

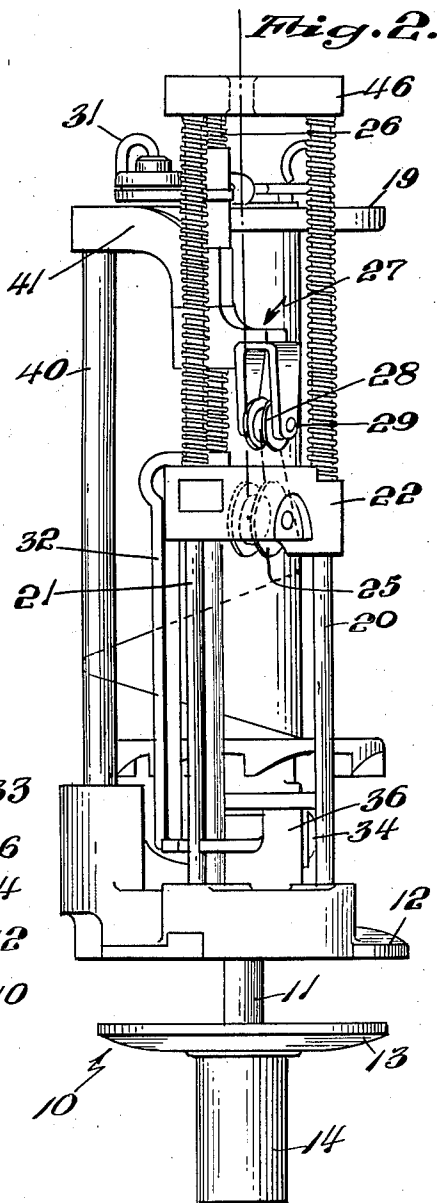
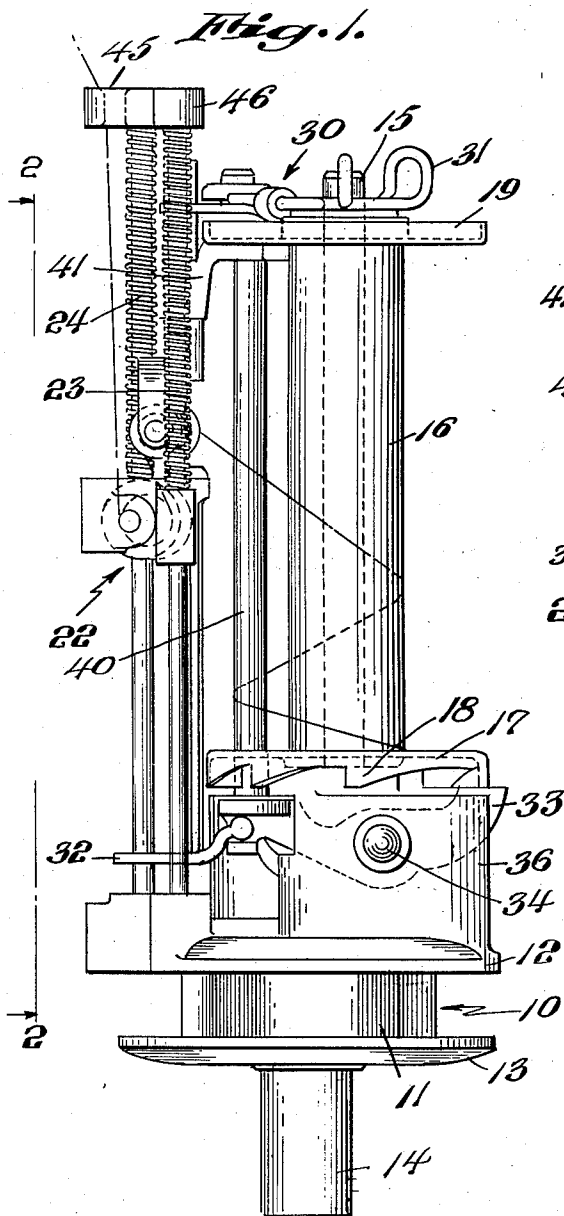
Aug. 4, 1959

