(12)Indian Patent Application

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(21) Application Number: 201741047185

(22) Filing Date: 29/12/2017 (43) Publication Date: 13/12/2019

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(51) International Classifications: F16L 3/00

(54) Title: AN IMPROVED ARRANGEMENT FOR A CABLE CLAMP

(57) Abstract: A clamping arrangement 100 for holding a cable 106 is disclosed. The arrangement 100 enables unidirectional movement of the cable 106. The arrangement includes a first plate 102, a second plate 104, a resilient member 108 and a gripping element 110. The first plate 102 and the second plate 104 are placed substantially parallel to each other. The first plate 102 and the second plate 104 have an aperture for allowing the cable 106 to pass through the arrangement. The second plate 104 is moveable with respect to the first plate 102. The resilient member 108 is positioned between the first plate 102 and the second plate 104 and maintains a predefined distance between the first plate 102 and the second plate 104. A gripping element 110 is secured between the first plate 102 and the second plate 104, and adapted to coil around the cable 106 extending through the first plate 102 and the second plate 104.

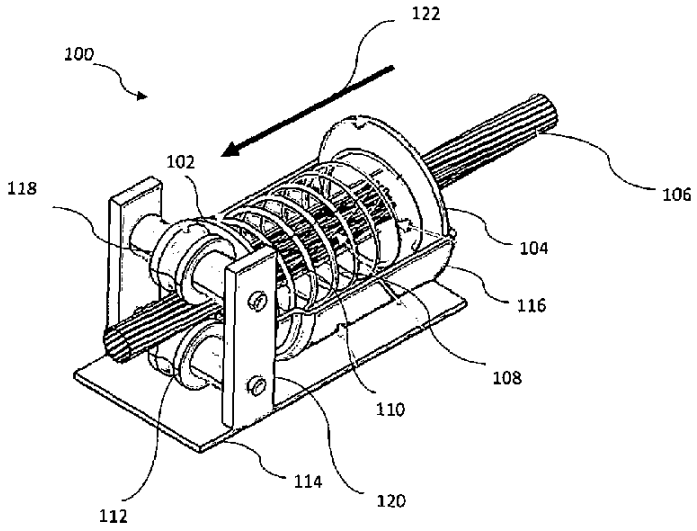
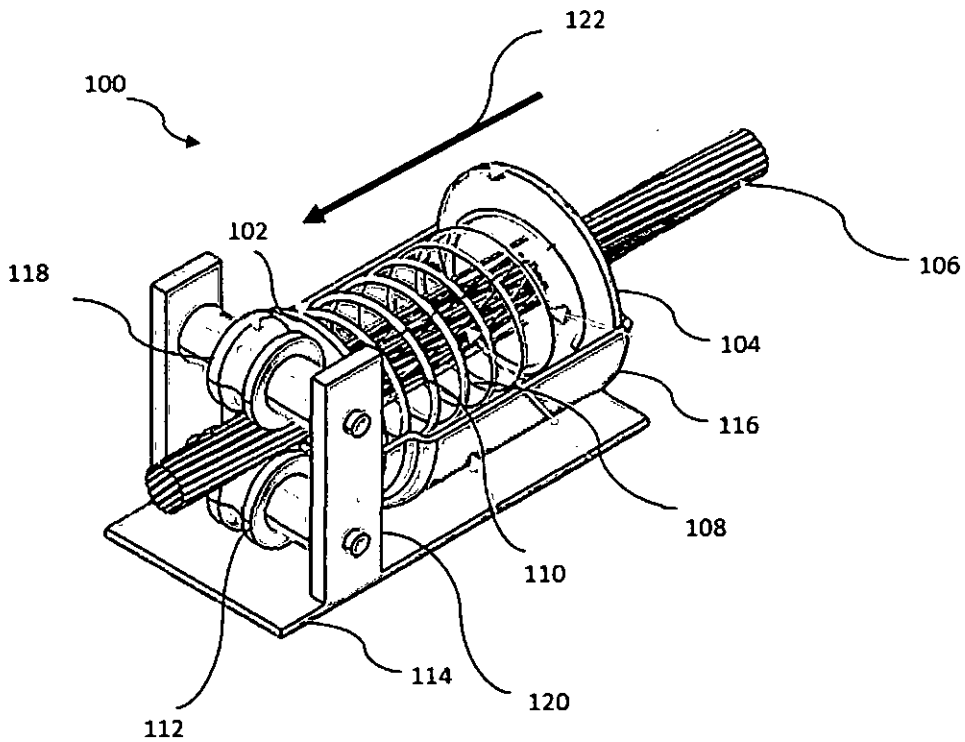


Figure 1

ABSTRACT

An Improved Arrangement for a Cable Clamp

A clamping arrangement 100 for holding a cable 106 is disclosed. The arrangement 100 enables unidirectional movement of the cable 106. The arrangement includes a first plate 102, a second plate 104, a resilient member 108 and a gripping element 110. The first plate 102 and the second plate 104 are placed substantially parallel to each other. The first plate 102 and the second plate 104 have an aperture for allowing the cable 106 to pass through the arrangement. The second plate 104 is moveable with respect to the first plate 102. The resilient member 108 is positioned between the first plate 102 and the second plate 104 and maintains a predefined distance between the first plate 102 and the second plate 104. A gripping element 110 is secured between the first plate 102 and the second plate 104, and adapted to coil around the cable 106 extending through the first plate 102 and the second plate 104.



