May 17, 1949. G. O. YOUNG 2,470,123

THREAD TENSION MECHANISM

Filed Dec. 26, 1946

Fig. 1.

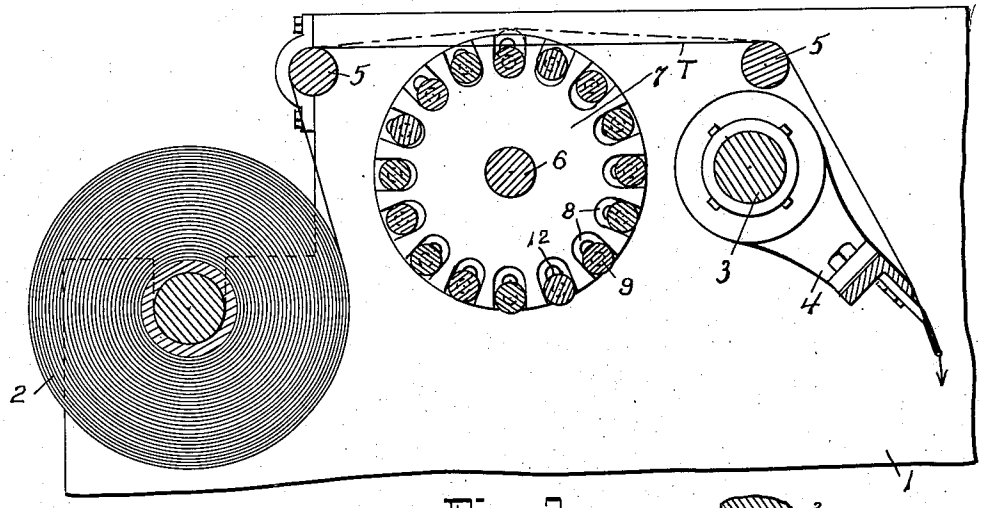


Fig. 2.

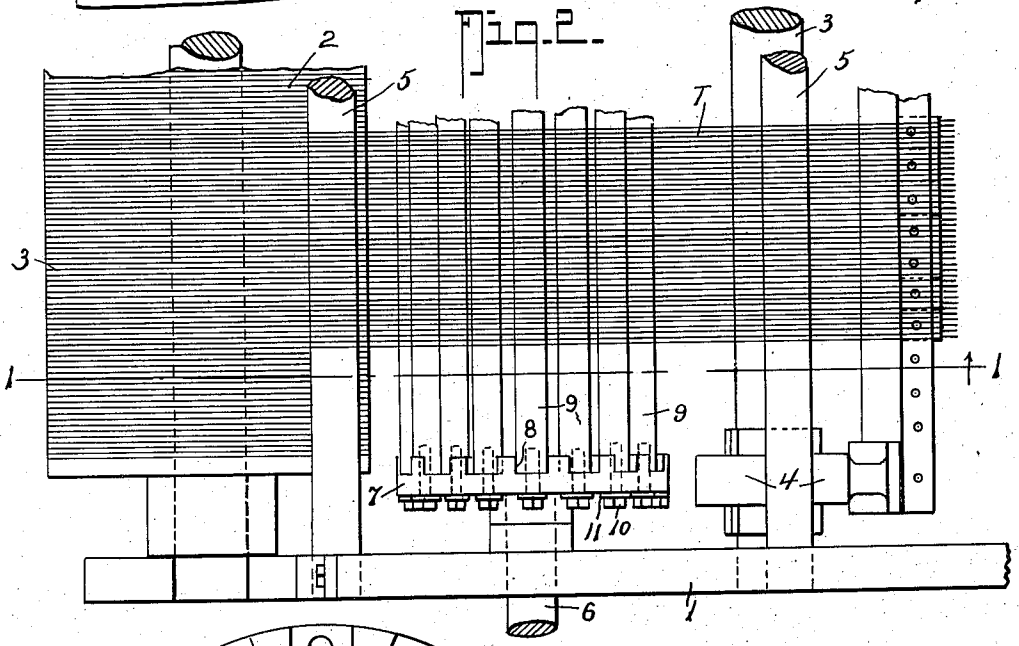
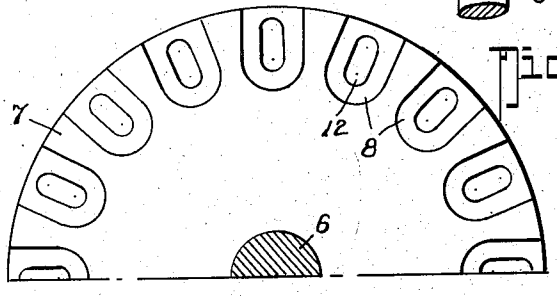


