July 30, 1929. E. E. CLARK 1,722,837

CHECK FOR AXMINSTER LOOM NEEDLE MOTION

Filed Nov. 30, 1925 2 Sheets-Sheet 1

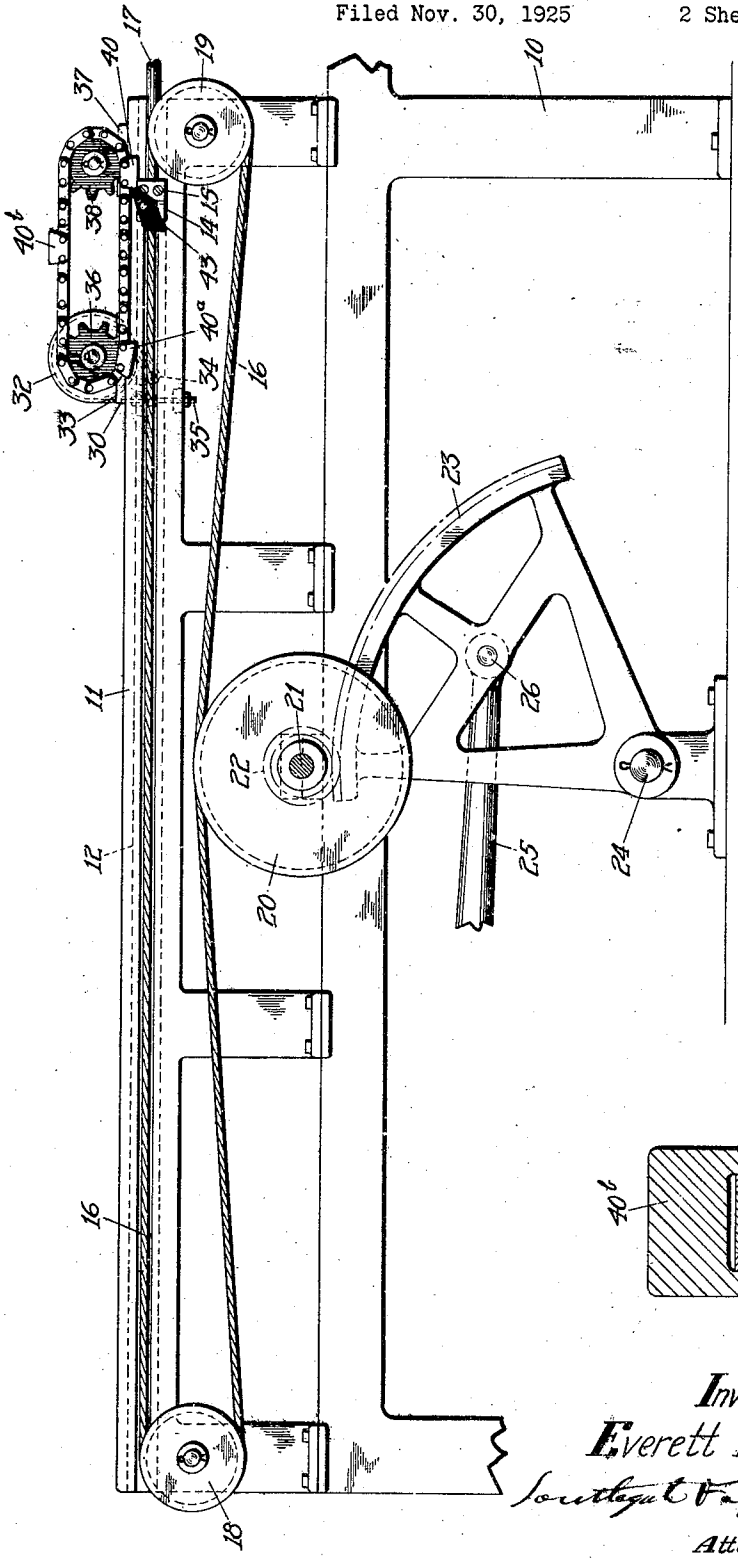


Fig. 1

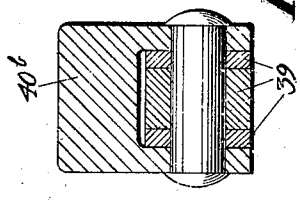


Fig. 6

Inventor
Everett E. Clark
Courtenay C. Fay & Harley
Attorneys

July 30, 1929. E. E. CLARK 1,722,837

CHECK FOR AXMINSTER LOOM NEEDLE MOTION