R. V. OLSON
BRAIDER CARRIER

2,897,715

Filed May 6, 1957

4 Sheets-Sheet 1



INVENTOR.
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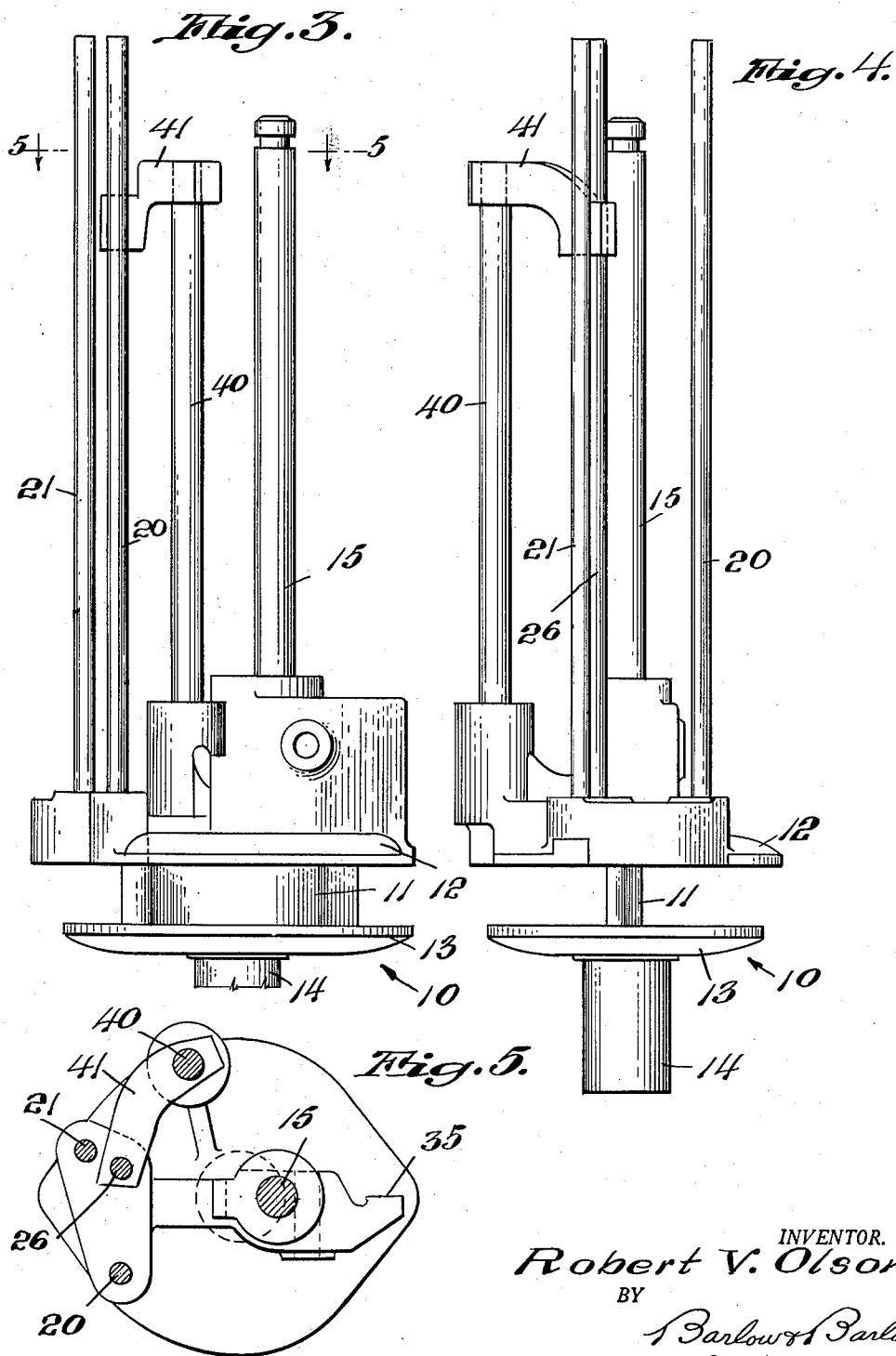