Fig. 3.



INVENTOR,
George O. Young,
BY
Albert R. Dieterich,
ATTORNEY.

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THREAD TENSION MECHANISM

George O. Young, Robesonia, Pa., assignor to Vanity Fair Mills, Inc., Reading, Pa., a corporation of Pennsylvania

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1 Claim. (Cl. 66—86)

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As is well known in the art, the thread extending from the warp beam to the thread guides and needles of a warp knitting machine does not remain under constant tension during the knitting cycle but slacks and draws taut accordingly as the operation of the needles and guides. Various methods and means have heretofore been devised to overcome this and put the thread under a constant and uniform tension at all times.

Most methods heretofore proposed and with which I am familiar have not proven entirely satisfactory.

The object of my present invention is to provide a positively driven means of such construction as to keep the thread between the beam and the thread guide taut at all times, i. e. taking up slack and releasing it as required by the operations of the needles and guides. To this end my invention, in its general aspect, comprises a positively driven drum-like body having a multitude of parallel annularly dispersed radially adjustable bars over which the thread from the beam passes to the needle, the bars being adjusted to allow for the slacking of the thread at any point desired in the cycle of the machine's operation and thereby maintain the same tension on the thread at all times.

The present invention further resides in the novel details of construction, combination and arrangement of parts, all of which will be first fully described and then be specifically pointed out in the appended claim, reference being had to the accompanying drawing in which

Fig. 1 is a cross section on the line 1—1 of Fig. 2.

Fig. 2 is a plan view of a portion of a warp knitting machine showing my invention.

Fig. 3 is an enlarged detail view hereinafter again referred to.

In the drawing in which like numerals of reference indicate like parts in all the figures, 1 represents the frame of the machine, 2 a warp beam, 3 a racking bar carrying thread guides 4, and 5 indicates fixedly positioned guide rods over which the thread T passes in its travel from the beam to the thread guides.

The device which constitutes the essential part of my invention is located between the positions of the two fixed guide rods 5 and comprises a shaft 6 carrying discs 7 spaced apart along the shaft and having radial grooves 8 on their opposed faces. The grooves 8 receive the ends of guide rods 9 which are radially adjustably held in place by cap screws 10 and washers 11. The

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screws 10 pass through radial slots 12 in the discs 7 and enable the individual rods 9 to be spaced a greater or lesser distance from the axis rotation of the shaft 6 as may be required.

The shaft 6 is driven in any suitable manner at a constant speed in timed relation with the operation of the needles and thread guides in performing the knitting function.

The large number of rods 9 employed, enable a corresponding variety of adjustments to be made so as to take care of any condition met with in practice and make the use of spring-mounted tension rods unnecessary. The rods 9 are individually adjusted toward or from the axis 6 according to the slacks given the thread at different times in a cycle of operation, so as to take up the slack at the proper times and according to the degree of such slack.

From the foregoing description taken in connection with the accompanying drawing it is thought the construction, operation and advantages of my invention will be clear to those skilled in the art and I wish to say that while my device is especially adapted to knitting machines it may also be found useful in other fields where positive let-off tensions are required.

What I claim is:

A thread take-up device comprising a rotatable shaft, discs on said shaft, a plurality of rods mounted on said discs parallel to said shaft, and means by which said rods may be individually adjusted to greater or lesser distances from said shaft, and said means including radial grooves in the discs into which the ends of said rods set, and cap screws passing through radial slots in said discs into the ends of said rods.

GEORGE O. YOUNG.

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