July 8, 1952 D. L. KELLEMS 2,602,207

CABLE GRIP

Filed Jan. 18, 1949

Fig. 1.

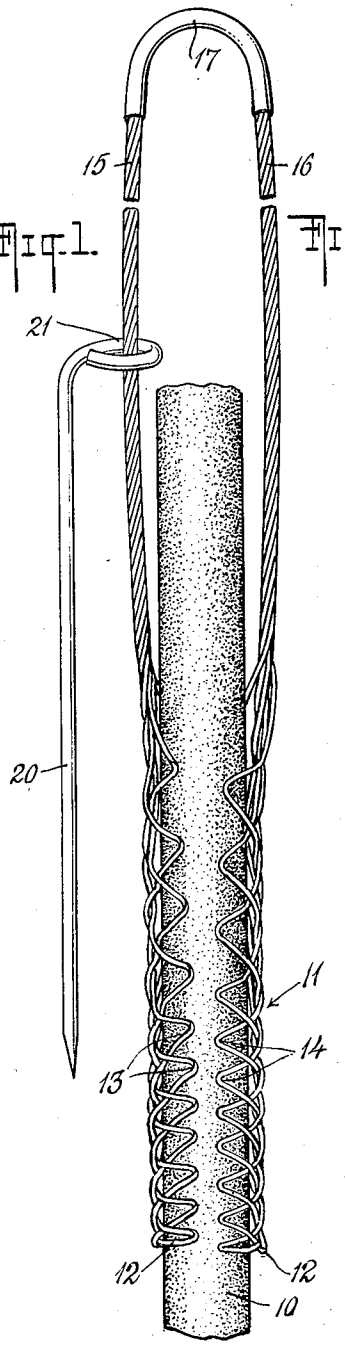


Fig. 2.

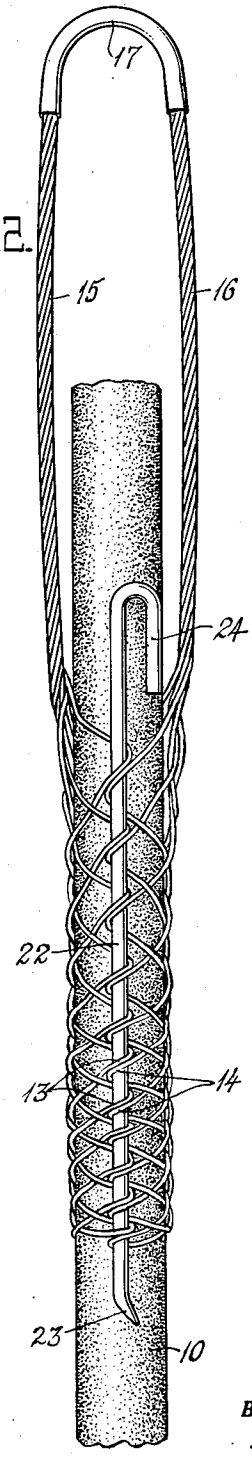
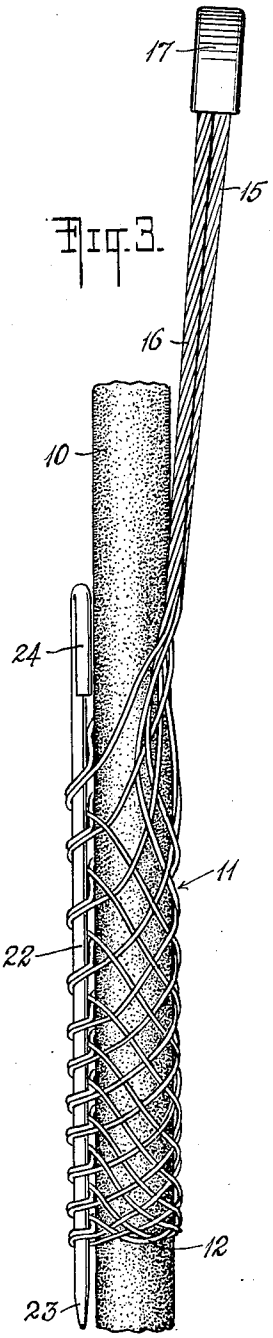


Fig. 3.



INVENTOR.
DAVID L. KELLEMS
BY
John J. Hart
ATTORNEY

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CABLE GRIP

David Loyal Kellems, Westport, Conn., assignor to Kellems Company, Saugatuck, Conn., a partnership consisting of Vivien Kellems and David Loyal Kellems

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5 Claims. (Cl. 24—123)

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This invention relates to cable grips and more particularly to a cable grip which is split longitudinally in order that it can be readily applied to a cable at any point in the latter's length.

