

(No Model.)

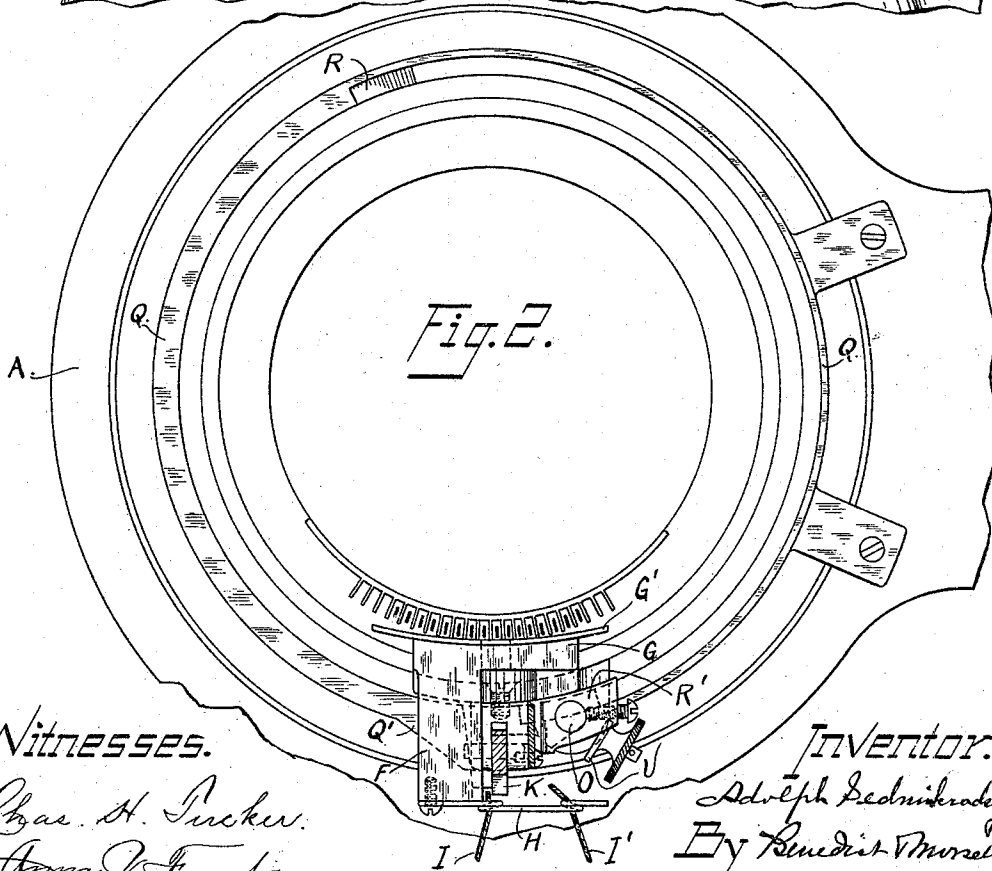
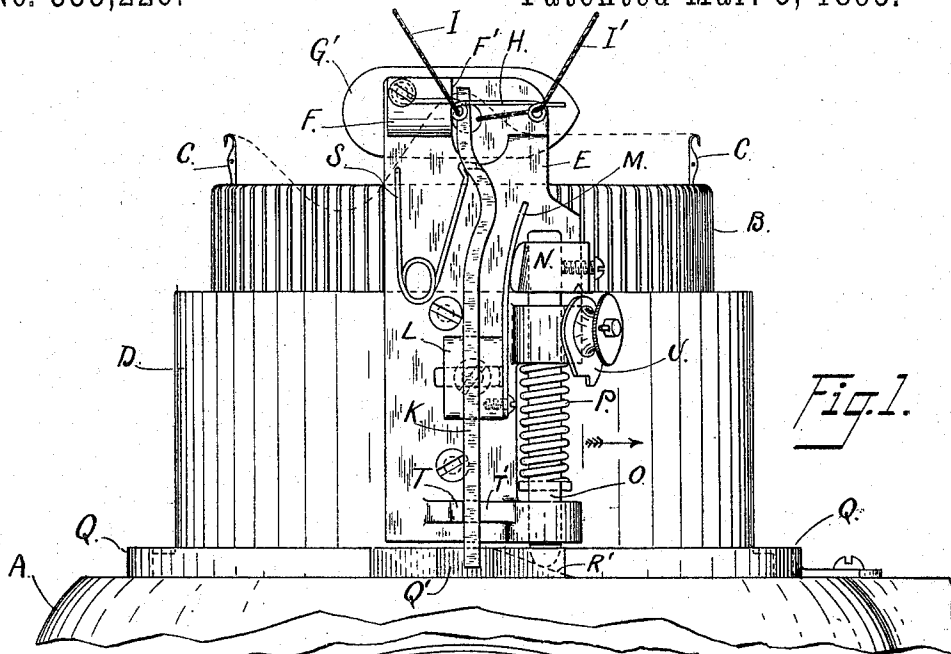
2 Sheets—Sheet 1.

