(57) Abrégé/Abstract:
The present invention discloses a wire stranding roller and a new method for the same, in a LP insulator being mounted at a cross arm of pin long column and insulating and supporting a high voltage wire, which drastically improves workability and greatly reduces construction cost because the location of a wire don't need to be changed after the stranding and wire pulling, which is easy to work with and is very effective in reducing labor cost and preventing a safety accident because it can easily perform wiring and removing works no matter how large the weight of the wires would be, which is capable of precisely adjusting a dip(degree in which the wire hangs down) because the wire are placed on an insulator, which is to be mounted, during a wire pulling work and also which can solve the problem of securing a work space when carrying out the work applying an uninterruptible method by forming a open-and-shut roller capable of wire insertion and a wire stranding roller consisting of an insulator coupling opening and directly coupling them on the upper surface of the LP insulator.
Title: ELECTRIC WIRE REMOVING ROLLER FOR LP INSULATOR AND POWER DISTRIBUTION METHOD OF CONSTRUCTION

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ELECTRIC WIRE REMOVING ROLLER FOR LP INSULATOR AND POWER DISTRIBUTION METHOD OF CONSTRUCTION

Field of the Invention

The present invention relates to a wire stranding roller for a LP insulator and a wire distribution method using the same, in a LP insulator being mounted on a cross arm of pin long column and insulating and supporting a high voltage wire, which is to be used for a wire stranding work (work for elongating a wire) or a wire pulling work (work for stretching a wire tight) at an upper surface of the LP insulator when mounting, removing or replacing the wire.

Background of the Invention

A previous wire stranding roller used in a distribution line electric work is devised such that it is mounted on a cross arm to prevent the damage of wires during a wire stranding work and make the wire stranding work easier. It is easily detachable from the cross arm and can be fixed firmly thereto. By allowing the wire stranding roller to be opened and closed easily, the upper portion thereof can be opened and closed so as to make it easier the installation of a rope for wire stranding during a wiring work and the installation and removal of a wire. In the wire stranding roller, rollers are formed to avoid friction during the movement of a wire or a rope. At the lower portion, as shown in Figs. 6a to 6c, the wire stranding roller is constructed to be detached from, not a LP insulator but the cross arm of a separate position.

However, in the previous wire stranding roller with a cross arm, a wire is stranded to the wire stranding roller during wire stranding of both wiring work and wire
removing work. Therefore, to install a new wire, once wire stranding and pulling works are finished, the wire is moved from the wire stranding roller to the installation position of the upper portion of the LP insulator and then is bound and fixed to the upper portion of the LP insulator.

A wire removing work is performed after removing a bind from the upper portion of the LP insulator and moving it to the wire stranding roller.

At this time, when performing the work of moving the newly installed wire from the wire stranding roller to the upper portion of the LP insulator and in the work of moving a remove wire from the upper portion of the LP insulator to the wire stranding roller and installing it, this is very ineffective and needs a lot of labor cost. Further, even a distribution line worker who is skilled at a column of a high mast may be at a dangerous state.

As the industrial society develops, a large capacity of power and a heavy and thick wire are required. This makes it difficult to move a wire from the wire stranding roller to an extra high voltage insulator and install it by a human power. Also, it makes impossible the movement and installation using a human force when an one-direction install type long column, not a standard long column, is used.

Further, when carrying out a wiring work applying an uninterruptible method, there occurs a problem in securing a work space for installing the wire stranding roller to the cross arm.

SUMMARY OF THE INVENTION

Therefore, it is an object of the present invention to provide wire stranding roller for a LP insulator and a wire distribution method using the same, which
drastically improves workability and greatly reduces construction cost because the
location of a wire don’t need to be changed after the stranding and wire pulling, which
is easy to work with and is very effective in reducing labor cost and preventing a safety
accident because it can easily perform wiring and removing works no matter how large
the weight of the wires would be, which is capable of precisely adjusting a dip (degree
in which the wire hangs down) because the wire are placed on an insulator, which is to
be mounted, during a wire pulling work and also which can solve the problem of
securing a work space when carrying out the work applying and uninterruptible method
by forming a open-and-shut roller capable of wire insertion and a wire stranding roller
consisting of an insulator coupling opening and directly coupling them to the upper
surface of the LP insulator.