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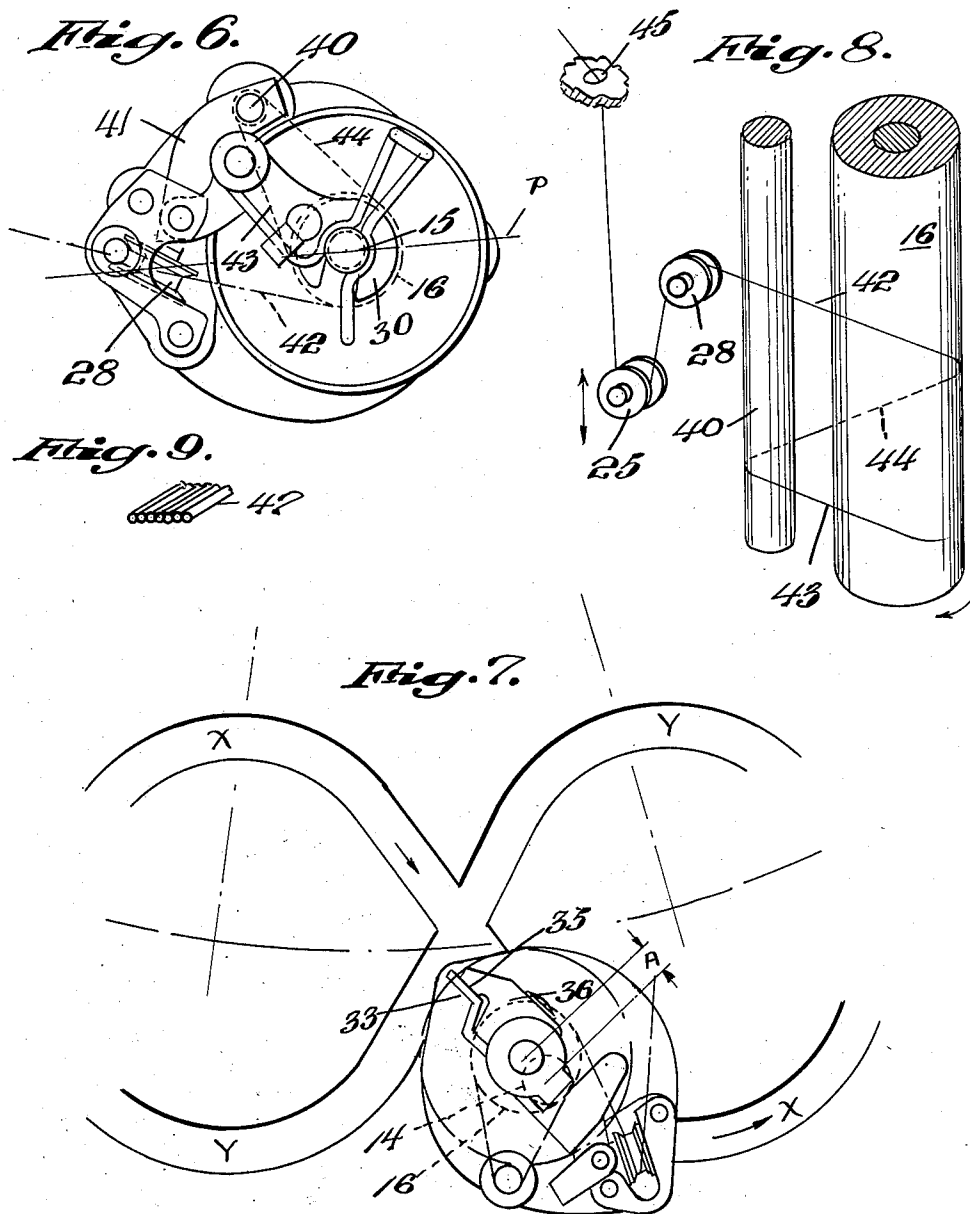
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Fig. 10.