A. SEDMIHRADSKY.

THICKENING THREAD MECHANISM FOR KNITTING MACHINES.

No. 535,226.

Patented Mar. 5, 1895.



Witnesses.

Chas. H. Tucker.
Anna V. Faust

Inventor:

Adolph Lednickadek
By Benedict Murrell
Attorneys.

(No Model.)

2 Sheets—Sheet 2.

A. SEDMIHRADSKY.

THICKENING THREAD MECHANISM FOR KNITTING MACHINES.

No. 535,226.

Patented Mar. 5, 1895.

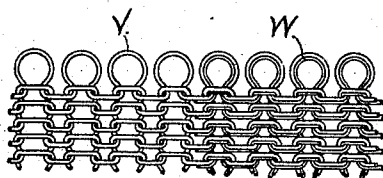
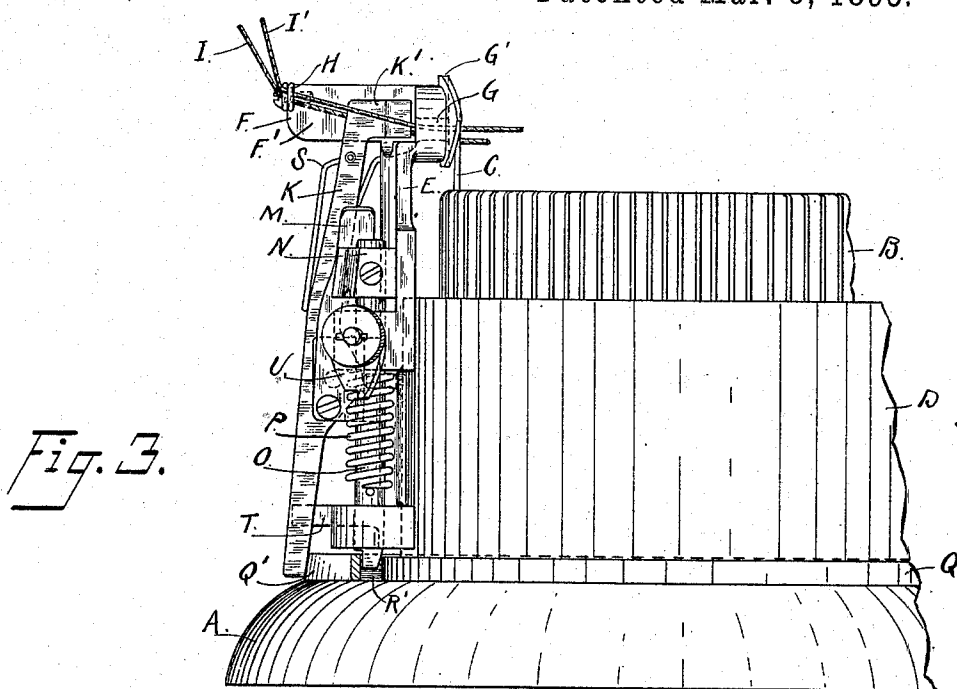


Fig. 4.

Witnesses.

Chas. H. Tucker.

Anna V. Faust.

Inventor.

Adolph Sedmihradsky

By Lemuel Moore

Attorneys.

UNITED STATES PATENT OFFICE.

ADOLPH SEDMIHRADSKY, OF MILWAUKEE, WISCONSIN.

THICKENING-THREAD MECHANISM FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 535,226, dated March 5, 1895.

Application filed April 25, 1894. Serial No. 508,923. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH SEDMIHRADSKY, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Thickening-Thread Mechanism for Knitting-Machines, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The improvement is in circular knitting machines, and the object of the invention is to provide simple, strong, and enduring mechanism, hitherto unknown, adapted automatically to feed and to discontinue the feed of a second or supplementary thread to the needles, such additional thread being desirably added to the single thread being continuously knitted, at suitable and proper time for the purpose of increasing the thickness and strength of the article being knitted in certain parts thereof, as for instance the palm of the hand of a glove, or the knee of a stocking.

