July 4, 1944. A. E. WINSLOW 2,353,100

CAP AND FLYER

Filed Aug. 21, 1943

Fig. 1.

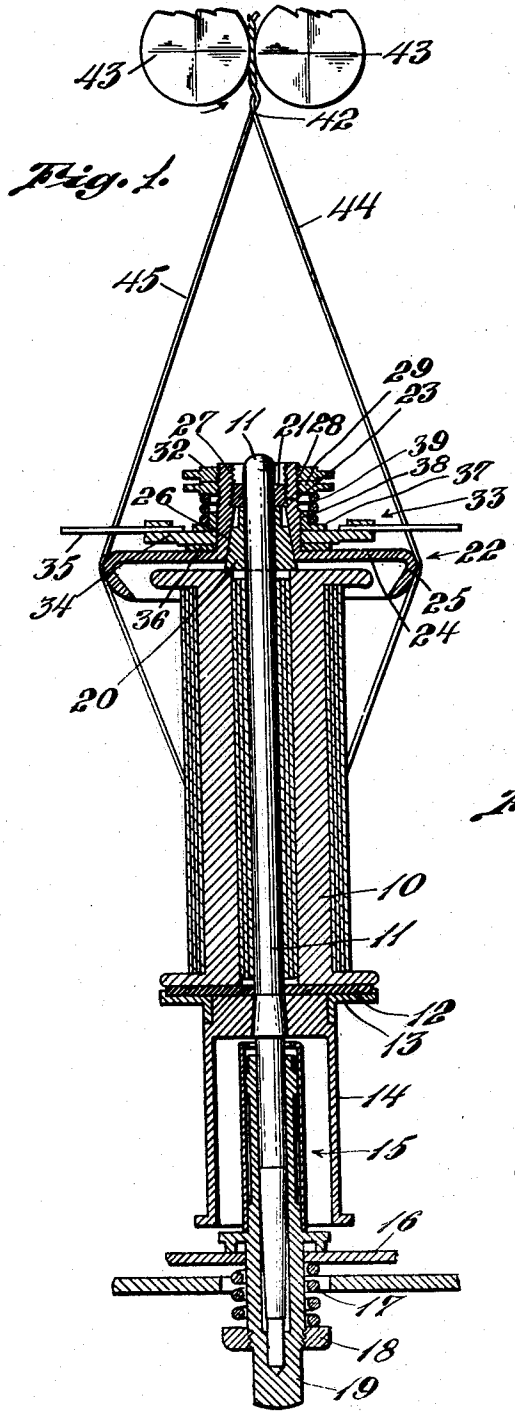


Fig. 2.

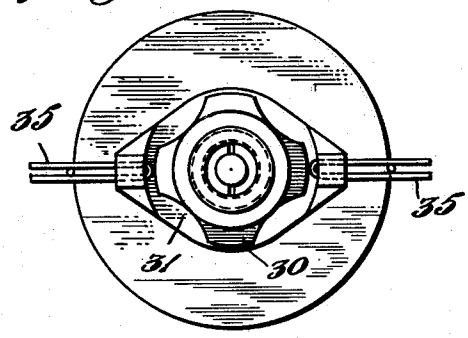


Fig. 3.

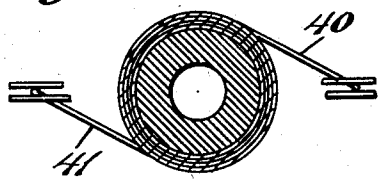
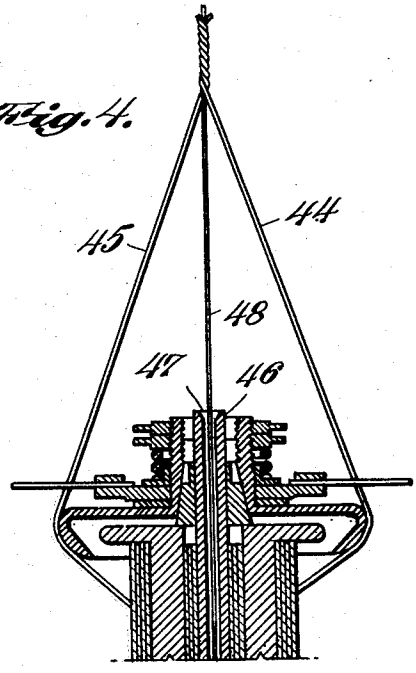


Fig. 4.