Filed Nov. 30, 1925 2 Sheets-Sheet 2

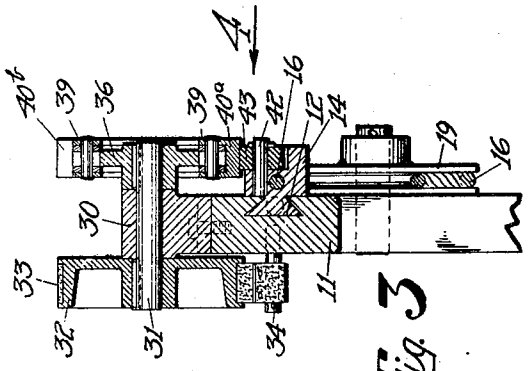


Fig. 3

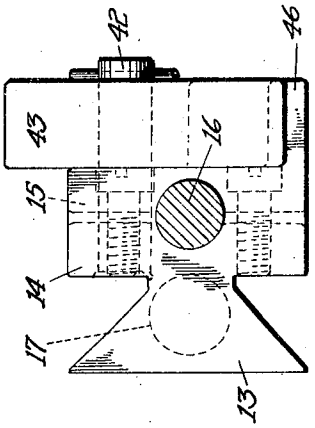


Fig. 5

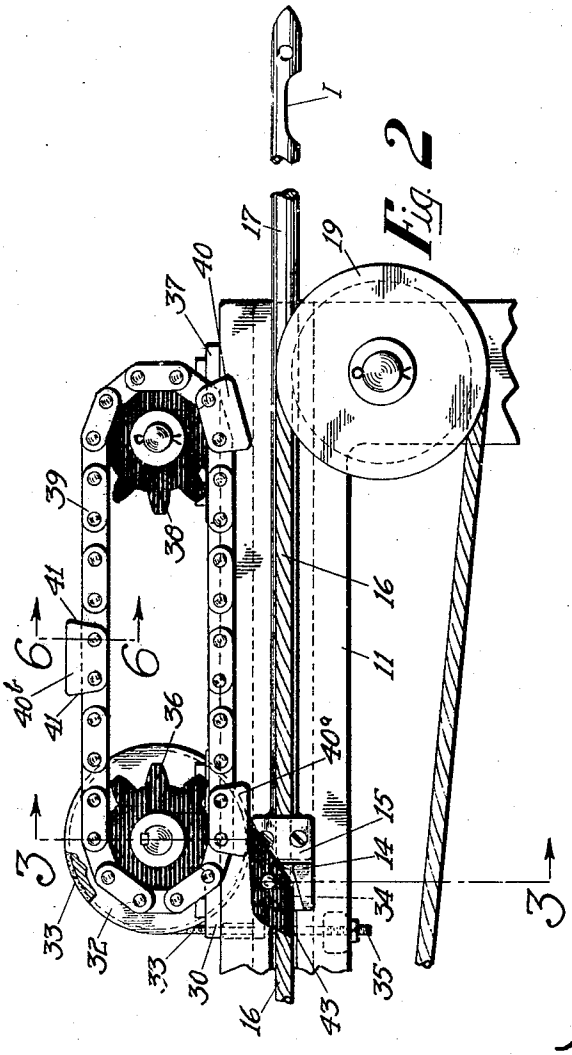


Fig. 2

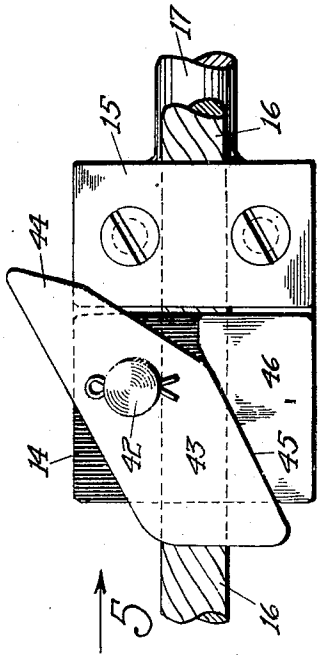


Fig. 4

Inventor
Everett E. Clark
Lowthorpe Fay & Hardy.
Attorneys

Patented July 30, 1929. 1,722,837

UNITED STATES PATENT OFFICE.