Split cable grips composed of interwoven strands have heretofore been secured together along their longitudinal edges by means of leather thongs, wire lacing or metal clips. Leather thongs and wire laces have been found unsatisfactory because it takes considerable time to lace the edges of the grip together and even then, sufficient strength is not provided to hold the edges of the grip together properly. Metal clips, while offering some advantages over the lacing method, are not completely satisfactory due to the fact that unless a special tool is provided, it is extremely difficult to engage and disengage the clips. Furthermore, metal clips under the gripping forces produced by such split grips while in use, have a tendency to mark or weaken the outer coverings of the cables.

The object of the present invention is to provide an improved form of split cable grip which will be free of the disadvantages of prior grips of this nature, which will not require the use of special tools to secure its longitudinal edges together and which can be readily applied and removed from a cable with a minimum amount of labor and time.

Other objects of the invention, as well as the advantages thereof, will become apparent after a perusal of the following description when read in connection with the accompanying drawings in which Fig. 1 is an elevational view of a split cable grip made in accordance with the invention and illustrating the manner of applying it to a cable; Fig. 2 is a similar view of such grip showing it secured in position on the cable; the grip shown, having a modified form of interlocking pin, and Fig. 3 is a side elevational view of the parts shown in Fig. 2.

Referring more particularly to the drawings, the reference character 10 indicates a short section of cable of the type employed as an electrical conduit. The improved grip comprises a body portion 11 constructed of a plurality of wire strands of substantially uniform length. Each strand which may be made of one or more lengths of metal wire or other suitable material, is bent or folded substantially midway its ends to form a loop 12 at the outer end of the holder. The two sides or sections of each piece of wire extend from their associated loop 12 through the body portion of the grip and toward the other end thereof in zig-zag fashion to form the series of side loops 13 and 14. The zig-zag sections of wire in the body portion 11 of the grip are interwoven in spaced relation to form an open meshed structure and are so arranged or inclined with respect to the longitudinal axis of the grip that when such body portion is bent into tubular form and the loops 13 interengaged with the loops 14, the ends of the zig-zag sections forming such loops, will be connected to form in effect, substantially

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continuous helices throughout the body of the grip (note Fig. 2 of the drawings). At the other or inner end of the body portion 11, the sections of the strands are intertwined into two elongated rope-like sections 15 and 16, which are united at their ends by means of a coupling device 17 to form an elongated loop which may be readily grasped to apply a pulling force to the grip or by which the grip may be attached to a support.

The loops 13 and 14 formed along the longitudinal side edges of the body portion 11 of the grip are stretched and twisted to provide outwardly projecting loop portions which are disposed transversely from the plane containing such body portion so that the openings thereof are arranged to readily receive an interlocking member 20 moved or pushed in a longitudinal direction through such openings. It will be noted also that the series of loops 13 along the one longitudinal edge of the grip are so formed with respect to the loops 14 on the other longitudinal edge thereof, that the series of twisted loop portions of the former are slightly offset from the series of twisted loop portions of the latter, so that when the body portion 11 of the grip assumes a cylindrical form, the looped portions will be paired with their openings in aligned relation. The openings in the loops 13 and 14 are sufficiently large to enable the interlocking member 20 to be inserted therethrough with relative ease.

It will be understood from the foregoing, that all that is necessary in applying the above described grip to a cable is to simply wrap it around the cable in the manner shown in Fig. 1 of the drawings, and then by a manipulation of the fingers and starting from the inner or upper end of the body portion 11, progressively bring the loops 13 and 14 together in associated pairs and at the same time progressively interlock such pairs together by means of the elongated interlocking member 20. When the fastener elements are thus connected together, the body portion of the grip will form an open meshed tube in which the crossing portions of the strands are free to move relative to each other and which may be expanded readily by endwise compression thereof or contracted readily by endwise extension. It will be noted that the portions of the strands forming the body portion 11 of the grip have been woven in such manner that the spacings between the strands are progressively increased in size from the looped outer end portion thereof toward the inner end thereof, or, in other words, the transverse zig-zag portions of the wire sections are disposed at progressively decreased angles with respect to the longitudinal axis of the grip towards the inner end of the body portion 11, so that the inner ends of the loop 12 form a substantially circular terminal portion of the grip. This progressive variation in the size of the spaces between the strands or in the angle of the strands with respect to the longitudinal axis, enables the grip when an endwise pull is made thereon, to instantly grip the cable at its

outer, closer woven end with sufficient friction to hold the grip in position against slipping. Thereafter, an endwise pull on the grip will cause the remaining portions of the grip to contract readily and progressively to gradually tighten the hold of the grip upon the object or cable from the outer end toward the inner end of the grip with sufficient friction to enable the object to be supported or drawn endwise by the grip. All that is necessary to disengage the grip from the cable is to withdraw the interlocking member **20** with an endwise pull; this operation being performed with ease regardless of the force of the pull that has been exerted on the grip while on the cable.