BRIEF DESCRIPTION OF DRAWINGS

Fig. 1 is an overall perspective view of a wire stranding roller according to the
present invention when it is opened;

Fig. 2 is a perspective view of the wire stranding roller according to the present
invention when it is closed;

Fig. 3 is a perspective view of the wire stranding roller according to the present
invention when it is used;

Fig. 4 is a front view of the wire stranding roller according to the present
invention when it is used;

Figs. 5a to 5c are schematic side views of the wire stranding roller according to
the present invention during a wire distribution process; and

Figs. 6a to 6c are schematic side views of a previous wire stranding roller
during a wire distribution process.

* Description of the Reference Numerals of the Drawings*

1: wire  
10: upper supporting means

11, 11': front and rear supporting brackets  
12: upper roller

5  
13: handle  
14: coupling groove

20: vertical supporting means  
21: vertical roller

30: insulator coupling means  
31: pad

32: clamp  
40: open-and-shut means

41: L-shaped roller supporting beam  
42: longitudinal roller

43: lower roller  
44: locking portion

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A preferred embodiment of the present invention will now be described with reference to the accompanying drawings.

Fig. 1 is an overall perspective view of a wire stranding roller according to the present invention when it is opened; and Fig. 2 is a perspective view of the wire stranding roller according to the present invention when it is closed.

The stranding roller includes: an upper supporting means 10 having front and rear supporting brackets 11 and 11', an upper roller 12 rotatably mounted on the low portion thereof by the brackets and a handle 13 fixed to the upper portion thereof; a vertical supporting means 20 being rotatably and axially mounted at the rear supporting bracket 11' at right angles and having a vertical roller 21 in the same direction; an insulator coupling means 30 having a pad 31 with a semicircular inner circumferential surface to be rotated coaxially with the vertical supporting means 20 and coupled to the
upper portion of an insulator and a screw-type clamp 32; and an open-and-shut means 40 having a roller supporting beam 41 axially mounted in a horizontal direction to an outer side of the insulator coupling means 30, a longitudinal roller 42 to be inserted into a coupling groove 14 of the front supporting bracket 11 by a locking portion 44 with a spring at the front end and a lower roller 43 protruded more upwardly than the upper surface of the pad 31.

In addition, a wire distribution method using the wire stranding roller of the present invention will now be explained by steps.

The wire distribution method includes the steps of: coupling a wire stranding roller to the upper portion of a LP insulator using the insulator coupling means 30; opening an open-and-shut means 40 of the wire stranding roller and inserting a wire thereinto; confining the inserted wire into an inner space by the rotation of the open-and-shut means 40 and at the same time making the movement of the wire smooth by raising the wire higher than the insulator surface by a lever action; stranding and pulling the wire that is raised and is movable freely by the roller; lowering the roller 43 supporting the pulled wire by the open-and-shut means 40 and mounting the wire on the upper surface of the insulator; and removing the wire stranding roller from the insulator again.

The operation of the thusly constructed wire stranding roller will now be described.

When installing the wire stranding roller of the present invention at the LP insulator, the wire stranding roller can be coupled firmly to the upper portion of the LP insulator by expanding the pad 31, the insulator coupling means 30 at the lower portion, with a center at the rear axial point, inserting it into an upper groove of the LP insulator,
folding the pad 31 again and clamping the clamp 32 at the front surface. Since the pad 31 is made of soft plastic material, a kind of insulating material, it can cut off a current of a wire and prevent the damage of the LP insulator when it is coupled.