EVERETT E. CLARK, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

CHECK FOR AXMINSTER-LOOM-NEEDLE MOTION.

Application filed November 30, 1925. Serial No. 72,125.

This invention relates to improvements in needle motions for wide Axminster looms and it is the general object of the invention to improve such motions so as to permit a higher production than has been possible heretofore.

In Axminster looms the needle motion and the selvage forming shuttle are located at opposite sides of the loom, and the needle is formed with an open eye through which the nose of the selvage shuttle passes when the needle is in the shed. Where the loom is wide and the needle is running at a relatively high rate of speed there is a tendency to rebound with the result that the eye in the needle does not register with the selvage shuttle. This causes a defective selvage and it is a further object of my invention to prevent this objectionable rebounding of the needle by applying a gradual check operative to bring the needle to rest in proper position.

It is a further object of my invention to provide a continuous check having a plurality of abutments to cooperate with a part moving with the needle.

With these and other objects in view which will appear as the description proceeds, my invention resides in the combination and arrangement of parts hereinafter described and set forth in the claims.

In the accompanying drawings wherein I have shown a convenient embodiment of my invention,

Fig. 1 is a rear elevation of a needle motion as applied to a wide Axminster loom and showing my invention applied thereto with the needle at the inner end of its stroke,

Fig. 2 is an enlarged rear elevation of a portion of Fig. 1 showing the needle on its return stroke,

Fig. 3 is a vertical section on line 3—3 of Fig. 2,

Fig. 4 is an enlarged rear elevation of the pivoted dog and carrier for the needle looking in the direction of arrow 4, Fig. 3,

Fig. 5 is an end elevation looking in the direction of arrow 5, Fig. 4, and

Fig. 6 is an enlarged vertical section on line 6—6 of Fig. 2.

Referring to the drawings it will be seen that I have provided an end frame 10 extending laterally from the loom and on which is mounted a needle rail 11 provided with a groove 12 of dovetail form to receive a shoe 13 rigid with a needle carrier 14. The latter has secured thereto a cap 15 between which and the carrier 14 is clamped a flexible cord or cable 16. Secured to and movable with the carrier is a longitudinally movable member shown herein as a needle 17 the inner end of which is formed with an open eye I.

The cable 16 passes over sheaves 18 and 19 located respectively at the outer and inner ends of the needle rail 11 and the ends of said cable are secured to a drum 20 pivotally mounted as at 21. A pinion 22 is rigid with the drum and meshes with a segment 23 pivoted as at 24 and receiving reciprocating motion from a pitman arm 25 connected to the segment as at 26. The arm 25 is moved back and forth by a crank mechanism not shown and moves the segment 23 to the right when the needle is moving inwardly and moving the segment to the left when the needle is withdrawn. The matter thus far described is of common construction and forms no part of my present invention.

In carrying out my improvements I bolt a stand 30 to the needle rail and provide a shaft 31 freely movable thereon, one end of said shaft having keyed thereto a friction head 32. Said friction head cooperates with a friction band 33 one end of which is anchored at 34 to a fixed stud and the other end of which is attached to the needle rail by an adjustable connection 35. The other end of shaft 31 has keyed thereto a sprocket 36 motion of which is resisted by the friction band and head. A second stand 37 is secured to the needle rail and has pivotally mounted thereon a second sprocket 38 substantially the same as sprocket 36.

A chain 39 is passed around the sprockets and is provided with a plurality of abutments formed as special links, three of which are indicated on the drawings at 40, 40^a, and 40^b. Each of said links is provided with oblique faces 41 which are disposed at equal angles with respect to the central axis of the link perpendicular to the chain.

The needle carrier 14 has extending rearwardly therefrom a stud 42 on which is mounted for free pivotal motion a dog 43 which as shown in Figs. 4 and 5 terminates in a wedge shaped end 44 proportioned to engage the chain abutments or special links,

Said dog is further provided with a face 45 positioned for engagement with a ledge 46 extending rearwardly from the needle carrier 14 to limit counterclockwise movement of said dog.

