

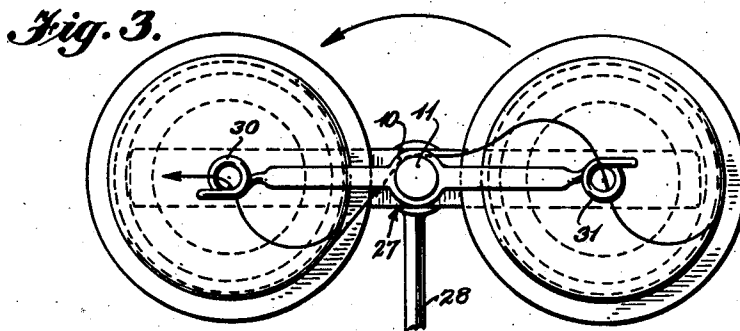
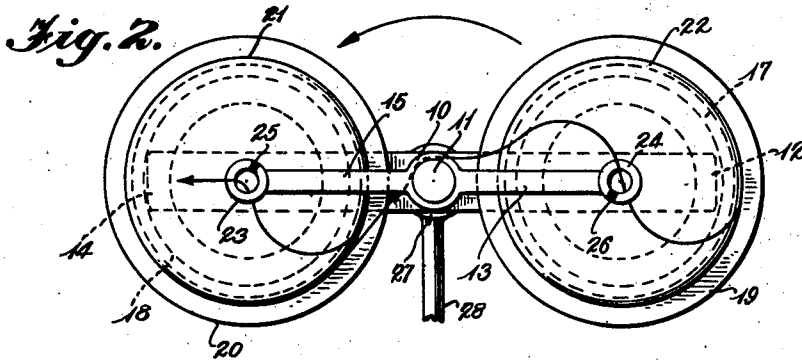
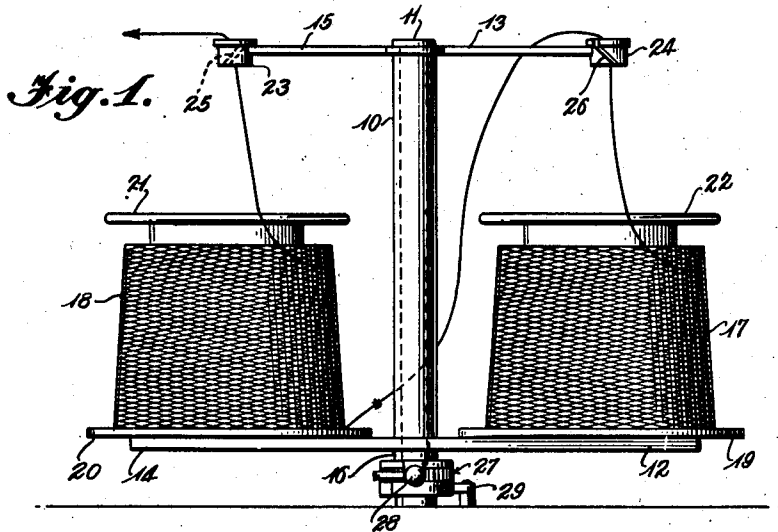
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J. F. KEITH

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WINDING RAYON

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Inventor

James F. Keith

By *Albin F. Knight*
Attorney

UNITED STATES PATENT OFFICE

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WINDING RAYON

James F. Keith, West Asheville, N. C., assignor to
American Enka Corporation, Enka, N. C., a corporation of Delaware

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This invention relates to a method and apparatus for the winding of threads, yarns or the like in parallel relationship, and is more particularly concerned with apparatus for the provision of a continuous running end of thread or yarn for a slashing operation.

Slashing operations, as they are conventionally conducted, involve the use of a creel and a large collecting beam. The creel is supplied with a number of packages of thread that are simultaneously unwound while the threads therefrom are led in to be wound in parallel relationship on a beam. It is apparent that, in such an operation involving a creel having a large number of running points, a considerable problem is encountered as packages of thread such as cakes at various running points become depleted. In the past the maintenance of a continuous thread to be wound on the beam has required that the slashing operation be conducted intermittently, stoppage in operation being necessary in order that the depleted cakes or other thread bodies on the creel might be replaced by fully wound thread bodies, the change-over incidentally requiring the knotting of the trailing end of the thread from one package to the leading end of the thread constituting the next package to be unwound. The delay incident to periodic stoppages of the beam was wasteful of time and resulted in increased cost in the production of yarn or thread supplied to customers in parallel wound condition on a beam or the like.

In an effort to overcome the foregoing problem a magazine type thread support for use on creels was developed. By this arrangement it is possible to support two thread packages, cakes, or bodies at each running point of the creel and to tie them together in such a way that when one becomes depleted, the other is unwound to supply thread for continuous operation. The operator, during the unwinding of the second thread package, replaces the unwound package with a new package and ties the leading end of the new package to the trailing end of the other. While this arrangement results in continuous operation, the apparatus involves the use of three thread guides, one on the axis of each of the thread packages and a centrally located master guide common to both.