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CAP AND FLIER

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Application August 21, 1943, Serial No. 499,575

8 Claims. (Cl. 57—116)

This invention relates to laying a plurality of strands of wire one about the other and is a part of a system of cable making which is covered by other co-pending applications Serial Nos. 499,576 and 508,818.

As referred to in the said co-pending applications, I wind strands which are to be laid together in parallel relation upon a suitable package and then lay the strands in helical fashion one about the other or the plurality about a core without involving any torsional twist in each of the strands themselves. In this operation I provide several new component parts one of which assemblies is a flier and cap which fits upon the package and which is the subject of this application.

One of the objects of this invention is to provide a cap for the delivery package which will provide a guide for the strand material taken therefrom and which will provide a simple but efficient mounting for a flier which is associated therewith.

Another object of this invention is to provide a flier mounting which will resiliently frictionally control the flier in its rotation relative to the cap.

Another object of this invention is to provide interchangeable or removable parts which friction with the flier and which are mounted upon the cap to control the rotation of the flier relative to the cap.

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 drawing:

Fig. 1 is a central sectional view illustrating the drawing of a plurality of strands of material from a package and twisting or helically laying of one strand about the other;

Fig. 2 is a top plan view of the package shown in Fig. 1;

Fig. 3 is a sectional view illustrating somewhat diagrammatically the unwinding of the strand material on the package;

Fig. 4 is a fragmental sectional view similar to Fig. 1 but illustrating a modification in that a core is passed through the center of the package and the strand material from the package is laid about the core.

In carrying forward this invention I utilize a package 10 upon which a plurality of strands have been placed in parallel relation such as by the mechanism which is the subject of my co-pending application Serial No. 499,576. Any number of strands may be laid on the package 10 in parallel relation. For illustration I have here shown in this application two. The package 10 is mounted upon a spindle 11 which rests upon a friction plate 12 on the flange 13 at the top of the whirl 14 which is driven by means of a suitable belt to drive the spindle 11 and the package thereon. The spindle is mounted in a suitable bolster 15 which is retained in a support 16 by means of the resilient mounting consisting of a spring 17 and a nut 18 in threaded engagement with the lower end of the casing or shell 19.

Upon the upper end of the package there rests a frustro conical member 20 which has a threaded upper end 21 secured thereto and which fits over and has snug engagement with the spindle 11 to turn therewith. A cap designated generally 22 has a hub portion 23 and a plate portion 24 provided with a curved lip 25 which provides a guide for the strand material which is taken from the package 10. This plate and hub are an integral formation, the hub being recessed as at 26 along a taper to fit the frusto conical member 20 while the plate 24 extends radially outwardly at right angles to the axis of the spindle. The hub is recessed and threaded as at 27 to have threaded engagement with the member 21 so as to hold this cap securely in engagement with the member 21 and the package that these may rotate together. The hub is also externally threaded at 28 for the reception of the nut or abutment member 29 which is threaded into engagement therewith and provided with outwardly extending projections 30 with recesses 31 so as to provide a handle portion for easy turning. A duplicate construction of check nut 32 is provided for binding the abutment member or nut 29 in adjusted position.

A flier designated generally 33 and consisting of a body portion 34 with radial arms 35 is supported upon a washer or friction member 36 which encircles the hub and rests upon the plate 24 and upon which the flier will rest. An upper friction member 37 is provided with a collar 38 which rests upon the upper side of the body of the flier and also encircles the hub of the cap. The collar of this upper friction member 38 receives the resilient spring 39 which presses upon the upper surface of this friction member and abuts the abutment member 29 so as to press the flier against the cap and yet permits of relative movement due to frictional slip of the flier with reference to the cap. As shown in Fig. 3 the two strands 40 and 41 which are wrapped in parallel

relation on the package 10 are taken off of this package by equally spaced guides 35 substantially tangentially at points equally spaced one from the other and directed over the cap at equally spaced portions so as to guide the strands to the twisting point 42 which occurs closely adjacent to the feed rolls 43. The strands in their portions designated 44 and 45 pass in substantially a conical relation and being equally spaced as aforesaid are laid one about the other in a helical fashion in even formation.

In some cases a hollow spindle 46 is provided as shown in Fig. 4 having a bore 47 through which a core strand 48 extends so that the strands 44 and 45 which come from the package 10 will wrap about this core material 48 and as heretofore explained will also be laid evenly about this core.