In operation the needle carrier 14 will start from the left hand end of the needle rail as shown in Fig. 1 and will move toward the right until the upwardly extending end of the dog 43 engages special link 40 after which continued motion of the needle will be resisted by the friction existing between the head 32 and the friction band 33. At the end of its inner stroke, therefore, the needle will be pulled positively by the cable against the restraint imposed by the friction element with the result that the needle comes to rest gradually due to the crank motion of the arm 25 and has little if any tendency to rebound.

As link 40 moves to the position shown in Figs. 1 and 2 link 40[a] will move to the position previously occupied by link 40 to be in position to engage the dog on its next inward stroke. By means of the adjustment 35 the degree of checking may be varied so as to bring the needle to rest without subjecting the cable to undue stretching. As the needle is withdrawn the upper part of the dog will be engaged by link 40[a] and moved to the full line position shown in Fig. 2 to permit the carrier to pass from the friction element without causing movement of the latter. Because of the fact that the heavier part of the dog is to the left of the stud 42 said dog will be held in the position shown in Fig. 4 by gravity.

Although I have shown my checking device as applied to an Axminster loom, yet it is equally applicable to the wire motion of a Wilton loom, and the longitudinally movable member mentioned in the claims may be either the needle of an Axminster loom or the wire of a Wilton loom.

From the foregoing it will be seen that I have provided means for checking the needle at the end of its stroke and that the checking may be varied by means of the adjustment of the friction band.

Having thus described my invention it will be apparent that changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope of the invention, and I do not wish to be limited to the details herein disclosed but what I claim is:

1. In a needle motion for Axminster looms, a needle rail, a needle carrier movable on the rail, a friction element located adjacent the needle carrier and having a plurality of projections, and means mounted on the carrier to engage said projections successively.

2. In a needle motion for Axminster looms, a needle rail, a needle carrier movable on the rail, a friction element mounted adjacent the path of the carrier and including a continuous flexible member, and means to establish connection between the carrier and the continuous member at a plurality of spaced points.

3. In a needle motion for Axminster looms, a needle rail, a needle carrier movable along the rail, a friction element including a continuous flexible member, and means to establish connection between the needle carrier and the continuous member when the needle is moving in one direction at a plurality of spaced points to move said member in one direction only, the connection between the carrier and the member being ineffective to move the latter when the needle carrier is moved in the opposite direction.

4. In a needle motion for Axminster looms, a needle rail and a needle movable therealong, a dog moving with the needle, a friction element having a plurality of spaced portions each movable into the path of the dog, the dog being operatively connected to the friction member when the needle is moving in one direction to check the motion of the needle and being ineffective to cause motion of the friction element when the needle is moving in the opposite direction.

5. In a needle motion for looms, a needle rail, a needle carrier movable on the rail, a pivoted dog mounted on the carrier, a friction element having portions thereof located in the path of the dog to engage and be moved by the dog as the needle nears the end of its stroke.

6. In a needle motion for looms, a needle rail, a needle carrier movable along the rail, a dog pivoted on the carrier, a plurality of spaced projections movable together against friction one of which is located in the path of the dog as the needle nears the limit of its stroke, the projection being spaced so that as the needle nears the end of its stroke another projection spaced from the one in contact with the dog will be brought into position to be engaged by said dog on the next similar stroke of the needle.

7. In a needle motion for Axminster looms, a needle rail, a carrier movable along the rail, a needle mounted on the carrier, means to move the carrier and needle along the rail to cause said needle to move into and out of the shed of the loom, a friction element adjacent the rail, a member movable relatively to the carrier and movable therewith to have operative relation with the friction element until the needle finishes its movement into the shed and at such times only as the needle is being inserted into the shed to resist the last part of the movement of the needle into the shed, said needle when moving out of the shed being disconnected from the friction element.

8. In a loom, an elongated member to be moved into and out of the shed of the loom, a guide rail, a carrier for the elongated member, means to move said carrier on the rail

to move said elongated member into and out of the shed of the loom, a friction element mounted adjacent to the rail and having relatively fixed and movable parts, and means to establish connection between the movable part and the carrier and to maintain such connection until the needle finishes its movement into the shed and at such times only as the elongated member is moving into the shed, to resist the last part of the movement of the elongated member into the shed, said carrier and the movable part in the friction element being disconnected while the elongated member is moving out of the shed.

In testimony whereof I have hereunto affixed my signature.

EVERETT E. CLARK.