March 20, 1945. A. E. WINSLOW 2,371,939

WIRE LAYING HEAD

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Fig. 1.

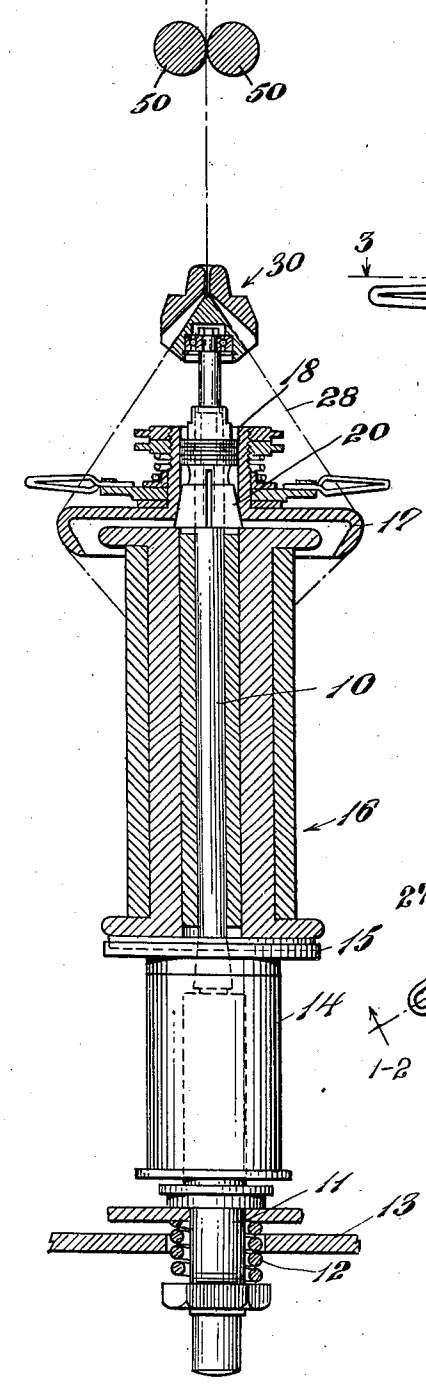


Fig. 2.

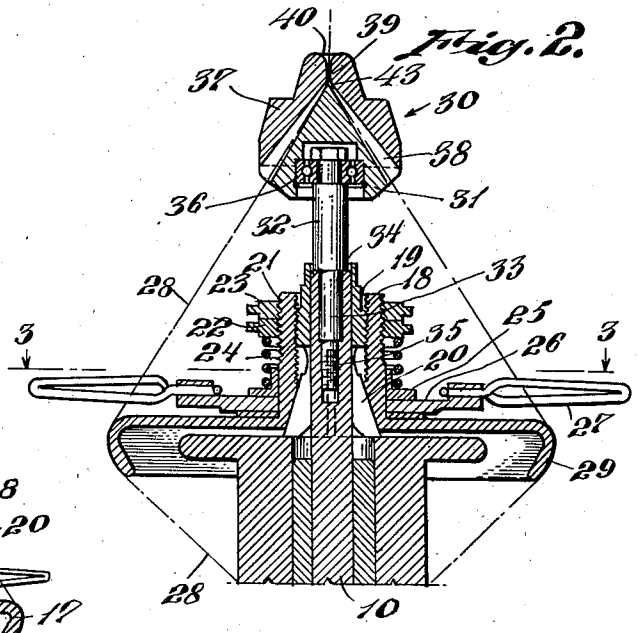
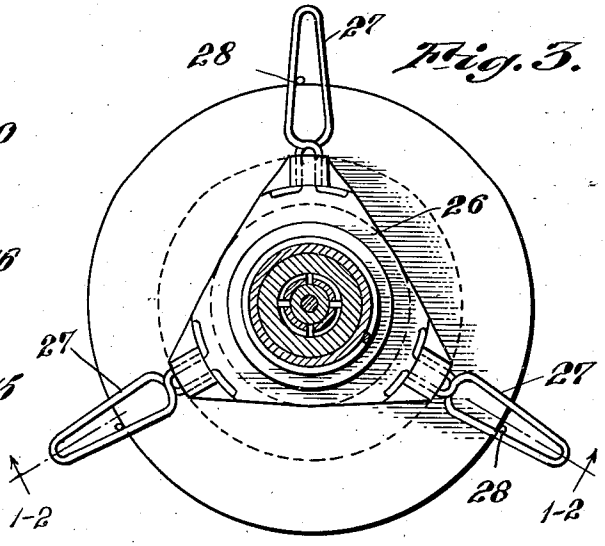


Fig. 3.