The interlocking member or pin may be straight throughout its length, as is illustrated by the pin **20** in Fig. 1 of the drawings, so that it can be inserted through or removed from the loops **13** and **14** by a straight push or pull, respectively, along its length. A pin of the type of pin **20** may be provided with a looped end **21** by which the pin may be connected to section **15** of the hand loop without interfering with its use; it being understood that section **15** is of such length as to enable the aforesaid operations to be performed by the pin. This construction is of advantage in that the pin cannot be dropped or lost, which is of especial importance when the grip is being applied to a cable at a height from the ground. Instead of the form of pin shown in Fig. 1 of the drawings, a pin having the configuration of the pin **22** shown in Figs. 2 and 3 of the drawings, may be employed. It will be noted that the working end **23** of pin **22** is inclined or offset with relation to the body of such pin and that the end **24** is doubled upon itself to provide a handle by which the pin may be manipulated. In the use of pin **22**, the end **23** is inserted through the innermost loops **13** and **14** and then the pin is progressively threaded through the remaining loops by rotating the pin in a clockwise fashion, as viewed in Fig. 2 of the drawings, and at the same time forcing it toward the outer or lower end of the grip. This construction of the pin enables a tight grip to be applied to a cable so that it will exert its gripping action with relatively little pull. A pin of the form of pin **22** may also be removed to release the grip by exerting a straight pull on its handle **24**, or such removal may be accomplished by rotating the pin as it is withdrawn. It will be observed from Fig. 2 of the drawings, that when the interlocking member or pin is assembled on the grip, the portions of wire forming the loops **13** and **14** do not cross under such pin and consequently there is no danger of damage to the covering of the cable by such means of securing the grip thereon. In fact, it has been found by actual experience, that the markings of the grip on a cable that has been gripped for some time, is substantially less along the longitudinal length of the pin-loop connection than with respect to the remainder of the grip.

The construction shown in the drawings and above described are particularly simple and efficient, both in construction and in operation, but obviously various changes and alterations may be made in the detailed constructions without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. A cable grip comprising a tubular body portion consisting of a split sleeve composed of a plurality of strands so interlaced as to form an

open meshed structure with a series of loops along each longitudinal edge thereof, the mesh structure of said body portion being capable of varying in a radial direction to increase and decrease the cross-sectional area enclosed thereby, the outer projecting ends of the loops in each series being twisted to provide loop portions projecting outwardly from the tubular plane containing the strands of said body portion and disposed transversely to the longitudinal edge thereof so that the openings of such loop portions are longitudinally aligned, the outwardly projecting twisted loop portions in one of such series being displaced longitudinally from the outwardly projecting twisted loop portions in the other of such series and such loop portions of both series being arranged in interfingered relation without crossing of the strands of which such loop portions are composed and to form a longitudinally extending, bead-like projection on such grip, and means extending through the alined twisted loop portions of both such series to detachably lock the same in interfingered relation, said locking means consisting of a rigid elongated pin having a length at least as great as the bead-like projection formed by such interlocked loop portions and removably threaded lengthwise through the aligned openings in the twisted loop portions of both series, the exterior surface of said pin being smooth to enable the interlocked loop portions to move longitudinally on said pin under stresses tending to change the diameter of said body portion.

2. A cable grip comprising a tubular body portion consisting of a split sleeve having a draft end and being composed of a plurality of strands so interlaced as to form an open meshed structure with a series of loops along each longitudinal edge thereof, the mesh structure of said body portion being capable of varying in a radial direction to increase and decrease the cross-sectional area enclosed thereby, the outer projecting ends of the loops in each series being twisted to provide loop portions projecting outwardly from the tubular plane containing the strands of said body portion and disposed transversely to the longitudinal edge thereof so that the openings of such loop portions are longitudinally aligned, the outwardly projecting twisted loop portions in one of such series being displaced longitudinally from the outwardly projecting twisted loop portions in the other of such series and such loop portions of both series being arranged in interfingered relation without crossing of the strands of which such loop portions are composed and to form a longitudinally extending bead-like projection on such grip, and means extending through the alined twisted loop portions of both series to detachably lock the same in interfingered relation, said locking means consisting of a rigid elongated pin having a length at least as great as the bead-like projection formed by such interlocked loop portions and removably threaded lengthwise from the draft end of said body portion through the aligned openings in the twisted loop portions of both series, the end of said pin adjacent to the draft end having a handle by which the pin may be manually manipulated to insert it lengthwise through the openings of the twisted loop portions of both series or to withdraw it therefrom, and the exterior surface of the portion of said pin extending through such loop portions being smooth to enable the interlocked looped portions to move lon-

gitudinally on said pin under stresses tending to change the diameter of said body portion.

