

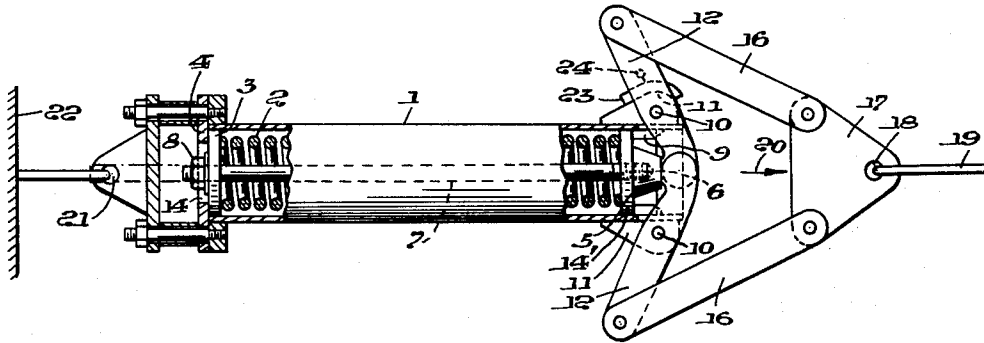
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DEAD-ENDING DEVICE FOR CONTACT LINES AND OVERHEAD WIRES

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DEAD-ENDING DEVICE FOR CONTACT LINES AND OVERHEAD WIRES

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2 Claims. (Cl. 267-69)

The invention relates to a dead-ending device for adjusting tension of contact lines and overhead wires by means of a pressure spring arranged in a tubular housing.

Overhead wires and contact lines are generally provided at their ends or at intermediate points, with means for avoiding a sagging or overloading of the wires in the case of temperature changes, in the form of counterweights by which the wires are held taut at a constant tractive force. Such an arrangement requires heavy counterweights, rollers with corresponding bearings, supports, etc., which are disadvantageous.

Therefore, it has also already been suggested to provide the dead-ending by means of pressure springs which are located in a tubular housing and are tightened to the compressive force necessary for maintaining the lines taut. However, these apparatus also have the disadvantage that in the case of a contraction of the wire the pressure spring is additionally compressed and consequently the tractive force is increased. This results in a considerable increase of the load of the wire which results in a greater stress on the supporting poles, especially in the case of a plurality of contact lines.

The invention now consists in providing means for pretightening the pressure spring while it is located in the tubular housing to the tractive force or compressive force necessary for the dead-ending and with the housing connected with the rigid support and providing for the supporting of the pressure spring on the one side against the housing and on the other side against a lever device which counteracts the direction of pressure of the spring and which is connected with the wire to be brought to about the same tractive force as the pressure spring.

By such an apparatus constructed according to the invention an increase in the load of the pressure spring results in only a slight, practically insignificant, additional tractive force in the dead-ending device regulated at a definite tractive force, since the pressure ring, when it is tightened to the necessary compressive force for maintaining the wire taut, counteracts about the same tractive force on slackening of the lever device of the wire. In the case of a contraction of the wire, therefore, the lever system results only in an increase of the tractive force corresponding to the size of the lever, which gradually increases from zero. For example, the shortening of the wire by 80 mm. in the case of an adjusted tractive force of 400 kg. results in an additional load of only 8 kg. without consideration of the friction. A lengthening of the wire by expansion correspondingly effects only a slight slackening of the tension.

The invention also consists in installing the pretightened pressure spring in the housing against a rigid limit stop in the tubular housing with interposition of a pressure head on which a removable bolt effecting the pretightening of the spring engages. The pretightening can, therefore, be effected in a simple manner by means of a bolt which is or can be removed after installation of the spring.

Furthermore, according to the invention the lever device consists of two opposite double levers which are articulately arranged on the housing, and the inner ends of which act on the pressure head and the outer ends of which are connected with the wire through interposed ad-

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ditional levers which are joined together in an articulate manner.