In this way, with respect to the wire stranding roller installed at the upper portion of the LP insulator, firstly, a L-shaped roller supporting beam 41 of the open-and-shut means is expanded bilaterally, to thus make an inner space open. In this state, a wire to be installed is inserted into the wire stranding roller and is coupled to the upper portion of the LP insulator by the insulator coupling means 30. Then, the upper portion of the longitudinal roller 42 is inserted into the coupling groove 14 of the front supporting bracket 11 by rotating the L-shaped roller supporting beam 41 inwardly, and thusly locking is supported by the spring force. Therefore, as shown in Fig. 3, a wire 1 is confined between rollers 12, 21, 42 and 43. At the same time, as shown in Fig. 4, the lower roller 43 of the L-shaped roller supporting beam 41 rotates around the axial point and is protruded upwardly, thereby raising the wire 1 upwardly like a lever.

Therefore, as the lower surface of the wire 1 is separated from the LP insulator, it is contacted to the roller 43 to make it move freely and smoothly. Thus, when the wire is moved for wire stranding and pulling works, this becomes convenient and easy and prevents the damage of cables or insulator surfaces.

In this way, after the wire stranding work is finished, when the wire is coupled to the LP insulator, the locking is released by lifting a locking portion 44 of the longitudinal roller 42 and thereafter the L-shaped roller supporting beam 41 is developed laterally. Then, as the raised roller 43 descends, the supported wire 1 on the upper portion of the roller 43 descends to be mounted on the upper surface of the LP insulator.
After the mounting, when the clamp 32 is loosened and the wire stranding roller is removed from the insulator, the pulled wire becomes placed on the upper portion of the LP insulator. Thus, in this state, wire placement and the like can be finished after a binding work.

In the conventional art, the wire stranding and pulling works are finished by the wire stranding roller mounted on the cross arm and then are moved to the upper portion of the LP insulator and are installed. However, in the present invention, there is no need to perform a dual repetitive work process of moving a wire from the LP insulator to the stranding roller or moving the wire from the stranding roller to the LP insulator, thus saving labor cost and preventing a safety accident with the slackness of the wire.

As described above, in the present invention, the wire stranding roller with upper, lower, left and right rollers that can be opened and shut is directly placed on the LP insulator when placing a wire on the LP insulator. It drastically improves workability because the location of a wire don’t need to be changed after the stranding and wire pulling, it is easy to work with and is very effective in reducing labor cost and it is capable of precisely adjusting a dip.
What Is Claimed Is:

1. A wire stranding roller for a LP insulator, comprising:
   
   an upper supporting means (10) having front and rear supporting brackets (11)
   
   (11'), an upper roller (12) rotatably mounted on the low portion thereof by the brackets
   
   and a handle (13) fixed to the upper portion thereof;
   
   a vertical supporting means (20) being rotatably and axially mounted at the rear
   
   supporting bracket (11') at right angles and having a vertical roller (21) in the same
   
   direction;
   
   an insulator coupling means (30) having a pad (31) with a semicircular inner
   
   circumferential surface to be rotated coaxially with the vertical supporting means (20)
   
   and coupled to the upper portion of an insulator and a screw-type clamp (32); and
   
   an open-and-shut means (40) having a roller supporting beam (41) axially
   
   mounted in a horizontal direction to an outer side of the insulator coupling means (30),
   
   a longitudinal roller (42) to be inserted into a coupling groove (14) of the front
   
   supporting bracket (11) by a locking portion (44) with a spring at the front end and a
   
   lower roller (43) protruded more upwardly than the upper surface of the pad (31).

2. A wiring method using a wire stranding roller for a LP insulator, comprising the
   
   steps of:
   
   coupling a wire stranding roller to the upper portion of a LP insulator using the
   
   insulator coupling means (30);
   
   opening an open-and-shut means (40) of the wire stranding roller and inserting a
   
   wire thereinto;
confining the inserted wire into an inner space by the rotation of the open-and-shut means (40) and at the same time making the movement of the wire smooth by raising the wire higher than the insulator surface by a lever action;

stranding and pulling the wire that is raised and is movable freely by the roller;

5 lowering the roller (43) supporting the pulled wire by the open-and-shut means (40) and mounting the wire on the upper surface of the insulator; and

removing the wire stranding roller from the insulator again.
Fig. 4