3. A cable grip comprising a tubular body portion consisting of a split sleeve having a draft end and being composed of a plurality of strands so interlaced as to form an open meshed structure with a series of loops along each longitudinal edge thereof, the mesh structure of said body portion being capable of varying in a radial direction to increase and decrease the cross-sectional area enclosed thereby, the outer projecting ends of the loops in each series being twisted to provide loop portions projecting outwardly from the tubular plane containing the strands of said body portion and disposed transversely to the longitudinal edge thereof so that the openings of such loop portions are longitudinally aligned, the outwardly projecting twisted loop portions in one of such series being displaced longitudinally from the outwardly projecting twisted loop portions in the other of such series and such loop portions of both series being arranged in interfingered relation without crossing of the strands of which such loop portions are composed and to form a longitudinally extending bead-like projection on such grip, and means extending through the alined twisted loop portions of both such series to detachably lock the same in interfingered relation, said locking means consisting of a rigid elongated pin having a length at least as great as the bead-like projection formed by such interlocked loop portions and removably threaded lengthwise from the draft end of said body portion through the aligned openings in the twisted loop portions of both series, the end of said pin adjacent to the draft end having a handle by which the pin may be manually manipulated to insert it lengthwise through the openings of the twisted loop portions of both series or to withdraw it therefrom, and the other end of said pin having a relatively short offset working end portion, the exterior surface of the portion of said pin between said handle and said offset end portion being smooth to enable the interlocked looped portions to move longitudinally on said pin under stresses tending to change the diameter of said body portion.

4. A cable grip comprising a tubular body portion consisting of a split sleeve having a draft end and being composed of a plurality of strands so interlaced as to form an open meshed structure with a series of loops along each longitudinal edge thereof, the mesh structure of said body portion being capable of varying in a radial direction to increase and decrease the cross-sectional area enclosed thereby, the outer projecting ends of the loops in each series being twisted to provide loop portions projecting outwardly from the tubular plane containing the strands of said body portion and disposed transversely to the longitudinal edge thereof so that the openings of such loop portions are longitudinally aligned, the outwardly projecting twisted loop portions in one of such series being displaced longitudinally from the outwardly projecting twisted loop portions in the other of such series and such loop portions of both series being arranged in interfingered relation without crossing of the strands of which such loop portions are composed and to form a longitudinally extending bead-like projection on such grip, and means extending through the alined twisted loop portions of both such series to detachably lock the same in interfingered relation, said locking means consisting of a rigid elongated pin having a length at least as great as the bead-like projection formed by such interlocked loop portions and removably threaded lengthwise from the draft end of said body portion through the aligned openings in the twisted loop portions of both series, the end of said pin adjacent to the draft end being formed to provide an offset loop-shaped end portion for connecting said pin to the draft end of the grip and for providing a handle by which the pin may be manually manipulated to insert it lengthwise through the openings of the twisted loop portions of both series or to withdraw it therefrom, and the exterior surface of the portion of said pin extending through such loop portions being smooth to enable the interlocked looped portion to move longitudinally on said pin under stresses tending to change the diameter of said body portion.

5. A cable grip comprising a tubular body portion consisting of a split sleeve composed of a plurality of strands interlaced to form an open meshed structure with a series of loops along each longitudinal edge thereof, the mesh structure of said body portion being capable of varying in a radial direction to increase and decrease the cross-sectional area enclosed thereby, the outer projecting ends of the loops in each series being twisted to provide loop portions projecting outwardly from the tubular plane containing the strands of said body portion and disposed transversely to the longitudinal edge thereof so that the openings of such loop portions are longitudinally aligned, the outwardly projecting twisted loop portions in one of such series being displaced longitudinally from the outwardly projecting twisted loop portions on the other of such series and such that the loop portions of both series are arranged in interfingered relation with the loop portions of one series paired with the loop portions of the other series, the paired loop portions being closely adjacent to each other and each pair of loop portions being substantially spaced from adjacent pairs, the interfingered loop portions as a whole forming a longitudinally extending, bead-like projection on such grip, and means extending through the aligned twisted loop portions of both such series to detachably lock the same in interfingered relation, said locking means consisting of a rigid, elongated pin removably threaded lengthwise through the aligned openings in the twisted loop portions of both series and offset from the tubular plane containing the strands of said body portion, said pin having a length at least as great as the bead-like projection formed by such interlocked loop portions and having a smooth exterior surface in the region of such projection to enable the interlocked loop portions to move longitudinally on such pin under stresses tending to change the diameter of said body portion.

DAVID LOYAL KELLEMS.

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