We Claim:

1. A clamping arrangement 100 for holding a cable 106, the clamping arrangement comprising:

a first plate 102 having an aperture for allowing the cable 106 to extend perpendicular to the first plate 102, the first plate 102 being secured to a base member 114;

a second plate 104 substantially parallel to the first plate 102 and having an aperture substantially similar to the aperture in the first plate 102, such that the second plate 104 is moveable with respect to the first plate 102;

a resilient member 108 placed between the first plate 102 and the second plate 104, such that the first plate 102 and the second plate 104 are maintained at a predefined distance; and

a gripping element 110 having a first end secured to the first plate 102 and a second end attached to the second plate 104, and adapted to coil around the cable 106 extending through the first plate 102 and the second plate 104;

wherein the arrangement 100 enables unidirectional movement of the cable 106.

2. The arrangement as claimed in claim 1, wherein the clamping arrangement 100 is placed inside a housing 116.

3. The arrangement as claimed in claim 1, further comprising a first pulley 112 and a second pulley 118 to enable smooth movement of the cable.

4. The arrangement as claimed in claim 1, wherein the cable 106 is a lower power electrical distribution cable, telephone cable, cable television cable or fiber optical cable.

Dated this 29th day of December 2017

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FIELD OF INVENTION

The invention relates to cable clamps and more particularly to suspending cables mounted aerially using poles or other overhead support structures.

BACKGROUND

Power cables are frequently suspended aerially from poles, towers or other support structures. An aerial arrangement of the power cables has the advantages of relatively simple and flexible installation and allows space substantially below the cables for other purposes. Diverse forms of clamping arrangements for cables or pipes are known. Existing cable clamps are designed in a way that they can only be hanged inside the tower peak. There is a need for a cable clamp to be designed in such a way that it can be mounted above the tower peak and the cable can be strung from outside the tower peak. Also, once the cable is placed in an enclosure, it is often desirable to allow the cable to move forward and block reverse movement of the cable so that movement of the cable is unidirectional. The existing clamps fail to address the aforementioned issues.

Hence, there is a need for an improved cable clamp to overcome the limitations set forth above.

SUMMARY OF THE INVENTION

Exemplary embodiments of the invention disclose a clamping arrangement for holding a cable. The arrangement comprises a first plate having an aperture for allowing the cable to extend perpendicular to the first plate wherein the first plate being secured to a base member. The arrangement further comprises a second plate substantially parallel to the first plate and having

an aperture substantially similar to the aperture in the first plate, such that the second plate is moveable with respect to the first plate. A resilient member is placed between the first plate and the second plate, such that the first plate and the second plate are maintained at a predefined distance. The arrangement includes a gripping element having a first end secured to the first plate and a second end attached to the second plate. The gripping element is adapted to coil around the cable extending through the first plate and the second plate. The arrangement enables unidirectional movement of the cable.

BRIEF DESCRIPTION OF DRAWINGS

Other objects, features, and advantages of the invention will be apparent from the following description when read with reference to the accompanying drawings. In the drawings, wherein like reference numerals denote corresponding parts throughout the several views:

Figure 1 illustrates a clamping arrangement holding a cable, according to an exemplary embodiment of the invention;

Figure 2 illustrates a gripping element in compressed position, according to an exemplary embodiment of the invention; and

Figure 3 illustrates a gripping element in stretched position, according to an exemplary embodiment of the invention.

DETAILED DESCRIPTION OF DRAWINGS

The following description with reference to the accompanying drawings is provided to assist in a comprehensive understanding of exemplary embodiments of the invention. It includes

various specific details to assist in that understanding but these are to be regarded as merely exemplary. Accordingly, those of ordinary skill in the art will recognize that various changes and modifications of the embodiments described herein can be made without departing from the scope and spirit of the invention. In addition, descriptions of well-known functions and constructions are omitted for clarity and conciseness.

