A. E. RHOADES.

LOOP BANDING MACHINE.

APPLICATION FILED NOV. 1, 1909.

953,293.

Patented Mar. 29, 1910.

Fig: 1.

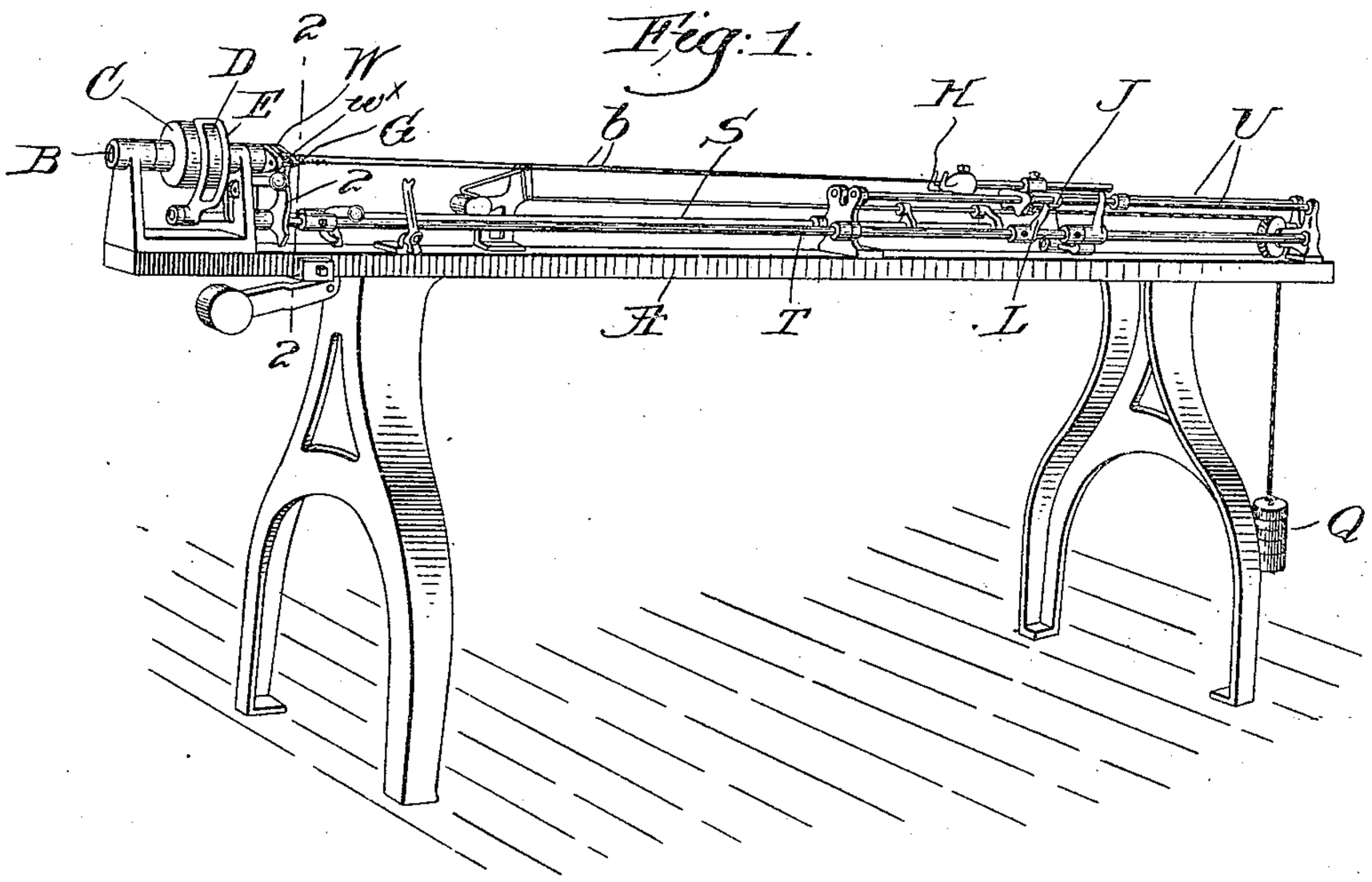


Fig: 2.

