METHOD AND APPARATUS FOR SPINNING BRIDGE CABLES

This invention relates to an improved method and apparatus for spinning parallel wire cables, and is especially applicable to spinning the cables of suspension bridges, although applicable in connection with other cables.

Bridge cables have previously been spun by drawing across the span a spinning wheel by means of a loop of cable wire, which cable wire is pulled by the spinning wheel from a supply reel, and the tension and speed of the reel been controlled by a workman with a reel brake on the supply reel. The result is a variation in tension of the wire and slowing up of the possible spinning speed, as it is difficult to brake uniformly. This method also puts an objectionable strain on the wire in rotating the reel.

In accordance with the present invention, the wire supply reel is driven to advance the wire as it is laid by the spinning wheel and the speed of the supply reel is varied by the operator in accordance with the movement of the spinning wheel and the diminution in size of the reel as the wire is fed off. The proper tension is maintained and temporary variations between the rate of supply and draw-off by the spinning wheel permitted, by a take-up consisting of a floating counterweight sheave or roll on the cable wire between the supply reel and spinning wheel, which serves also, by its position, to inform the operator as to any change required in the speed of the driven supply reel.

For a full understanding of the invention a detailed description of a construction for carrying out the method in connection with a bridge cable and embodying the apparatus features of the invention will now be given in connection with the accompanying drawing forming a part of this specification and the features forming the invention then specifically pointed out in the claims.

The drawing is a diagrammatic side elevation of so much of a cable spinning apparatus as is required to illustrate the invention. In the drawing, a is the traction rope, b the spinning wheel carried thereby and carrying the loop of cable wire c. The traction rope is shown as running around the usual guide sheaves 10, 11 and the cable wire loop as having its draw-off end passing around the sheave 12, it being understood that the other end of the loop is fixed in the anchorage as in the common method of spinning bridge cables.

Referring now to the novel features of the present invention, cable wire c is fed from the wire supply reel 13, passing over sheave 14 then downward around floating sheave or roll 15, shown as carrying a suitable counterweight 16, and then upward over sheave 17 to sheave 18 and the spinning wheel 19. The sheaves 14 to 17 are shown as mounted in a skeleton tower 18, but it will be understood that this is immaterial. The wire supply reel 13, instead of being rotated by the pull of the cable wire c and controlled by a brake, as in previous bridge cable spinning, is driven by a variable speed drive which may be of any suitable construction, convenient for control of the speed of the operator. As shown, the reel is driven by a belt 19 from a variable speed transmission 20, shown as driven by electric motor 21 and belt 22. The variable speed transmission may be of any suitable type, such as the well-known hydraulic variable speed transmission, fully shown and described in United States Letters Patent to Williams, No. 1,539,618. The control shaft 23, with hand wheel 24, by which the speed of the supply reel 13 is controlled through the adjustment of the speed transmission, is shown as extending upward so that the operator stands in a position convenient for observation of the floating sheave 15, the position of which advises him as to the variation in speed required to maintain the proper wire feed.

It will be understood that the invention is not limited to the particular form or arrangement of parts shown, but that many modifications may be made in apparatus suitable for carrying out the method without departing from the invention as defined by the claims.

What is claimed is:

1. The method of spinning cables which consists in laying the wires to form the cable by moving a loop carrying spinning wheel along the cable, positively feeding the cable
wire to the spinning wheel, and varying the speed of such feed to secure the desired relation of the feed to the spinning wheel travel.

2. The method of spinning cables which consists in laying the wires to form the cable by moving a loop carrying spinning wheel along the cable, positively feeding the cable wire to the spinning wheel and maintaining the wire tension by a floating counterbalance on the cable wire between the supply reel and spinning wheel and varying the speed of the wire feed to the counterbalance.

3. The combination with the spinning wheel and traction rope of a cable spinning apparatus, of a supply reel carrying the cable wire, and variable speed driving means for rotating said reel to supply the wire to the spinning wheel in the travel of the latter.

4. The combination with the spinning wheel and traction rope of a cable spinning apparatus, of a supply reel carrying the cable wire, variable speed driving means for rotating said reel to supply the wire to the spinning wheel in the travel of the latter, and a floating tension roll on the cable wire between the supply reel and spinning wheel.

5. The combination with the spinning wheel and traction rope of a cable spinning apparatus, of a supply reel carrying the cable wire, variable speed driving means for rotating said reel to supply the wire to the spinning wheel in the travel of the latter, a floating tension roll on the wire between the supply reel and spinning wheel, and manually operated means for varying the speed of the driving means and supply reel located in position for observation of the position of the floating tension roll by the operator.

In testimony whereof, I have hereunto set my hand.

CHARLES C. SUNDERLAND.