

[54] IMPROVEMENTS IN SHEATHED CLAMPS FOR LOOPED CABLE ENDS

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[51] Int. Cl. .... F16g 11/00

[58] Field of Search ..... 24/122.3, 123 W

[56] References Cited

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[57] ABSTRACT

An article protecting cable has polygonal inner clamps applied to contiguous portions of the cable inwardly of the looped end portions, said clamps being of a metal sufficiently malleable to permit swaging operations to form detents which project inwardly from all sides of the clamps to bite into and secure the cable extents which pass through the clamps. Covering the inner clamps and secured thereto are similarly shaped polygonal sheaths of a metal relatively harder than that of the clamps to resist cutting or deformation by a thief.

3 Claims, 4 Drawing Figures

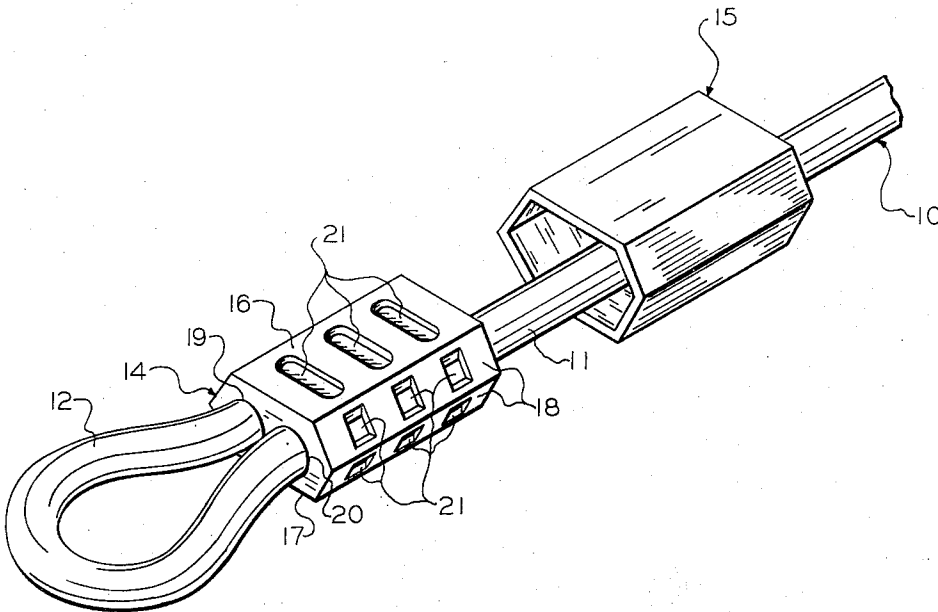


FIG - 1

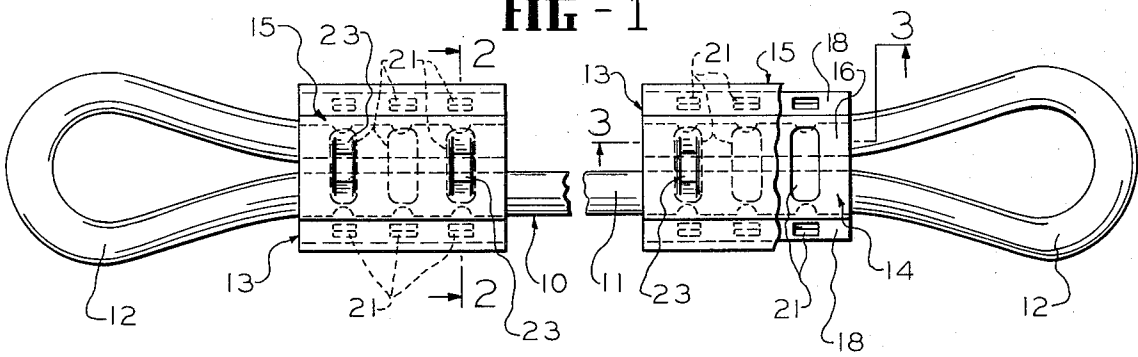


FIG - 2

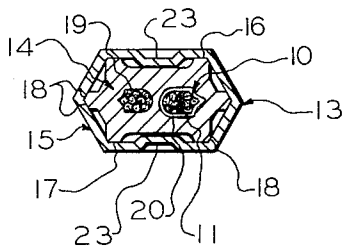


FIG - 3

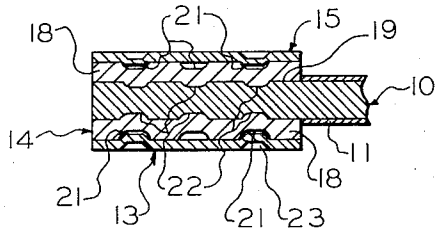
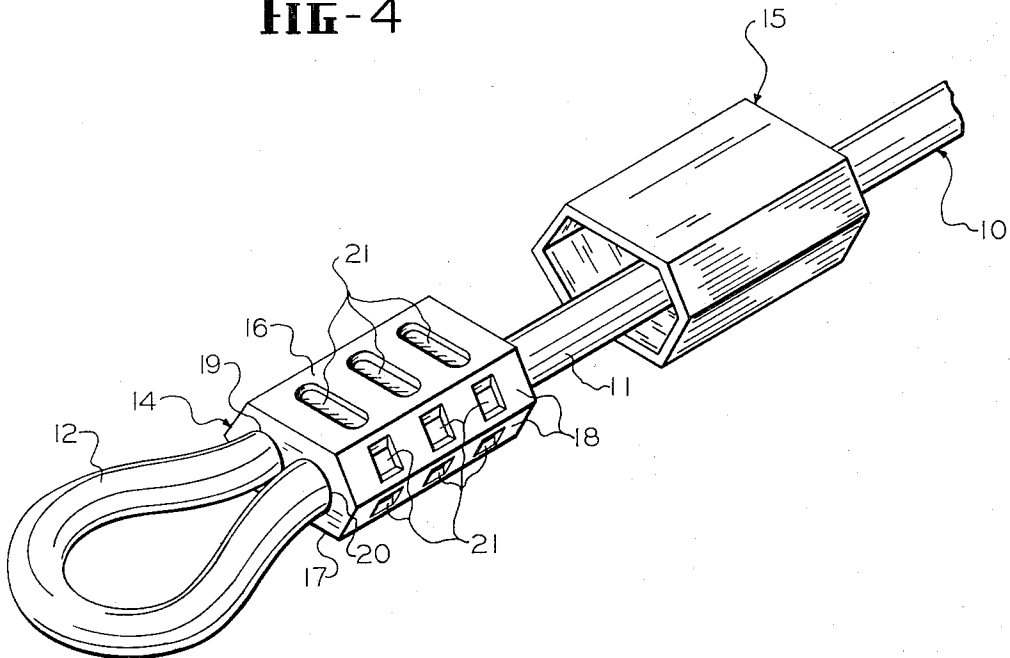


FIG - 4



## IMPROVEMENTS IN SHEATHED CLAMPS FOR LOOPEO CABLE ENDS

### BACKGROUND OF THE INVENTION

In the co-pending Daniel J. Foote application Ser. No. 280,328, filed Aug. 14, 1972 there is disclosed a metallic clamp for a looped cable end of polygonal shape with the angles between the clamp walls being obtuse. Opposed top and bottom walls are relatively wide while the walls which join the side edges of the top wall with the side edges of the bottom wall are relatively narrow. All of the walls have portions thereof swaged inwardly which bite into the clamp inserted cable end portion in a "toed" manner whereby a looped cable end fitted with a clamp of the type described will withstand strong pulls to which a thief or tamperer might subject the cable looped end in an effort to withdraw and open the looped cable end and thus obtain surreptitious access to the protected item. Thieves and tamperers are becoming more and more artful and, recognizing the possibility that the unprotected metal of the clamp of the type above-mentioned might be vulnerable to the application thereto of a hack-saw, file or other metal cutting tool, the present invention seeks to thwart the last-mentioned possibility by encasing the previously described looped cable end clamp in a relatively hard, impregnable metal sheath or armor jacket which will resist the application of a cutting tool.