The invention consists in the parts and combination of parts hereinafter described and claimed, or their equivalents.

In the drawings, Figure 1, is an elevation of my improved mechanism, in connection with the cylinders and base of a circular knitting machine with which my mechanism is adapted to be used. Fig. 2, is a top plan of my improved mechanism, showing also its relation to and connection with the cylinders and base of a circular knitting machine, which are shown in outline. Fig. 3, is an elevation of my improved mechanism, with fragments of the cylinders and base of the knitting machine, the view being at right angles to that shown in Fig. 1. Fig. 4, is an illustration of the fabric in single and double threads, that the machine with my improved mechanism produces.

In the drawings, A is the base of a circular knitting machine.

B is the needle cylinder, provided with vertical grooves in its periphery in which the needles C reciprocate vertically. The needle cylinder is fixed on the base A and the cam cylinder D revolves about the cylinder B, and is provided with cams or other suitable devices for reciprocating the needles vertically in the usual and well known manner.

The means for rotating the cylinder D and

reciprocating the needles C form no part of my invention, and being well known are not illustrated.

For supporting the principal operative parts of my improved mechanism on the cam cylinder, a plate E is secured permanently to the cylinder. The plate E is provided with a head piece F which projects outwardly at the top of the plate and is located opposite the hooks or other extremities of the needles when at the highest point to which they are elevated in the process of knitting. This head piece F is provided with a substantially flat vertical face F', and with an aperture G near the inner extremity of the face F', the axis of which aperture is substantially in a line radial to the needle cylinder. A guard plate G' is fixed to the head piece F at its inner end. The aperture G extends through the guard piece. A piece of wire H so bent as to be provided with eyes, is secured to the head piece F, and serves as a guide through which the threads I, I' severally run, the threads both running through the guide aperture G. It will be observed that the guides H and G are so constructed and located that the supplementary thread I extends and runs close alongside of the vertical face F' of the head piece F.

For clamping the supplementary thread I to the head piece F, so that it cannot run through its guides to the needles, thus compelling it to be broken off under the strain of the revolving cam cylinder, and for feeding the thread forward to the needles again at the proper time, a dog K provided with a head K' is pivoted medially, on the block L, so as to swing radially of the needle cylinder, which block in turn is mounted or swiveled on plate E, so as to swing or oscillate thereon, in a plane tangential to the cam-cylinder.

For the purpose of holding the head K' of the dog K, up to the head piece F and against the interposed thread I, a heavy spring or elastic finger M fixed on the block L bears against a block N adjustable on the rod O, which rod is loose and movable vertically in bearings therefor on the plate E. A spring P coiled about the rod O bearing at its lower extremity against a pin in the rod and at its upper extremity against a fixed support, is adapted to hold the rod downwardly yield-

ingly to the limit of its travel. The lower extremity of the rod O travels during a portion of the revolution of the cam cylinder in a groove therefor in a ring Q detachably fixed on the base A about the cylinder D. The rod O travels in this groove during all that portion of the revolution of the needle cylinder, during which the two threads I' and I are being fed to and taken by the needles, and at such predetermined point as it is desired to break off the supplemental thread I and hold it against being fed to the needles, the groove in the ring Q terminates and an incline R raises the rod O as the cam cylinder revolves on to the top of the ring Q, whereon it travels until such time in the process of knitting as it is desired to again supply the needles with the supplementary thread I and double the fabric, at which point an incline R' is provided at the beginning of the groove in the ring, down which incline the rod O runs under the action of the spring P. The adjustment of parts is such that when the rod O is traveling on the top of the ring Q the bearing of the finger M against the block N, holds the head K' firmly against the thread I interposed between it and the head piece F, so as to grip the thread and prevent its feeding to the needles. When the rod O drops into the groove in the ring Q the bearing of the finger M against the block N is released, or so slight that the spring S interposed between the plate E and the dog K, throws the dog away from the head piece F, and at the same time tilts the upper extremity of the dog outwardly, radially of the needle cylinder.