Figures 1 illustrates a clamping arrangement 100 holding a rope or a cable 106, according to an exemplary embodiment of the invention. The clamping arrangement 100 may be suitable for suspending a cable 106 from an associated overhead structure, such as from an overhead support wire, an overhead high-tension power line tower, or the like. The clamping arrangement 100 may also be suitable for rigid mounting to an overhead high-tension power line tower or the like. According to an embodiment, the clamping arrangement may be placed inside a housing 116. According to an embodiment, the cable 100 may be a lower power electrical distribution cable, telephone cable, cable television cable or fibre optical cable. According to another embodiment, the cable 100 may be a OPGW (optical ground wire). According to an embodiment, the clamping arrangement 100 may contain provision for assembly of the clamp onto the tower or any other overhead structure. According to another embodiment, the clamp may be permanently fixed to the tower by welding it. The clamping arrangement 100 enables to assemble the clamp onto the tower either from inside (suspension) or on the outside (rigid fixing).

The clamping arrangement 100 includes a first plate 102 and a second plate 104. According to an exemplary embodiment, the first plate 102 and the second plate 104 may be of any shape such as, but not limited to, round, oval, square, rectangle and polygon. According to an embodiment, the first plate 102 and the second plate 104 may be identical to each other and

interchangeable. According to another embodiment, the first plate 102 and the second plate 104 may not be identical to each other and non-interchangeable. The first plate 102 may have an aperture for allowing the cable to pass through in such a way that the cable 106 is perpendicular to the first plate 102. The first plate 102 is attached to a base member 114. The second plate 104 is substantially parallel to the first plate 102 and may have an aperture substantially similar to the aperture in the first plate 102. The second plate 104 may be movable with respect to the first plate 102.

The clamping arrangement 100 includes a resilient member 108 placed between the first plate 102 and the second plate 104, such that the first plate 102 and the second plate 104 are maintained at a predefined distance. According to an exemplary embodiment, the resilient member 108 may be a compression spring.

The clamping arrangement 100 further includes a gripping element 110 having a first end secured to the first plate 102 and a second end attached to the second plate 104. The gripping element 110 is adapted to coil around the cable passing through the first plate 102 and the second plate 104.

The clamping arrangement 100 restricts the movement of cable in one direction thereby enabling unidirectional movement of the cable.

According to an exemplary embodiment, the clamping arrangement includes a first pulley 112 and a second pulley 118. The first pulley 112 and the second pulley 118 enables smooth movement of the cable 106. According to an embodiment, the first pulley 112 and the second

pulley 118 may be mounted on a support structure 120. The support structure 120 may be secured to the base member114.

Figure 2 illustrates a gripping element 110 in compressed position and Figure 3 illustrates a gripping element 110 in stretched position, according to an exemplary embodiment of the invention.

The gripping element 110 may appear like a mesh. When the gripping element 110 is compressed, the gripping element 110 shortens and increases in diameter to allow easy insertion and free movement of the cable 106. On the other hand, when the gripping element 110 is stretched, the gripping element 110 elongates and decreases in diameter to hold the cable 106 tightly and hinders further movement of the cable.

When the cable is pulled in direction 122, the second plate 104 moves towards the first plate 102, compressing the resilient member 108 and stretching the gripping element 110. The stretching of the gripping element 110 enables the cable 106 to move freely. On the other hand, when the cable 106 moves in opposite direction to 122 then the resilient member 108 expands moving the second plate 104 far from the first plate 102 by a predefined distance and causing the gripping element 110 to firmly hold the cable 106.

According to an embodiment, the gripping element 110 comprises at least one coiled wire, strip or strand to wrap around the cable. According to an exemplary embodiment, two or more wires, with a combination of a right-hand coil and a left-hand coil may be used as gripping element 110. According to an embodiment, the coils may be interwoven in the manner of a "Chinese finger trap". According to another embodiment, the coils may be formed from metal;

glass fiber reinforced plastics such as nylon, etc. According to yet another embodiment, the gripping element 110 may be varied in composition, number of coils, arrangement of coils, etc.

The terms whip sock, cable mesh, metal mesh, wire mesh and the like may be used to denote the gripping element.

The disclosed cable clamping arrangement has at least advantages of enabling easy set-up of the clamping arrangement on tip of tower, rigid mounting of the clamp on the tower, reduction in cable stringing time, unidirectional cable movement and minimizes effort and time in manual as well as heli-stringing of cables.

In the drawings and specification there has been set forth preferred embodiments of the invention, and although specific terms are employed, these are used in a generic and descriptive sense only and not for purposes of limitation. Changes in the form and the proportion of parts, as well as in the substitution of equivalents, are contemplated as circumstances may suggest or render expedient without departing from the spirit or scope of the invention.

It is understood that the above description is intended to be illustrative, and not restrictive. It is intended to cover all alternatives, modifications and equivalents as may be included within the spirit and scope of the invention as defined in the appended claims. Many other embodiments will be apparent to those of skill in the art upon reviewing the above description. The scope of the invention should, therefore, be determined with reference to the appended claims, along with the full scope of equivalents to which such claims are entitled. In the appended claims, the terms "including" and "in which" are used as the plain-English equivalents of the respective terms "comprising" and "wherein," respectively.