Applicant is not aware of any similar clamps for looped cable ends, outside of that covered by his aforesaid pending application, which is devoid of the present protective sheath and fails to disclose the same combination with the advantages attributable thereto.

### SUMMARY OF THE INVENTION

A general object of the invention is to provide composite metallic clamps or fittings for the looped ends of an article protecting cable which prevent the pulling out or opening of the looped ends of the cable and wherein a clamp includes an inner cable end receiving metallic member which can be effectively swaged onto the inserted cable portions, and an outer, conforming metallic, sheath of a metal of greater hardness than that of the inner member to resisting cutting.

Other specific objects of the invention are to provide looped cable end composite clamps which are easy to assemble, apply and unite; which are not vulnerable to a tamperer; which are strong and durable and unique and attractive in appearance; which are practical to manufacture; and which are otherwise well suited for the purposes set forth.

### BRIEF DESCRIPTION OF THE DRAWING

In the accompanying drawing in which the same reference characters designate the same or similar parts in all of the views:

FIG. 1 is a fragmentary plan view of a protective cable having loops at its opposite end portions to which the improved sheathed clamps are applied, the outer sheath of one clamp being broken away to show a portion of the inner clamp element;

FIG. 2 is a transverse sectional view taken on line 2—2 of FIG. 1;

FIG. 3 is a longitudinal sectional view of an applied sheathed clamp taken approximately along line 3—3 in FIG. 1; and

FIG. 4 is an enlarged exploded view showing in perspective a looped end portion of a protective cable having the inner clamp element secured in position ready to have slid thereunto the outer metallic sheath prior to the staking operation by which the sheath is secured to the inner clamp in enveloping relation.