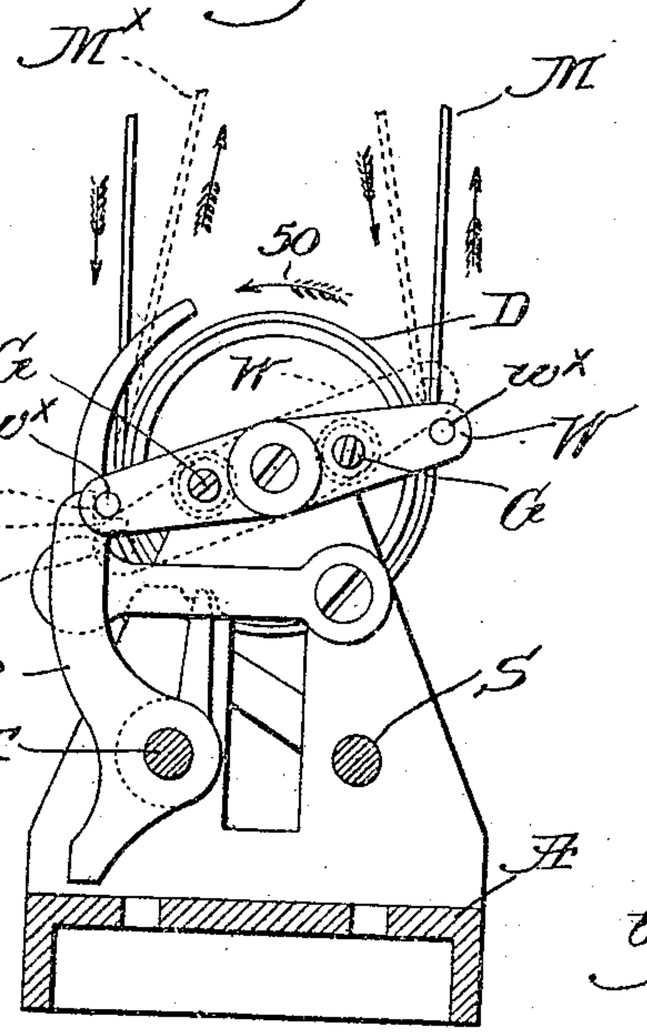
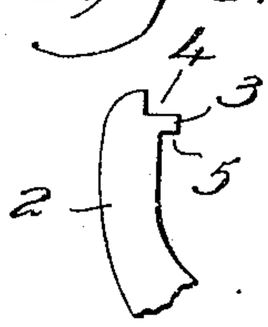


Fig: 3.



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UNITED STATES PATENT OFFICE.

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LOOP-BANDING MACHINE.

953,293. Specification of Letters Patent. **Patented Mar. 29, 1910.**

Application filed November 1, 1909. Serial No. 525,691.

To all whom it may concern:

Be it known that I, ALONZO E. RHOADES, a citizen of the United States, and resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Loop-Banding Machines, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to machines for making loop-bands used in spinning and other apparatus, and it has for its object the production of simple means whereby in one and the same machine the twisting of the bight of the loop can be effected with either a right-hand or a left-hand twist, as desired.

Ordinarily apparatus of the character referred to is arranged to make loop-bands with a right-hand twist, as in United States Patent No. 790,458 granted to me May 23, 1905, but some users of loop-bands desire to have them with a left-hand twist, and so far as I am aware such bands have heretofore been made only on banding machines capable of making the left-hand twist only.

By a very simple change in one part of the loop-banding machine of the general character illustrated in my patent above referred to I am enabled to produce loop-bands with either twist, thereby doubling the scope of the machine.

To those familiar with the art in question it will be understood that the length of yarn which is to form the loop-band is carried around a hook on a movable carriage and such length of yarn is attached at each end to twisting hooks rotatably mounted on a revoluble head. The twisting-hooks are first rotated to put in the initial twist, the head being held from movement, and then said head is released and revolved to complete the operation, the bight of the loop-band being held on the hook on the carriage. Given a certain direction of rotation for the twisting-hooks and the revoluble head to produce a right-hand twist in the loop-band it will be apparent that such direction of rotation must be reversed to produce a loop-band with a left-hand twist. This is accomplished by my present invention, the novel features of which will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a perspective view of a banding machine such as illustrated in my prior patent, with my present invention embodied therein; Fig. 2 is an enlarged transverse sectional detail thereof on the line 2—2, Fig. 1, looking toward the left, certain of the parts in full lines showing the arrangement for a right-hand twist, the arrangement for a left-hand twist being shown by the dotted lines; Fig. 3 is a detached view of the stop for the revoluble head.

In Fig. 1 the bed A, shaft B with fast and loose pulleys C and D; the revoluble head W carrying the twisting-hooks G, G, see Fig. 2, which hooks are driven by usual gearing in the head; the fixed guide-rods U on which the carriage J slides, and the so-called loop-band hook H mounted on the carriage; the shipper-rod S and belt-fork E, arm L and weight Q, are all substantially as in my patent referred to and operate as therein set forth. The stop I in said patent is mounted on the rock-shaft or rod T and is arranged to engage and prevent rotation of the revoluble head W while the initial twist is being imparted to the two halves of the band prior to doubling, the stop having its upper end slightly recessed to receive one of the usual stop-pins $w^{\times}$, Fig. 2, which connect the outer ends of the cheek-pieces which form the head W. By such arrangement the stop, when its recessed end is moved into the path of one of the pins, will arrest the revolution of the head, but manifestly only when the direction of rotation of the head is such that a pin is moved toward the end of the stop, for if the head revolves in the opposite direction the pins will merely wipe over and past the inner edge of the stop and the latter will perform no function.