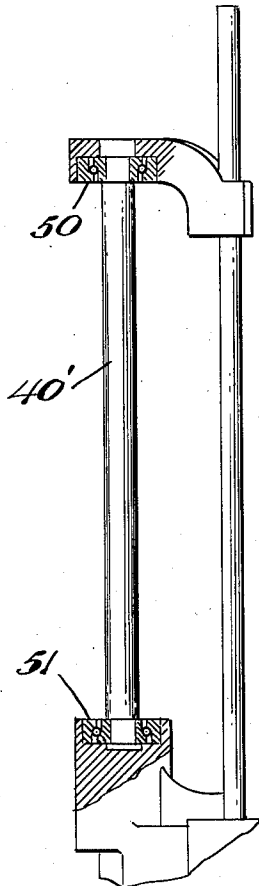


Fig. 11.

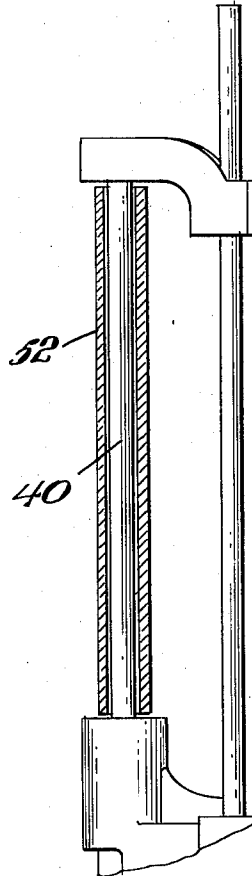
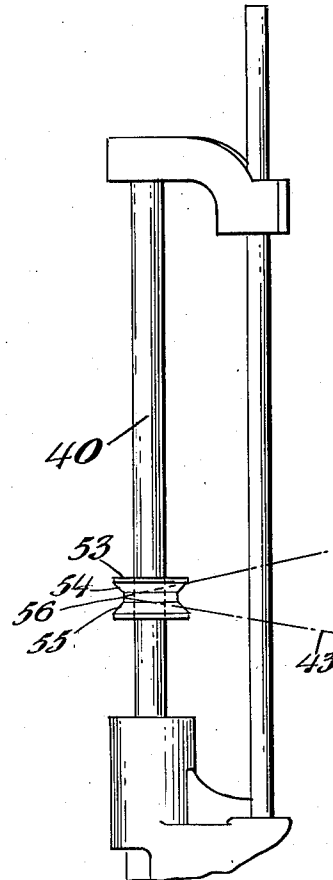


Fig. 12.



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2,897,715

BRAIDER CARRIER

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Application May 6, 1957, Serial No. 657,442

3 Claims. (Cl. 87—56)

This invention relates to a braider carrier for use on a machine for braiding single and multiple ends of wire and the like material.

The size of the wire that may be employed for making braid is limited to some extent by the necessity for it to be sufficiently strong to withstand the strains which are existent in its manipulation on a braider carrier as it moves about a braiding machine, and it is found that very fine wire on large capacity supply bobbins will break when attempted to be braided.

One of the objects of this invention is to provide a braider carrier which will enable finer wire than has heretofore been used on large capacity supply bobbins to be manipulated in a braiding machine.

Another object of the invention is to control the supply bobbin of the carrier.

Another object of the invention is to use the wire which is being drawn from the supply bobbin carrier for providing the control which is desired on the strand being drawn and manipulated.

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 an elevation of the carrier showing the strand as being led from the supply bobbin to the guiding and tensioning mechanism;

Fig. 2 is an elevation at right angles to the elevation shown in Fig. 1 of the carrier;

Fig. 3 is an elevation similar to Fig. 1 but showing the base of the carrier and the post extending therefrom without the equipment on the post;

Fig. 4 is an elevation at right angles to Fig. 3 of the same structure when viewed from the left;

Fig. 5 is a sectional view on line 5—5 of Fig. 3;

Fig. 6 is a top plan view of the carrier showing the strand in dot dash lines as led from the supply package about the lead off post, thence contacting the package again and thence to the guiding and tensioning mechanism;

Fig. 7 is a fragmental view showing diagrammatically the serpentine raceway of the braiding machine and a carrier as located in one position relative to the raceway;

Fig. 8 is a fragmental diagrammatic view illustrating in spread out relation the travel of the strand from the supply package about the lead off post and thence to the guiding and tensioning mechanism;

Fig. 9 is a fragmental view showing a plurality of filaments of wire forming one of the strands which is wound upon the supply bobbin; and

Figs. 10, 11 and 12 are fragmental elevational views of modified forms of the guide post illustrating a rotating surface for engaging the strand.