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Fig. 4.

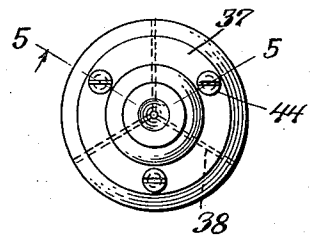


Fig. 5.

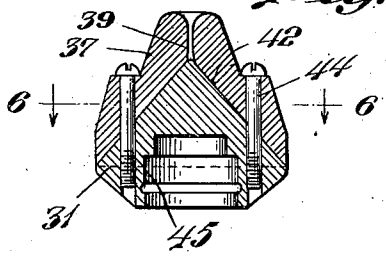


Fig. 6.

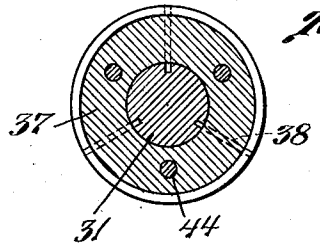
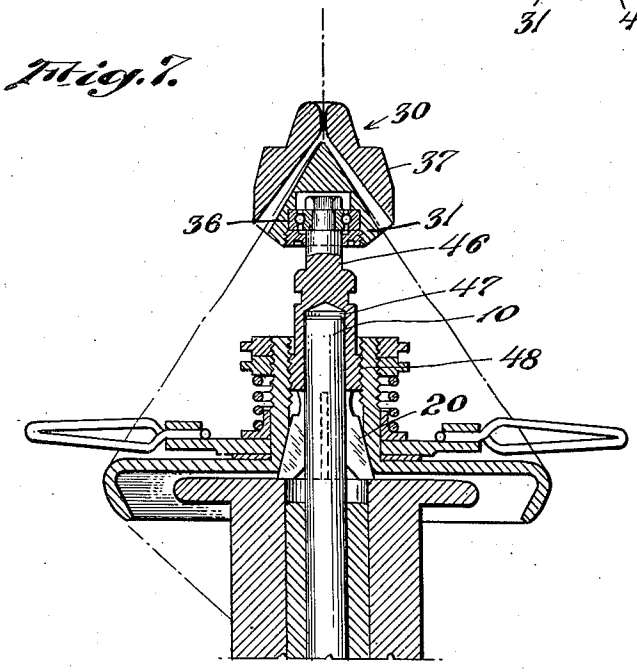


Fig. 7.



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WIRE LAYING HEAD

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Application January 11, 1944, Serial No. 517,860

6 Claims. (Cl. 57—59)

This invention relates to the laying of a plurality of strands of wire one about the other.

In the laying of wire one strand helically about another such as referred to in my co-pending application Serial Nos. 499,574, 499,575, and 499,576, a plurality of parallelly wound strands are drawn from a package by feed rolls and twisted together adjacent the nip of the feed rolls. Many things may enter into the variation of the strand tension which will cause the twist to be formed at different distances from these feed rolls, thus providing some unevenness in the twist which is formed in the cable.

One of the objects of this invention is to provide a laying head which will provide a fixed point of twisting regardless of the tension on the strand. An object of this invention is to provide a more even twist in the cable which is formed from the several strands.

Another object of this invention is to provide a support for the head which may be either from the spindle or independently of the spindle that it may be easily removed from such position.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

Fig. 1 is a sectional view somewhat diagrammatic illustrating strands drawn from a supply package through the head which is the subject of this invention;

Fig. 2 is a sectional view on a larger scale showing the head and upper portion of the supply package;

Fig. 3 is a top plan view taken on line 3—3 of Fig. 2;

Fig. 4 is a top plan view of the laying head;

Fig. 5 is a section on line 5—5 of Fig. 4;

Fig. 6 is a section on line 6—6 of Fig. 5; and

Fig. 7 is a sectional view similar to Fig. 2 but illustrating a modified form of supporting the head.

In proceeding with this invention I provide an easily revolving head which will have in it guide grooves through which a number of wires which are to be twisted together may extend. These grooves will be equally spaced about the arc of 360° for the reception of the wires to position them in positive spaced relation and at a definite angle of approach toward the center axis so that an evenly twisted cable may be provided.

