A. PETERSEN.

THREAD CARRIER.

APPLICATION FILED FEB. 3, 1912.

1,049,391.

Patented Jan. 7, 1913.

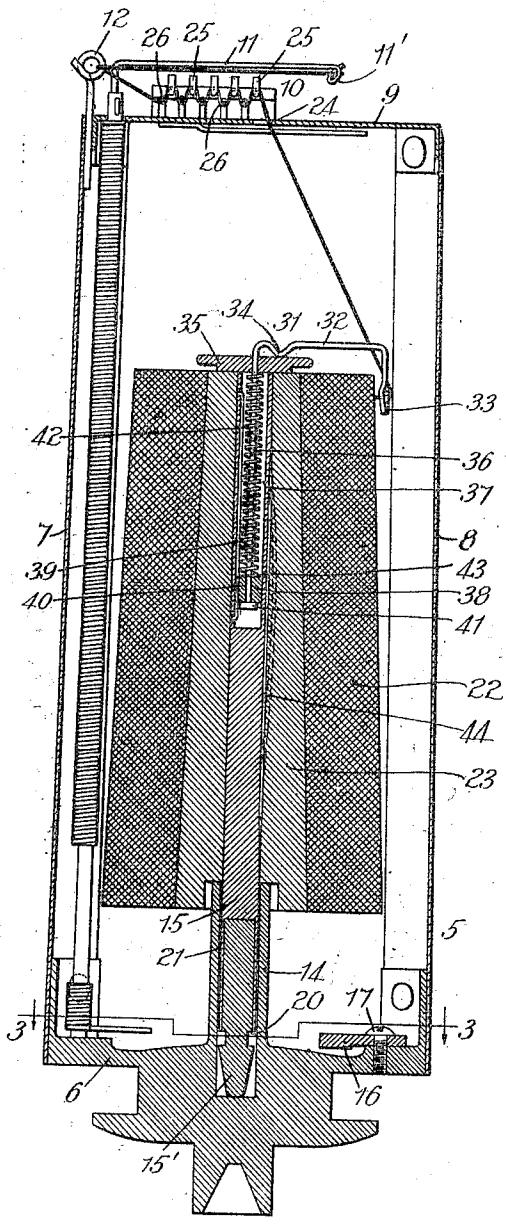

Fig. 1.

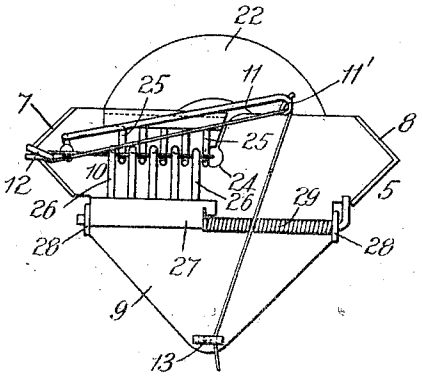

Fig. 2.

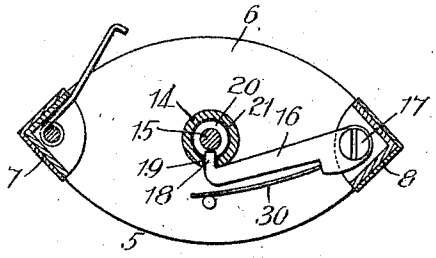

Fig. 3.

Witnesses.

Franklin E. Low.

Leonard A. Powell.

Inventor:

Auker Petersen,

by his attorney

Charles S. Gooding.

UNITED STATES PATENT OFFICE.

ANKER PETERSEN, OF WINTHROP, MASSACHUSETTS, ASSIGNOR TO BOSTON MACHINERY COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

THREAD-CARRIER.

1,049,391. Specification of Letters Patent. Patented Jan. 7, 1913.

Application filed February 3, 1912. Serial No. 675,238.

To all whom it may concern:

Be it known that I, ANKER PETERSEN, a subject of the King of Denmark, residing at Winthrop, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Thread-Carriers, of which the following is a specification.

This invention relates to new and useful improvements in thread carriers and is particularly applicable to that class of carriers having thread-masses from which the thread is drawn in a direction substantially parallel to the axis of said thread-mass or of the spindle upon which said thread-mass is supported.

The principal object of the invention is to provide a thread controller which may be rotated relatively to said thread-mass by the unwinding or removal of the thread therefrom, but which is normally prevented from rotating relatively to said thread-mass when said thread is not being removed and thus prevents slack thread from being formed between the tensioning device which is carried by the thread carrier and said thread-mass.

The invention consists in the combination and arrangement of parts set forth in the following specification by which the above object and other objects hereinafter appearing are attained, and more particularly pointed out in the claims.

Referring to the drawings: Figure 1 is a longitudinal section partly in elevation of a thread carrier embodying my invention. Fig. 2 is an end elevation of the device illustrated in Fig. 1. Fig. 3 is a sectional view taken on line 3, 3 of Fig. 1.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings 5 is a carrier frame preferably comprising a base 6, side pieces 7 and 8 and an end 9 to which is secured a tensioning device 10, hereinafter more specifically described, and a take up 11 and thread guides 12 and 13 also mounted at said end 9.