In proceeding with this invention I have provided a strand lead off post which is so located that the strand may be so disposed as to make a very easy angle in ex-

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tending from the supply package to the lead off guide, and I have also found that the arrangement by which the angle may be lessened or made more easy accomplishes a further desirable function of providing a braking action on the supply package to better control the same, this being accomplished by the location of the strand lead off post at one side of a plane connecting the center of the supply package and the center of the fixed take off guide, while the strand as it leads to the fixed take off guide from the package is on the other side of this plane.

With reference to the drawings, 10 designates the base of a braider carrier having the guiding web 11 to pass along the serpentine raceway of the bed of a braiding machine with an upper flange 12 and lower flange 13 on either side of this web. There is a projection 14 extending downwardly from the base to engage the gears for manipulation of the carriers. A spindle 15 for the supply bobbin extends upwardly from the base upon which spindle is received the supply package 16 having a lower head 17 with ratchet teeth 18 projecting downwardly therefrom and the upper head 19 as seen in Fig. 1. Tension posts 20 and 21 also extend upwardly from the base of the carrier which slidably receive the tension weight 22. Long springs 23 and 24 encircle these posts for pressing this tension weight downwardly. The tension weight carries the guide sheave 25 about which the strand extends in a location intermediate the portions of the weight that slide upon the two rods so that the strain on the weight is balanced between the posts, affording the weight easy sliding on the posts. Another post 26 also extends upwardly from the base to the height substantially that of the posts 20 and 21 and upon this post, there is mounted a fixed guide 27 carrying a sheave 28 on a fixed axis 29. This post 26 also carries a locking plate designated generally 30 which extends from this post to the upper end of the spindle 15 with a releasing latch 31 thereon. A link 32 is also slidably received on this post 26 which is operably connected at its lower end to the pawl 33 which engages the ratchet teeth 18 of the bobbin. This pawl is pivoted on the base as at 34 and is supported against twisting movement about the pivot 34 by a side face 35 of the base portion 36, all as more fully described and claimed in my application Serial No. 564,786, filed February 10, 1956, and now pending.

In addition to the posts above mentioned, I have provided a strand lead off guide post 40 which extends upwardly from the base of the carrier to a height at least sufficient to cover the traverse of the strand on the bobbin, and it may be supported at its upper end by a bracket 41 from the support standard 26. This lead off guide post is located as shown in plan view in Fig. 6 on one side of an imaginary plane passing through the axis of the spindle 15 and the center of the guide sheave 28 which is on a fixed axis, while the strand which leads to this sheave and is designated in Fig. 6 as 42 extends from a point tangent to the supply bobbin and to the center of this sheave and is thus at the other side of this imaginary plane P.

I lead the strand from the supply package 16 in a manner different from that usually utilized in drawing the strand from the supply package of a braider carrier which has, I have found, several advantageous effects. The strand is led from a supply package 16 as shown at 43 in Fig. 6 about the lead off post 40 and thence in a stretch 44 about the supply package 16 in the direction that the strand is wound on the package, thence in the stretch 42 to the guide sheaves 28 on a fixed axis, thence about the guide sheave 25 on the slidable weight, and thence to the carrier guide 45 at the upper portion of the posts which are connected together by a plate 46.

Leading of the strand in this manner provides a much more gradual or smaller angle with reference to the

axis of the supply bobbin than were the strand to lead directly to the guide 28 as heretofore; and as will be seen clearly in Fig. 8, this angle is split up into two gradual angles rather than one abrupt angle. Further, by wrapping the strand about the supply package a braking action is effected upon the supply package to control its turning which when the angular relation is such as shown in Figure 6 with the lead off post 40 located within reference to the fixed guide less than an arc of 90° causes the strand to wrap about the package more than a quarter of a revolution.

It has been found in operation that a much finer strand can be run on the braiding machine with the above arrangement than where the strand is led directly from the supply package 16 to the guide 28. Usually, this strand is provided with a plurality of small filaments which is shown in Fig. 9 as seven filaments 47, and the lessening of the angle will, of course, provide less strain on this strand.