The package 10 will be driven in a direction to unwind the parallel strand material therefrom. A definite relation is provided between the rotation of the package and the feed of the rolls 43 so that a definite number of twists or lays of one strand 44 about the other strand 45 or about the core 48 in case of Fig. 4 will be provided.

The flier will turn in a number of turns to unwind the strands from the package which will be less than the number of turns of the package 10 while the differential of the number of turns of the package and the flier will represent the number of twists or helical turns put into the strands one about the other.

From the above it will be apparent that the flier turns relative to the cap and package and the friction which is applied to the flier will control the flier in its movement. Thus this flier in addition to equally spacing the strands as they come from the package also provides a definite control of these strands by reason of its frictional slip on the cap.

It will be readily apparent that any number of strands may provide the plurality of strands on the package and that the flier will have a corresponding number of arms to the number of parallel strands which are on the supply package. Thus, laying these strands evenly spaced by reason of the even angular spacing of the arms one with reference to the other about the center axis of the spindle.

I claim:

1. In combination a spindle for a strand package, a cap over which the strands are guided from the package, means to fasten said cap to said spindle to rotate therewith, means for rotating said spindle, a flier having a plurality of guide arms for the package strands and means to frictionally support said flier on said cap for rotation relative thereto.

2. In combination a spindle for a strand package, a cap over which the strands are guided from the package, means to fasten said cap to said spindle to rotate therewith, means for rotating said spindle, a flier having a plurality of guide arms for the package strands and resilient means to frictionally support said flier on said cap for rotation relative thereto and means to adjust the tension of said resilient means.

3. In combination a spindle for a strand package, a cap over which the strands are guided from the package, means to fasten said cap on said spindle to rotate therewith comprising a plate with a central hub having a threaded outer surface, a flier encircling said hub, a member on said threaded hub and a spring acting between said member and flier to urge it toward the plate portion of said cap to provide for relative frictional rotation between said flier and cap and means for rotating said spindle.

4. In combination a hollow spindle for mounting a strand package and through which a strand may extend, a cap over which the strands are guided from the package, means to fasten said cap on said spindle to rotate therewith, a flier having a plurality of guide arms for the package strands means to frictionally support said flier on said cap for rotation relative thereto and means for rotating said spindle.

5. In combination, a rotary spindle, a conical member thereon having a threaded upper end, a cap with a plate of a diameter larger than the package having a hub with a recess to receive said conical member and having threaded engagement therewith, a flier encircling said hub, a member removably positioned on said hub and serving as a spring abutment and a spring acting between said abutment and flier to urge said flier toward said plate whereby to frictionally permit relative movement between said cap and flier.

6. In combination, a rotary spindle, a strand package mounted thereon to rotate therewith, a conical member having a threaded upper end supported by said package and spindle, a cap with a plate of a diameter larger than the package having a hub with a recess to receive said conical member and having threaded engagement therewith, a flier encircling said hub and having a plurality of guiding arms extending from a body, a member removably positioned on said hub and serving as a spring abutment and a spring acting between said abutment and flier to urge said flier toward said plate whereby to frictionally permit relative movement between said cap and flier.

7. In combination, a rotary spindle, a strand package mounted thereon to rotate therewith, a conical member thereon having a threaded upper end supported by said package and spindle, a cap with a plate of a diameter larger than the package having a hub with a recess to receive said conical member and having threaded engagement therewith, a flier encircling said hub and having a plurality of guiding arms extending from a body, a member removably positioned on said hub having threaded engagement with the outer surface of the hub and serving as a spring abutment and a spring acting between said abutment and flier to urge said flier toward said plate whereby to frictionally permit relative movement between said cap and flier.

8. In combination, a rotary spindle, a strand package mounted thereon to rotate therewith, a conical member thereon having a threaded upper end supported by said package and spindle, a cap with a plate of a diameter larger than the package having a hub with a recess to receive said conical member and having threaded engagement therewith, a washer on said cap plate, a flier encircling said hub and resting on said washer and having a plurality of guiding arms extending from a body, a member removably positioned on said hub and serving as a spring abutment and a spring acting between said abutment and flier to urge said flier and washer toward said plate whereby to frictionally permit relative movement between said cap and flier.

ALBERT E. WINSLOW.