The lower extremity of the dog K, bearing against a boss T' on the plate E, moves around near the ring Q, which has a radially projecting cam Q' located at the proper point, (just before the supplementary thread I is to be released) to contact with said lower extremity and throw the head of the dog inwardly toward the needles, in the direction of the movement of the thread at this point, which is just in front of the point at which the thread is fed to the needles, thereby carrying the thread with it so as to present the end of the thread to them. This cam Q' is therefore so located on the ring Q, as to be reached just a moment before the rod O goes down the incline R' into the groove in the ring so that the movement of the head K' inwardly radially (as a thread-feeder) occurs while the head is still gripping the thread with more or less force against the face F', thus insuring a sufficient gripping of the thread by the moving head K' to surely feed it forward toward the needles. A finger T projecting radially rigidly from the plate E serves as a guide for the dog K. A cam latch U revoluble on the plate E, provided with a circular milled head for rotating it, is adapted to be turned up under the block N for lifting and holding the rod O up out of action, and in such manner that the head K' will bear constantly against

the thread I and prevent its feeding to the needles.

Fig. 4 illustrates a fragment of the fabric that is knitted by a machine with my improved mechanism, in which V represents that portion of the fabric knitted with a single thread and W a portion of the fabric knitted with two threads. It will be noticed that the part of the fabric knitted with two threads has no larger loops than the part knitted with a single thread. The portion of the fabric knitted with two threads, and thus made thicker may extend any desired portion of the distance around the article being knitted, it being only necessary to supply a ring Q having a groove for the travel of the rod O, which groove shall be of such length, as the desired width of the thickened part of the fabric.

It will be observed that, of the ring Q, only the elevated trackway and the cam Q' are utilized mechanically, and hence any device embodying these two features would be an equivalent of the ring. The ring Q is secured detachably to the base A by means of screws through lugs on the ring (seen at the right in Fig. 2) or by any equivalent means adapted to secure the elevated part of the ring, (seen at the left in Fig. 2,) to the base.

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

1. The combination with a revolving cam-cylinder of a knitting machine, of a plate fixed on the cam-cylinder, said plate having a vertical radially-extending face for the bearing of a supplementary thread, a dog mounted on the cylinder so as to swing tangentially of the cam-cylinder toward and from the face on the plate, adapted thereby to grip a thread interposed between the face and the dog, a rod mounted on the cam-cylinder and movable vertically thereon adapted to hold the dog up to the fixed vertical face on the plate, a stationary elevated trackway partially around the cylinder adapted to elevate the rod during its travel thereon, and a spring interposed between the dog and a fixed support adapted to force the dog away from the face on the plate when the dog is no longer held thereto by the rod on its elevated trackway, substantially as described.

2. The combination with the revolving cam-cylinder of a knitting machine, and a plate affixed thereto against which a thread may be gripped, of a block swiveled thereon, a thread-gripping dog mounted on the block, a finger fixed on the block, a vertically movable rod mounted on the cam-cylinder, said rod having a part adapted to bear against and actuate the finger on the swiveled block, and means substantially as described for elevating and lowering the rod.

3. The combination with the revolving cam-cylinder of a knitting machine, and a plate affixed thereto against which a thread may

be gripped, of a block swiveled thereon, a thread-gripping dog mounted on the block, a finger fixed on the block, a vertically movable rod mounted on the cam-cylinder, said rod
5 being provided with a part bearing against the finger on the swiveled block, an elevated trackway adapted to lift the rod intermittingly, and a spring adapted to depress the rod and hold it out of action, substantially as described.
10

4. The combination with the revolving cam-cylinder of a knitting machine having a relatively fixed thread-bearing thereon, of a thread-feeding dog mounted thereon to swing
15 radially thereof, a spring adapted to force the head of the dog outward radially, and a fixed cam against which a part of the dog contacts and by which the head of the dog is swung inwardly radially alongside the thread-bearing
20 aforesaid moving in the direction of the

movement of the thread between said bearing and the dog, substantially as described.

5. In a circular knitting machine, the combination with a cam-cylinder, a plate having a thread-bearing face fixed thereon, and a dog
25 mounted on the cylinder so as to have lateral and radial movement opposite the thread-bearing face, of a fixed elevated trackway, means between said trackway and said dog
30 whereby said trackway is made to swing said dog laterally, and a cam adjacent and opposite to the trackway adapted to swing said dog radially, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ADOLPH SEDMIHRADSKY.

Witnesses:

ANNA V. FAUST,
C. T. BENEDICT.