(No Model.)

A. WHITE & D. F. SULLIVAN.

STOP MOTION FOR CIRCULAR KNITTING MACHINES.

No. 588,760. Patented Aug. 24, 1897.

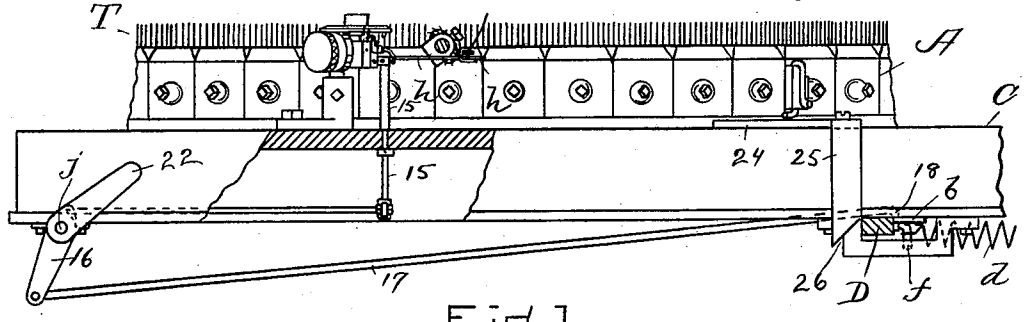


Fig. 1

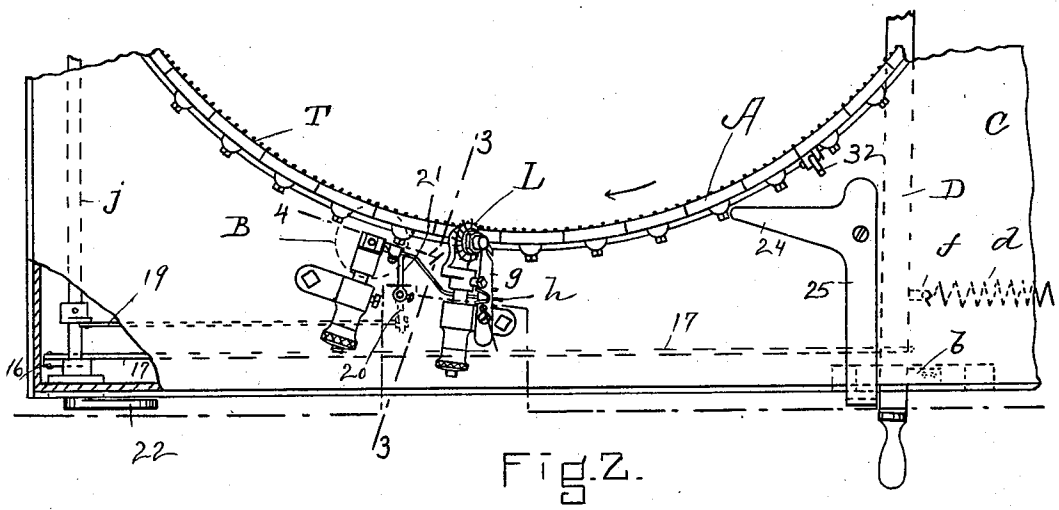


Fig. 2.

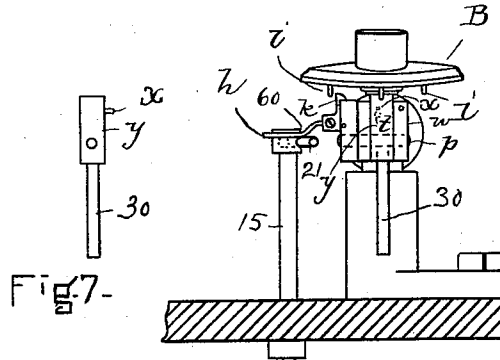


Fig. 7.

Fig. 4.