Since the operation of this type of magazine support requires that the thread pass first through one guide and then through another that is located in a different position, it is necessary to tie together the trailing end of one package to the leading end of the succeeding package by a

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double loop which requires the use of means for releasably holding the loop during the unwinding of the first package.

It is an object of this invention to provide an improved magazine type running point that eliminates the need for a master guide, double loop tying and loop holding means while affording the further advantage that the package being unwound and the succeeding package are in the same position relative to the creel or other draw off device during the unwinding operations.

It is contemplated, according to the present invention, to provide a rotatable, magazine type thread support at each running point of a creel so that as each package of thread or yarn body is unwound, it will be held in the same predetermined position and that upon depletion thereof, it will be moved to a predetermined loading position for replacement.

It is a further object of this invention to provide a method of unwinding rayon packages sequentially from a single draw-off point.

Other objects and advantages of this invention will be apparent upon consideration of the following detailed description of several embodiments thereof in conjunction with the annexed drawings, wherein:

Figure 1 is a view in side elevation of a creel running point for slashing directly from cakes of spun viscose yarn;

Figure 2 is a top plan view of the apparatus of Figure 1; and

Figure 3 is a top plan view of a modified type of apparatus wherein the thread guides are of the pigtail type.

Referring now in greater detail to Figures 1 and 2, it will be noted that the running point there illustrated is comprised of a tubular member 10 that is rotatable about a cylindrical standard 11 suitably supported by means not shown. The tubular member includes two pairs of upper and lower radially projecting arms 12, 13, 14, 15, the arms of each pair being axially spaced and the pairs lying 180° apart in the same diameter of the vertical axis of the tubular member 10. The radial arms 12 and 14 constitute cake supporting platforms and are attached at a hub 16 to the tubular member 10 in any suitable manner. Thread packages or cakes 17 and 18 are supported on discs 19 and 20 which discs are removably attached to radial members 12 and 14. Internal package supports 21 and 22 are detachably anchored to the discs to thereby hold the

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respective packages or cakes in a stationary position.

Each of the radial arms 13 and 15 is provided at its free end with a thread guide, the thread guide 23 on arm 15 lying vertically above the axis of the cake 18 and the thread guide 24 on arm 13 lying vertically above the axis of the cake 17. The thread guides 23 and 24 are provided with diagonal thread egress slots at 25 and 26 respectively, as may be seen upon reference to Figures 1 and 2.

The operation of the magazine running point of the present invention involves placement of packages or cakes of thread or yarn 17 and 18 in position on supporting arms 14 and 12 and threading up by leading an outside end from the cake 18 through thread guide 23 to the beam not shown. The other or inside end of the yarn constituting cake 18 is tied to the outside end of the yarn of cake 17, the resulting strand being led through the thread guide 24. It will be noted that the thread guides 23 and 24, having slots 25 and 26 therein, may be termed as self-threading guides. By the expression "self-threading" is meant that a length of thread can be passed into the guide other than axially. By the provision of the slots 25 and 26 the guides 23 and 24 may be threaded radially after a strand has been tied. More specifically, after the inside end of the yarn constituting cake 18 is tied to the outside end of the yarn of cake 17, the resulting continuous strand can be passed into thread guide 24 through the slot 26. During the time that the inside end of the yarn constituting cake 18 is being tied to the outside end of the yarn of cake 17 and while the thread guide 24 is being threaded, and for a considerable time thereafter, thread is being drawn off from cake 18 and wound on the beam. Thus, ultimately the cake 18 becomes depleted of its thread. When this occurs the operator turns the entire assembly 180° about the standard 11 in the direction of the arrow of Figure 2. The result of this action is that the thread which was formerly passing through thread guide 23 now escapes through the egress slot 25, and thread guide 24 assumes the position formerly occupied by thread guide 23. Unwinding then continues and the operator replaces cake 18, which is now in the illustrated position of cake 17, with a new cake the outside end of which is attached to the inside end of cake 17 in the manner previously described.

In order that the slots 25 and 26 may function to release the thread passing therethrough as the assembly is rotated about the standard 11, ratchet means diagrammatically indicated at 27, are provided to limit the assembly to uni-directional rotation in a counterclockwise sense as viewed in Figure 2. More specifically, ratchet lever 28 permits counterclockwise rotation of the arms, and pawl 29 is provided to stop the arms after each 180° of movement so that the draw off will always be from the same position and the depleted cake will always assume the same position for replacement or loading.

It will be seen that by this arrangement a running point of a creel provided with an apparatus of this invention can be kept in continuous operation without changing the draw off position of the thread leading to the beam or the position in which the operator works in replacing a depleted cake.