Referring to Figs. 2 and 3 the stop, in the present embodiment of my invention, is made as an arm 2 fast on the rod or shaft T and upturned therefrom in front of the head W, the upper end of said arm having a rearwardly extended lug 3 which forms one side of each of two notches or recesses 4, 5, the former at the top and the latter at the bottom of said lug, either notch being adapted to receive one of the stop-pins $w^{\times}$ of the head.

Referring now to Fig. 2 the driving belt M, shown as an open belt, is supposed to be rotating the shaft B in the direction of arrow 50, and the stop 2 is operatively po-

sitioned to cause the notch 4 to receive one of the pins $w^{\times}$ of the head W, as shown in full lines, said pin pressing against the top of the lug 3. The rotation of the head is thus stopped, while by means of the usual gearing the hooks G, G are rotated to put the twist in the two sides of the loop-band *b*, Fig. 1, and when such twist has been completed the stop 2 is retracted and the head released and permitted to revolve in the direction of arrow 50, Fig. 2, to twist together with a right-hand twist the two sides of the loop-band.

So far the operation is practically the same as is carried out in the machine shown in my prior patent, but I will now describe the operation when a band with a left-hand twist is required.

The driving belt M is slipped off the pulleys and crossed, as at $M^{\times}$, see dotted lines Fig. 2, and replaced on the pulleys, so that the direction of rotation of the shaft B will be reversed, or opposite to the arrow 50, and the head W will revolve in the same direction until stopped. When the stop 2 is moved into operative position the lug 3 will extend into the path of movement of a pin $w^{\times}$ as it moves upward from its lowest point, and such pin will enter the notch 5 and abut against the under side of the lug 3, as shown in dotted lines Fig. 2, thereby stopping the rotation of the head. Remembering that the direction of rotation of the twisting-hooks G, G will be reversed by the rotation of the shaft B oppositely to the arrow 50 it will be apparent that when the head is held from rotating the hooks will put an initial left-hand twist into the sides of the band, and when the stop 2 is retracted the head will revolve opposite to the arrow 50 and complete the twisting with a left-hand twist. Thus by a slight change in the stop to enable it to stop the rotation of the revoluble head W in either direction, and by reversing the direction of rotation of the shaft B, the machine can make loop-bands with right or left-hand twist as desired, the stop adapting itself automatically to the direction of rotation of the head, as will be obvious. Movement of the stop into and out of operative position is effected by or through the rod T in the usual manner. The change of the driving belt from open to crossed position, or vice versa, provides a very simple and effective means for reversing the rotation of the shaft B, but such reversal is made effective only by a double-acting stop to coöperate with the head and stop rotation thereof whatever be the direction of rotation of the same.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a loop-banding machine, a revoluble head having twisting members rotatably mounted thereon, means to revolve the head and said members bodily or to rotate said members relatively to the head, in either direction, to impart a right or a left hand twist to the band, and a device to engage and stop the revolution of the head in either direction, said device having two separate engaging portions one of which acts to stop the head when revolving in one direction while the other of said engaging portions acts when the head is revolving in the opposite direction, rotation of the twisting members during such stoppage of the head effecting the initial twisting, and bodily revolution of said head and twisting members effecting the final twisting or doubling, of the band.

2. In a loop-banding machine, a head revoluble in either direction, means carried thereby to impart the initial twist, right or left hand, to the band when the head is at rest, and a double-acting stop having separate and oppositely arranged engaging portions to temporarily engage and arrest the revolution of the head, one of said portions acting to arrest right-hand revolution and the other to arrest left-hand revolution of the head.

3. In a loop-banding machine, a head revoluble in either direction and provided with stop-pins, twisting hooks rotatably mounted in the head, to impart the initial twist to the band when the head is at rest, and a stop-arm having a pin-engaging lug and provided with notches above and below the lug, to engage a stop-pin and restrain the head from revolving during the initial twisting of the band, one of the stop-pins entering the upper notch and abutting against the top of the lug when the head is revolved in one direction and entering the lower notch and abutting against the bottom of the lug when the head is revolved in the opposite direction.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ALONZO E. RHOADES.

Witnesses:
G. L. Bell,
E. D. Osgood.