The invention is illustrated for example in the drawing, wherein the device is shown partly in cross-section and partly in side elevation. A pressure spring 2 is arranged in a tubular housing 1. The pressure spring 2 abuts at one end against an immovable wall plate 4 through an interposed loose disk 3. The other end of spring 2 abuts against a movable pressure head 5. The pressure head 5 is provided with internal threading in which the thread 6 of a screw bolt 7 engages. Bolt 7 extends axially through spring 2 and is abutted against disk 3 by means of a nut 8.

Before the installation of the pressure spring 2 in housing 1, it is pretightened to a pressure necessary for holding the line 19 taut by turning nut 8 on a thread of bolt 7. The tightened pressure spring 2 is then inserted in the housing with bolt 7 until pressure head 5 is adjacent to immovable limits 9 of the housing. After the wall plate 4 is fastened to the housing with an opening 14 to the interior of the housing 1, the bolt 7 is turned out of screw threads in the pressure head 5 and is removed from the housing interior through opening 14 so that pressure head 5 fits against limit 9 through disc 14' with the established preliminary tension.

Lugs 11 provided with boreholes 10 are arranged in the vicinity of limits 9 and opposite double levers 12 are articulately arranged in boreholes 10. The inner ends of double levers 12 are thus held adjacent to pressure head 5. The outer ends of the double levers 12 are articulately connected by means of levers 16 with a triangular cross-bar 17, at the apex end 18 of which the guide wire 19 is fastened. The housing 1 is connected at 21 with a rigid support 22.

The guide wire 19 is brought to about the same tension as pressure spring 2 by means of a turnbuckle (not illustrated) in line 19, depending on the outside temperature. In the case of a contraction of wire 19 the outer ends of the double lever 12 are drawn in the direction of arrow 20 and the pressure spring is compressed in this amount by the inner ends of levers 12. Consequently, a compression of spring 2 takes place and a contraction of wire 19 results only in a slightly increasing, practically insignificant tractive force in the line.

In the case of an expansion of the line 19 the tension of pressure spring 2 is correspondingly slackened. The result of this is that, in the case of a higher outside temperature, wire 19 must be correspondingly, more strongly tightened in comparison with its previous tautness by the preliminarily tightened pressure spring 2 so that some play remains between the pressure head 5 and the inner ends of levers 12. The position of the double levers 12 necessary for the particular outside temperature can be read on a dial 23 in the assembly; dial 23 is installed on one of the two lugs 11 and the indicating instrument 24 is installed on the double lever 12.

I claim:

1. Dead-ending service for contact lines and overhead wires, comprising: a tubular housing; a pressure spring arranged in the tubular housing and pretightened therein to the compressive force necessary for dead-ending; means for connecting one end of the housing with a rigid support; means for arresting said spring against movement at opposite ends in the housing; movable abutting means at one end of the housing for compressing the spring therein; lever means mounted intermediate two opposite parts of the lever at said one end of the housing to provide a short arm in position to directly abut the movable abutting means to counteract the direction of pressure of the pressure spring and also to provide a longer arm in position to transmit tractive force to the short arm; and lever means for connecting the longer arm to a tractive line to

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be brought to the same tractive force as the pressure spring; said pressure spring being a coiled spring having a pressure head as the movable abutting means for engaging the short arm of the lever means, and a removable bolt being disposed axially through the coil spring and removably operable between the pressure head and the opposite end of the spring for the pretightening of the pressure spring.

2. Apparatus as claimed in claim 1, and in which the lever means consists of two opposite double arm levers articu- 10
lately arranged on the housing so as to have the inner ends of their shorter arms act on the pressure head and the outer ends of their two longer arms connected with the lever means for connection to the tractive line to

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be tightened, and in which the lever means for connection to the tractive line to be tightened comprises additional levers joined in an articulated manner to the longer arms of the double arm levers and provided with a common attaching means for attachment to the tractive line to be tightened.

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