The variation or modification of this invention that is shown in Figure 3 is similar in all respects to that shown in Figures 1 and 2, except that the

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thread guides are of the pigtail type. When the apparatus of Figure 3 is turned for 180° it is necessary for the operator to manually remove the thread from the guide 30 so that the guide 31, as it is moved into the position previously occupied by guide 30, may begin to function as the draw off point. While the thread guides shown in Figure 3 do not serve to automatically release the thread upon rotation of the assembly, it is to be understood that these guides are self-threading in the sense previously set forth.

Regardless of which of the illustrated modifications is used it is evident that the thread guide at the draw off point will always occupy the same position thus insuring against thread slack at times when there is a changeover from one cake to another.

What is claimed is:

1. In a winding apparatus, an assembly for sequentially unwinding packages of filamentary material which comprises a rotatable member, package supporting means attached to the member for rotation therewith, radially threading, thread guides attached to the member, each in axial alignment with the axis of a package mounted on each support and rotatable with the member so that upon rotation of the member each thread guide is always in axial alignment with its respective package, and means for rotating the assembly uni-directionally.

2. In a winding apparatus, an assembly for sequentially unwinding packages of filamentary material which comprises a rotatable member, package supporting means attached to the member for rotation therewith, thread guides attached to the member, each in axial alignment with the axis of a package mounted on each support and rotatable with the member so that upon rotation of the member, each thread guide is always in axial alignment with its respective package, means for rotating the assembly uni-directionally, and said thread guides having thread egress slots therein in their trailing sides with respect to the direction of rotation of the assembly whereby upon rotation thereof the thread is automatically removed from the guide of the depleted package.

3. In a winding apparatus, an assembly for sequentially unwinding packages of filamentary material which comprises a rotatable member, two package supporting means attached to the member for rotation therewith and extending radially in opposite directions from the member, two radially threading, thread guides attached to the member, each in axial alignment with the axis of each package support and rotatable with the member so that upon rotation of the member 180° the thread guides have exchanged positions but each remains in axial alignment with its respective package support and means for rotating the member uni-directionally.

4. In a winding apparatus, an assembly for sequentially unwinding packages of filamentary material which comprises a rotatable member, two package supporting means attached to the member for rotation therewith and extending radially in opposite directions from the member, two thread guides attached to the member, each in axial alignment with the axis of each package support and rotatable with the member so that upon rotation of the member 180° the thread guides have exchanged positions but each remains in axial alignment with its respective package support, means for rotating the member uni-directionally, and said thread guides having thread egress slots therein in their trailing sides

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with respect to the direction of rotation of the assembly whereby upon rotation thereof the thread is automatically removed from the guide of the depleted package.

5. In a winding apparatus, an assembly for sequentially unwinding rayon cakes which comprises a cylindrical standard, a rotatable tubular member supported by the standard, a pair of units attached to, and extending in opposite directions from, the rotatable member, each unit comprising a cake support and a thread guide mounted thereabove, said thread guide being of the self-threading type and fixed with respect to the cake support but rotatable therewith and means for rotating the member uni-directionally whereby upon 180° rotation thereof, the units have exchanged positions and the draw-off point of the yarn always occupies the same position.

6. In a winding apparatus, an assembly for sequentially unwinding rayon cakes which comprises a cylindrical standard, a rotatable tubular member supported by the standard, a pair of units attached to, and extending in opposite directions from, the rotatable member, each unit comprising a cake support and a thread guide mounted thereabove, said thread guide having a thread egress slot and being fixed with respect to the cake support but rotatable therewith and means for rotating the member uni-directionally whereby upon 180° rotation thereof, the units have exchanged positions and the draw-off point of the yarn always occupies the same position.

7. A method of sequentially unwinding yarn packages which comprises placing several packages of yarn in close proximity one of which being in a position to be unwound, tying the inside end of yarn of the package to be unwound to the outside end of yarn of the package to be next unwound, passing the outside end of yarn of the package to be unwound radially through a guide of the self-threading type and thence to a point of collection, passing the tied outside end of yarn of the package to be next unwound radially through a similar guide of the self-threading type, unwinding the yarn from the first pack-

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age and, after the first package has been depleted but before the second package has been depleted, exchanging the positions of the packages and their respective guides and simultaneously removing the yarn from the guide servicing the first package whereby the running draw-off point of the yarn always occupies the same position and prevents slack in the yarn during sequential changing of the packages.

8. A method of sequentially unwinding yarn packages which comprises placing several packages of yarn in close proximity one of which being in a position to be unwound, tying the inside end of yarn of the package to be unwound to the outside end of yarn of the package to be next unwound, passing the outside end of yarn of the package to be unwound radially through a similarly slotted guide, unwinding the yarn from the first package and, after the first package has been depleted, exchanging the positions of the packages and their respective guides whereby the yarn is automatically removed from the guide servicing the first package so that the running draw-off point of the yarn always occupies the same position and prevents slack in the yarn during sequential changing of the packages.

JAMES F. KEITH.

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