### DESCRIPTION OF THE PREFERRED EMBODIMENT

In order to safeguard certain movable, hard-to-lock up possessions a flexible steel cable 10 is provided which preferably carries a vinyl coating 11. Each end portion of the cable is doubled back to provide suitable sized loops 12. Applied to each looped end portion of the cable to prevent loop withdrawal or opening is a composite clamp, generally indicated by the numeral 13 and including an inner metallic clamp element 14 and an outer sheath 15. The latter is of a metal having a hardness rating considerably greater than that of the clamp element 14. The latter is similar to that disclosed in the co-pending Daniel J. Foote application, Ser. No. 280,328, filed Aug. 14, 1972. Briefly, said clamp element 14 is polygonal with more than four sides with contiguous sides or walls meeting in obtuse angles. The illustrated clamp element 14 includes relatively wide and parallel top and bottom walls 16 and 17 with a longitudinal margin of one being connected to a longitudinal margin of the other by connected and angularly related side walls 18 which are relatively narrow. The clamp element 14 is also formed with a pair of bores 19 and 20 extending longitudinally there-through with bore 19 being of smaller diameter than its companion bore 20. The latter receives a coated extent of the cable 10 and the former receives a doubled-back loop forming portion of the cable from which the vinyl coating has been stripped. To non-removably secure the inserted cable extents within the clamp element bores 19 and 20 each wall of the clamp element is provided with a plurality of swaged depressions 21. The swaged extents displace clamp element metal inwardly to form "toed" indents or detents 22 which bite into and deform portions of the inserted cable extents inwardly of the various walls, with many of the adjacent detents having a converging relationship. In order that the walls of the clamp elements may be successfully swaged to deform inner extents of metal to provide the cable engaging detents 22 the metal of the clamp elements should be somewhat malleable or sufficiently soft to permit metal flow. Hence, said clamp elements may be extruded aluminum alloy or die cast zinc. Consequently, there is a possibility that the clamp elements, if not otherwise protected, might be vulnerable to a hack-saw or other tool applied by a thief.

To counter-act the last-mentioned possibility the present invention provides for each clamp element 14 of a composite clamp 13, an enclosing outer sheath 15 conforming exactly to the shape of the clamp to which it is applied and enclosing the latter very snugly, as shown in FIGS. 1, 2 & 3. As shown in FIG. 4 a sheath 15 mounted on an extent of the cable 10 may be slid over its clamp element 14. Then, to insure its non-removable mounting on its clamp element, the walls of the sheath are, at several areas each over the swaged depressions 21 contacted by a punch or the like,

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which, through striking operations, forces metal stock into the clamp element depressions 21, as indicated by the numerals 23. Each sheath is preferably formed of case hardened carbon steel and will withstand the application of a hack-saw or other tool thereto.

A protective cable with looped ends to which the sheathed clamps have been secured may be used for the "lock-up" protection of various property items in the manner described in the aforesaid co-pending application. As there disclosed the inner clamp elements will prevent the cable loops from being pulled out or opened even if the same are subjected to severe pull forces by a thief or tamperer. Each clamp element 14, being sheathed by a conforming member 15 which is formed of case hardened carbon steel, serves as an armor jacket to prevent severance by an applied tool. Moreover, each sheath 15 is firmly secured to its inner clamp member 14 by the punched deformations 23 which make use of and tightly enter various registering clamp element depressions 21.

From the foregoing description it will be evident that the sheathed clamps for looped cable ends are simple and effective, are easy to assemble and mount, are strong and tamper-proof, and are generally well adapted for the indicated purposes.

What is claimed as the invention:

1. The combination with a cable having a doubled-

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back end portion to form a loop, of a composite clamp applied to contiguous portions of the cable inwardly of the loop, comprising: an inner clamping member of polygonal shape having a pair of adjacent longitudinal bores therein receiving contiguous portions of the cable, walls of said inner clamping member being formed with swaged depressions which provide detents extending toward said bores in a "toed" relation to engage bore housed portions of the cable; and a metallic sheath conforming to the shape of the inner clamping member and tightly embracing the latter, certain wall portions of the sheath being formed with inwardly displaced detents to enter certain of the swaged depressions in the inner clamping member to prevent removal of the sheath from the inner clamping member.

2. The combination recited in claim 1 wherein the sheath is formed of a metal having a hardness rating greater than that of the inner clamping member.

3. The combination recited in claim 1 wherein the swaged depressions formed in walls of the inner clamping member extend inwardly from outer surface portions of said member and the detents with which certain wall portions of the sheath are formed seat tightly in certain of the inner clamping member depressions.

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