The base 6 is provided with a tubular stem 14 which is adapted to receive the end of a spindle 15. Means for rotatably and detachably connecting said spindle with said stem, preferably consist of a detent 16 pivoted at 17 to said carrier frame, and provided with a laterally disposed end 18 adapted to project through a hole 19 in said stem and into an annular groove 20 formed in the spindle 15, said detent 16 being normally held within said hole 19 and groove 20 by a spring 30.

The end of the spindle 15 is tapered or cone-shaped, as at 15′, in order that said end may be more easily inserted within the hole 21 in the tubular stem 14 beyond the projection 18 formed on the detent 16, as said conical end will engage said projection and force the same outwardly through the hole 19 until the annular groove 20 has been brought into alinement therewith, whereupon said projection will drop into said annular groove and lock the same against longitudinal movement in said stem.

The spindle 15 is adapted to support a thread-mass 22 which may be formed on said spindle or may be formed upon a thread-mass holder 23. The thread constituting said thread-mass is unwound or withdrawn from the same in a direction longitudinally of the spindle 15 or thread-mass 22 through a guide 24 in the end 9 of said carrier frame, thence through the tensioning device 10, which as shown, consists of a series of fingers 25, 25 across which said thread is drawn.

Another series of fingers 26, 26 formed upon a member 27 pivoted at 28, 28, engage the opposite side of the thread between the fingers 25, 25 and yieldingly force said thread downwardly across said fingers 25, 25 by means of a torsional spring 29.

From the tensioning device 10 the thread passes through the eye 12, thence to the eye 11′ in the end of the take-up lever 11 and through the eye 13 to the point on the machine of which said carrier forms a part, where the work is being formed.

In a thread carrier of the class shown, if the thread from the thread-mass is rapidly withdrawn or unwound, the thread is apt to be swung outwardly by centrifugal force and when said feeding is discontinued more or less slack thread will be formed between the tensioning device and the thread-mass. This is very objectionable for the reason that said thread is apt to twist and knot up and upon the resumption of the feeding thereof, a broken thread will be the result as the knot will catch in the tensioning device or the guides on said carrier.

Another difficulty to be overcome is the

relative rotation between the thread-mass and the carrier frame or thread guide 24, which also causes slack thread to form between said guide 24 and the thread-mass 22. To overcome these difficulties, a thread controller 31 is located between said tensioning device and said thread-mass, adapted to retard the unwinding of the thread constituting the thread-mass 22 on the thread support 23, and preferably consists of a laterally extending arm 32 having a thread eye 33 at its outer end adapted to revolve in a path substantially concentric with the outer face of the thread-mass 22 and is preferably located outside of said outer face. The arm 32 is formed with a projection 34 thereon which is adapted to engage the outer face of a flange 35 formed upon the end of the spindle 15. The controller 31 is also provided with a second arm 36 disposed substantially at right angles to the arm 32 and has rotatable engagement with said spindle, said arm projecting into a recess 37 extending longitudinally of said spindle 15 and closed by the flange 35. A collar 38 is slidable longitudinally of said recess and has rotatable engagement with the arm 36 adjacent to its extremity and is prevented from rotating within said recess by a key 39, said key being preferably secured to the inner surface of said recess and adapted to engage the groove 40 in the collar 38. The arm 36 has located adjacent to its extremity, a flange 41 securely fastened thereto. A spiral extension spring 42 is disposed within said recess between the face 43 of said collar 38 and the flange 35 encircling the arm 36, and is prevented from being twisted or injured during the rotation of the controller 31 by said key 39 and groove 40, which prevent the rotation of the collar 38, said spring being adapted to press said collar 38 toward the flange 41 thereby creating friction between said flange 41 and one face of the collar 38 and consequently forcing the arm 36 inwardly, whereby friction is also created between the projection 34 and the upper face of the flange 35. The frictional means, as just described, is preferably of sufficient power to prevent the arm 32 and thread eye 33 from being revolved about said thread-mass by the rotatable movement of said thread-mass 22 relatively to the carrier frame, but is permitted to be revolved by the unwinding of the thread constituting said thread-mass.

It will be readily seen that the thread constituting the thread-mass may be wound directly on the spindle 15 or may be first wound upon a holder shown at 23 and then slipped upon said spindle. If the latter form is adopted, it is necessary that additional frictional means be interposed between said spindle and said holder and for this purpose a spring 44 is secured at one end to said spindle and normally assumes, as shown in dotted lines in Fig. 1, a bow-shaped form, but upon the placing of said holder upon said spindle said spring will be flattened out against said spindle and is capable of preventing a rotary movement between said holder and said spindle, and may also be used to prevent said holder from sliding longitudinally on said spindle. The power of said frictional means being substantially greater than the frictional means controlling the rotation of the thread controller 31 thereby permitting said controller to be rotated in said spindle.

Having thus described my invention what I claim and desire by Letters Patent to secure is:

1. A thread carrier having, in combination, a spindle adapted to support a thread-mass, provided with a recess, a thread controller rotatably mounted in said spindle, having an arm extending into said recess, and frictional means located in said recess engaging said arm, capable of retarding the rotary movement of said controller relatively to said spindle.

