in carrying out the above constructions without departing from the scope of the invention, it is intended 120 that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

We claim:

1. A cable clamp comprising a back and side walls adapted to cradle at least two lengths of cable or the like, said side walls being bent over the cable, and means affixed to said clamp adapted to be positioned between the cable lengths when 125 the clamp is fastened thereto and being located along the longitudinal center of the back, said last-named means comprising a single flat spur struck up from said back and being composed of material originally comprised in said back, the 130 side walls holding the cable lengths together adjacent to said spur, said spur having a plane which is substantially parallel to the planes of said side walls. 135

2. A cable clamp having a back and continuous, bendable side walls adapted to surround adjacent lengths of cable, and a flat member extending up from said back wall between the side walls and adapted to be interposed flatwise between adjacent lengths of said cable, said member being less than the lengths of the side walls and being spaced inwardly from both ends of the clamp. 140 145

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