A further reason for the better performance of this arrangement is that as is well known that the let off of the strand from the carrier bobbin always occurs on the outside of the serpentine path that the carrier takes about the braiding machine. The carrier is, of course, subject to centrifugal force from the center of the braiding machine but is also subject to a further centrifugal force as the carrier turns about the quoit in its serpentine path in moving outwardly and then moving inwardly of the machine about an arc, and these centrifugal forces, particularly the latter impart a tendency for rotary motion in the bobbin 16, about its spindle-axis 15. Referring to Fig. 7 it will be seen that the center of the bobbin 16 is offset (A) relative to the center of the carrier projection 14 which is engaged by the horn gears of the machine to move the carriers in the serpentine path. The bobbin is therefore not in balance with the center of the carrier. As the carrier travels in the X serpentine raceway (Fig. 7) in the direction of the direction-arrows shown and having passed the mid intersection of the X—X and Y—Y raceways, it travels in a counter-clockwise direction with respect to the righthand quoit axis, and at such time, due to the said offset (A) the centrifugal forces induce a counter-clockwise rotary motion of the carrier about the center axis of projection 14. This has the effect of inducing a counter-clockwise tendency of the bobbin to rotate about the spindle 15 so that its teeth will exert greater pressure on the face of the let-off pawl 33, permitting the strand to let-off faster at point of release reducing the tension on the strand from the normal tension.

Carriers traveling in the Y raceway in the opposite direction in respect to the center axis of the machine are subject to the reverse effects which thus imparts further tension on the strand in addition to the normal tension at point of release.

However, I prevent such relative tendencies toward opposite movements of the bobbin relative to the carrier with its resulting intermittent unevenness in tension by the snubbing or braking action due to the strand being led back on to the bobbin after contact with the take-off guide post as above described.

In the showing heretofore, the guide post 40 has been illustrated as fixed in the braider carrier. In some in-

stances, however, the guide post such as 40' designated in Fig. 10 may be provided with anti-friction bearings such as ball bearings 50 and 51 at the upper and lower ends of the post. Thus, as the strand 43 engages the post and is drawn about the same the post will rotate in its bearings and cause less friction than would occur if the post was fixed as above described.

In some instances, instead of the post being arranged as shown in Fig. 10, the post 40 may have a sleeve 52 loosely mounted upon the post and extending substantially the length thereof so that the sleeve may rotate on the post 40 to provide a surface which will move with the strand as it is drawn from the package.

In Fig. 12, I have illustrated the post 40 as being provided with a pulley 53 which is provided with beveled heads 54 and 55 so that the strand 43 will engage the narrow root portion 56 of the pulley as it is lead about the post 40. The pulley 53 is freely mounted upon the post 40 as an axle and will slide up and down the post as the strand is drawn from various axially extending positions on the package. Thus, the pulley will rotate about the post to provide an anti-friction surface for the strand and also will slide along the post as the strand comes from the package.

I claim:

1. In a braider carrier having a base, a supply bobbin spindle extending from the base, a fixed strand guide intermediate the ends of the spindle for receiving a strand from the surface of a supply package at one side of a plane including the axis of the spindle and the center of the strand guide, a lead off guide post extending from the base to a height substantially the length of the traverse of the strand on the supply package and located on the other side of said plane in a position so that a line from its center to the axis of the spindle will make an acute angle with the plane on that side of the axis of the spindle on which the fixed strand guide is located whereby a strand from the package may be passed in the same clockwise direction as the strand is on the package about said guide post and then about the package to contact a substantial arc of the surface of said package and thence to said guide.

2. In a braider carrier as in claim 1 wherein said lead off guide post is rotatably mounted.

3. The method of leading a strand from a braider carrier having a supply package and a lead off guide post which comprises, locating a fixed second guide arcuately spaced less than 90° from the post and leading the strand from the supply package about the lead off guide post along which said strand may shift axially of the carrier on one side of an imaginary plane passing through the axis of the package and the center of the fixed second guide and thence around the package in the same direction that the strand is wound on the package and thence to said fixed second guide to apply a braking tension on the supply package.

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