2. A thread carrier having, in combination, a thread-mass holder, a spindle adapted to support said holder, provided with a recess extending longitudinally thereof, a thread controller rotatably mounted in said spindle, adapted to be rotated by the unwinding of the thread constituting said thread-mass; said controller having an arm projecting into said recess and provided with a flange adjacent to its extremity, a collar in said recess, constituting a bearing for said extremity, and means to yieldingly press said collar against said flange whereby the rotation of said controller is retarded.

3. A thread carrier having, in combination, a thread-mass holder, a rotatable spindle, frictional means adapted to support said holder on said spindle and prevent a relative rotation therebetween, a thread controller rotatably mounted in said spindle, adapted to be rotated by the unwinding of thread constituting said thread-mass, and frictional means located within said spindle, adapted to retard the rotation of said controller.

4. A thread carrier having, in combination, a thread mass holder, a spindle to support said holder, provided with a recess extending longitudinally thereof, a rotatable thread controller provided with a laterally extending arm having an offset in contact with the upper end of said spindle, and provided with a thread eye adapted to revolve in a path substantially concentric with the outer face of the thread mass carried by said holder, said controller having a second arm projecting into said recess and adapted to rotatably engage said spindle, and frictional means located within said recess adapted

to retard the movement of said controller relatively to said spindle.

5. A thread carrier having, in combination, a thread-mass holder, a spindle adapted to support said holder, having a recess extending longitudinally thereof, a flange disposed at one end of said spindle, a rotatable thread controller having a laterally extending arm in contact with said flange and provided with a thread eye adapted to revolve in a path substantially concentric with the outer face of the thread-mass carried by said holder, said controller having a second arm adapted to rotatably engage said flanged end and projecting into said recess, a flange secured to said second arm adjacent to its extremity, a collar slidable longitudinally of said recess, constituting a bearing for said second controller arm, adjacent to said flange, and means adapted to yieldingly press said collar toward said second mentioned flange, whereby the movement of said laterally extending controller arm, relatively to said flange may be retarded.

6. A thread carrier having, in combination, a carrier frame, a spindle provided with a recess extending longitudinally thereof rotatably mounted in said frame, and adapted to support a thread-mass, means to lock said spindle in rotatable engagement with said frame, a thread controller rotatably mounted in said spindle, having an arm extending into said recess, and adapted to be rotated by the unwinding of thread constituting said thread-mass, and means located in said recess to yieldingly press said controller against said spindle, whereby the rotary movement of said controller may be retarded.

7. A thread carrier having, in combination, a thread-mass holder, a spindle adapted to support said holder, having a recess extending longitudinally thereof, a flange disposed at one end of said spindle, a rotatable thread controller having a laterally extending arm in contact with said flange and provided with a thread eye adapted to revolve in a path substantially concentric with the outer face of the thread-mass carried by said holder, said controller having a second arm adapted to rotatably engage said flanged end and projecting into said recess, a flange secured to said second arm adjacent to its extremity, a collar slidable longitudinally of said recess adapted to rotatably engage said second arm adjacent to said second mentioned flange, means to prevent said collar and said spindle from relative rotation during the longitudinal movement of said collar and means adapted to yieldingly press said collar against said second mentioned flange, whereby the movement of said laterally extending controller arm, relatively to said first mentioned flange may be retarded.

8. A thread carrier having, in combination, a spindle adapted to support a thread-mass, having a recess extending longitudinally thereof, a flange disposed at one end of said spindle adapted to close said recess, a rotatable thread controller having a laterally extending arm provided with a thread eye adapted to revolve in a path substantially concentric with the outer face of the thread-mass carried by said spindle, a projecting portion formed on said arm adapted to engage the outer face of said flange, said controller having a second arm adapted to rotatably engage said flanged end and projecting into said recess, a flange secured to said second arm within said recess, a collar slidable in said recess, constituting a bearing for said second controller arm, adjacent to said flange, and means adapted to yieldingly press said collar toward said second mentioned flange, whereby the projecting portion on said lateral arm is drawn toward the outer face of said first mentioned flange and the movement of said arm relatively to said spindle, retarded.

9. A thread carrier having, in combination, a spindle adapted to support a thread-mass, having a recess extending longitudinally thereof, a flange disposed at one end of said spindle adapted to close said recess, a rotatable thread controller having a laterally extending arm provided with a thread eye adapted to revolve in a path substantially concentric with the outer face of the thread-mass carried by said spindle, a projecting portion formed on said arm adapted to engage the outer face of said flange, said controller having a second arm adapted to rotatably engage said flanged end and projecting into said recess, a flange secured to said second arm within said recess, a collar slidable in said recess, constituting a bearing for said second controller arm, adjacent to said flange, and a spiral extension spring encircling the arm of said controller within said recess engaging the inner face of said first mentioned flange and said collar, adapted to press the same against said second mentioned flange.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ANKER PETERSEN.

Witnesses:
FRANKLIN E. LOW,
SYDNEY E. TAFT.