With reference to the drawings 10 designates a spindle mounted in a suitable bolster 11 resiliently supported as at 12 in a rail 13. The spindle is driven by the whirl 14 which rotates the support 15 upon which the package designated generally 16 is mounted for rotation. A cap 17 is supported on the package on the spindle. This cap has a hub 18 which has internal threads 19 to engage the threads of the tapered portion 20 which snugly fits the spindle 10. External threads 21 receive the abutment nut 22 and its locking nut 23 against which the spring 24 engages to press downwardly on the collar 25 which engages the body portion 26 of the flyer having arms 27 equally spaced about its circumference and through each of which a strand 28 extends from the package 16 over the curved edge 29 of the cap through the flyer arm 27 and then upwardly to be twisted together, the cable being drawn by the feed rolls 50, 50.

A twister head to fix the point of twist is designated generally 30 and has a body portion 31 which is supported by a post 32 reduced as at 33 to provide a shoulder 34 for engaging the upper end of the spindle while its lower end is further reduced as at 35 and threadingly engages a threaded bore of the spindle to firmly mount the same thereon. A ball bearing 36 is received in the recess 45 of the body portion 31 to mount this body on the post for free rotation thereabout. The cap portion of this head fits over the body portion and is grooved as at 38 at spaced intervals about its periphery so that the number of grooves will be equal to the number of wires which are to be twisted together and equally spaced from each other. In this particular case I have illustrated three wires thus requiring three grooves 38 spaced 120° apart. The upper end of this cap is provided with an opening 39 which is suitably curved as at 40 so as to provide a smooth entrance and exit for the wires therethrough. The body portion 31 is shaped along the surface of the cone as at 42 which provides substantially the angle of lead from the curved edge 29 of the cap to the twisting point 43 which is at the upper end of this cone and just prior to the entrance of the wires into the opening 39. The cap and body parts of the head are held together by three bolts 44 as shown in Figs. 4 and 5. The outer surface of the head is immaterial as to shape.

In some cases instead of providing a stud 32 engaging a spindle I provide a stud 46 as shown in Fig. 7 which has a bore 47 to receive the spindle 10 while its outer surface is provided with a threaded portion 48 to threadedly engage the internal threads of the hub 18 and may be of the same piece with the tapered portion 20. By this

arrangement the mounting is independent of the spindle and when the cap is removed the head may be removed with the cap.

I claim:

1. In combination, a spindle for receiving and positively rotating a strand package about its axis, means for rotating said spindle, a laying head supported by said spindle a fixed distance thereabove and provided with a plurality of equally spaced guide passages for wire strands and means to mount said head for rotation relative to said spindle and a flyer mounted on said spindle rotatable relative thereto and having guides thereon through which the strands extend from the strand package to the laying head.

2. In combination, a spindle for receiving and positively rotating a strand package about its axis, means for rotating said spindle, a laying head supported through a ball bearing by said spindle a fixed distance thereabove for rotation relative thereto and provided with a plurality of equally spaced guide passages for wire strands and a flyer mounted on said spindle rotatable relative thereto and having guides thereon through which the strands extend from the strand package to the laying head.

3. In combination a spindle for receiving and positively rotating a strand package about its axis, means for rotating said spindle, a laying head supported a fixed distance above said spindle and provided with a plurality of equally spaced guide pasasges for wire strands, and means to mount said head to rotate relative to said spindle, and a flyer mounted on said spindle rotatable relative thereto and relative to said head and having guides thereon through which the strands extend from the strand package to the laying head.

4. In combination, a spindle for a strand package, a laying head supported a fixed distance above said spindle and rotatable relative to said spindle and provided with a plurality of equally spaced guide passages for wire strands, and means to mount said head to rotate relative to said mounting means, and a flyer mounted on said spindle rotatable relative thereto and relative to said head and having guides thereon through which the strands extend from the strand package to the laying head.

5. In combination, a spindle for receiving and positively rotating a strand package about its axis, means for rotating said spindle, flyer mounting means thereon, a flyer on said means rotatable relative to said spindle, a laying head rotatably supported relative to both said spindle and flyer by said means above said spindle and provided with a plurality of equally spaced guide passages for wire strands.

6. In combination, a spindle for receiving and positively rotating a strand package about its axis, means for rotating said spindle, flyer mounting means thereon, a flyer on said means rotatable relative to said spindle, a laying head rotatably supported through a ball bearing relative to both said spindle and flyer by said means above said spindle and provided with a plurality of equally spaced guide passages for wire strands.

ALBERT E. WINSLOW.