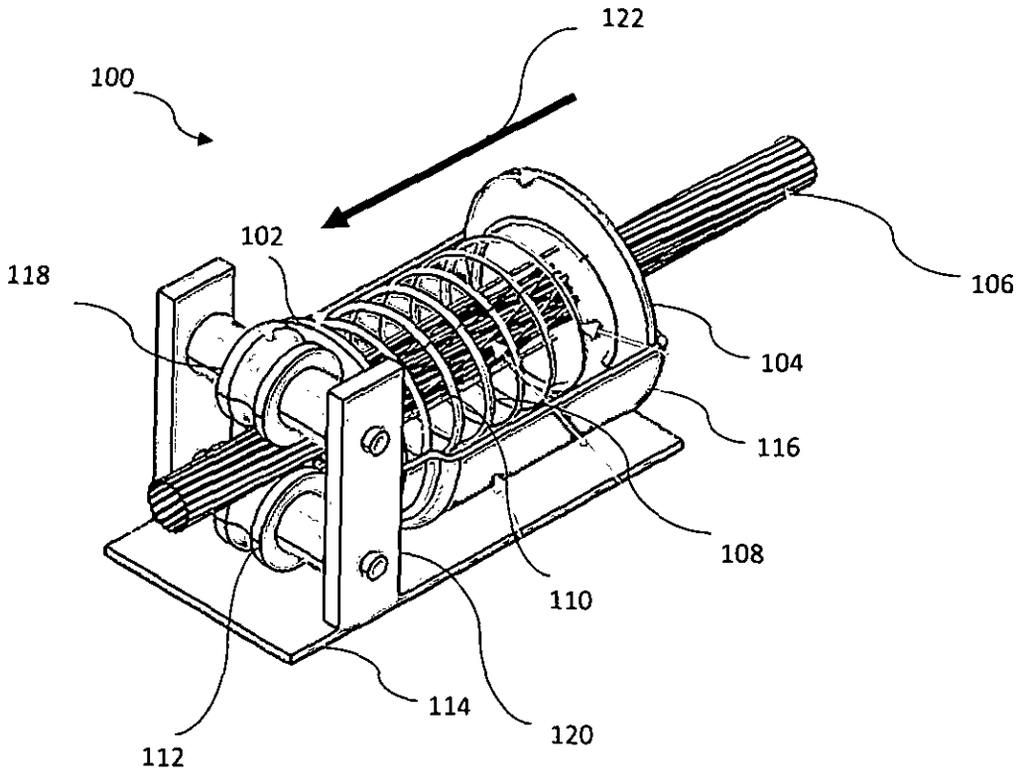

Figure 1

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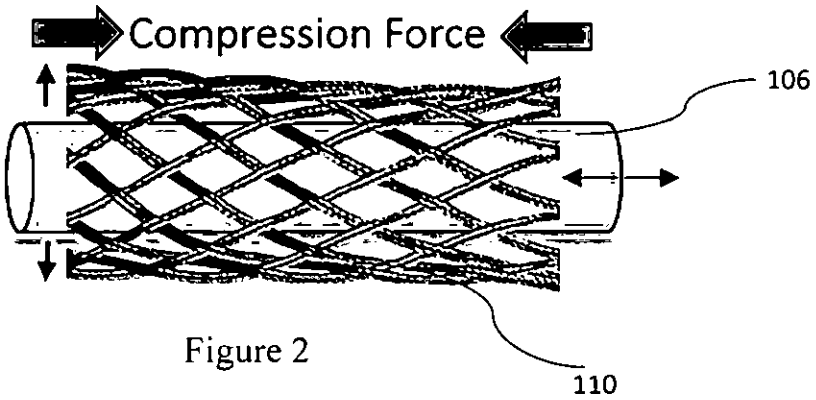

Figure 2

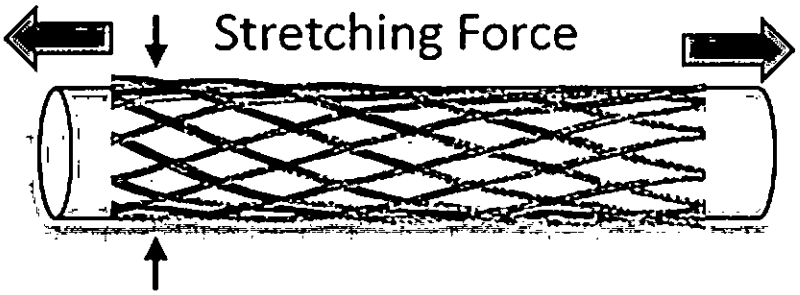

Figure 3

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