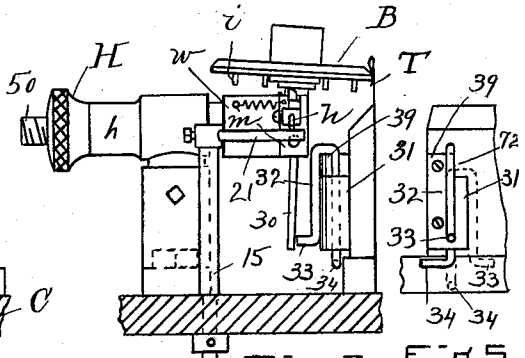


Fig. 3. Fig. 5.

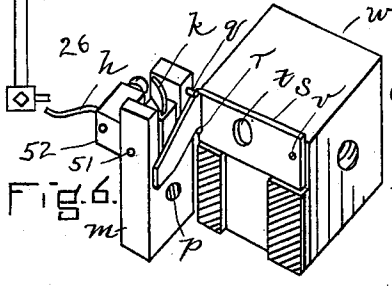


Fig. 6.

WITNESSES.

T. M. Shute

C. W. Wilbur.

INVENTORS

Albert White and

Daniel F. Sullivan

By O. M. Shute

ATT'Y.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALBERT WHITE AND DANIEL F. SULLIVAN, OF LOWELL, MASSACHUSETTS; SAID SULLIVAN ASSIGNOR TO MARY SULLIVAN, OF SAME PLACE.

STOP-MOTION FOR CIRCULAR-KNITTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 588,760, dated August 24, 1897.

Application filed December 11, 1896. Serial No. 615,292. (No model.)

To all whom it may concern:

Be it known that we, ALBERT WHITE and DANIEL F. SULLIVAN, of Lowell, county of Middlesex, and State of Massachusetts, have invented certain new and useful Improvements in Stop-Motions for Circular-Knitting Machines, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an elevation, partly in section, of a portion of the bed of a circular-knitting machine, showing our invention; Fig. 2, a top plan view of the same; Fig. 3, a vertical transverse section taken on line 3 3 in Fig. 2 and looking toward the left; Fig. 4, an elevation looking from the right in Fig. 3; Fig. 5, a detail elevation showing the trip carried by the needle-cylinder; Fig. 6, a sectional perspective enlarged showing the presser-wheel-locking mechanism; Fig. 7, an elevation of the presser-wheel support.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

Our invention is designed especially as an improvement on the device shown and described in our pending application for United States Patent, Serial No. 606,121, filed September 17, 1896.

The particular object of our present invention is to provide means for supporting the drop-wire so that it will not fall when the ordinary hand-shipper is employed to stop the machine, or the stop-motion in common use, which is actuated when an imperfection or hole occurs in the web.

The nature and operation of the improvement will be readily understood by those conversant with such matters from the following explanations.

In the drawings, A represents the needle-cylinder, C the bed of the machine, T the needles, and D the spring-pulled hand shipping-lever, these parts being all of the ordinary construction and arrangement.

On a spindle 50 there is mounted a block *w*, said spindle being adjustable by means of a star-box *h* in the usual manner. The rotary presser-wheel B, mounted to revolve on a support *y*, is pivoted at *p* to rock toward the needles in the block *w*. The support *y* of the presser has a pendent arm 30, and bears on its rear face a pin *x*, which normally engages the face of an angle-lever *s*, pivoted at *v* to swing vertically on the inner face of the block *w*, and in which there is a hole *t*, (see Fig. 6,) which may be brought to register with said pin *x* and release the presser from contact with the needles T. Mounted on the same pivot *p*, to swing in like direction, there is a support *m*, in which a block 52 is pivoted at 51 to rock at right angles to the direction of said block *m*. This block 52 carries a blade *k*, which may be thrown into the path of projections *i* on the under face of the presser-wheel D. The drop-wire *h* is supported from the tilting block 52 and has a shoulder 60 thereon, (see Fig. 4,) said drop-wire being extended and passing under the looper-support L, where it rests upon the thread below the thread-guide *g*. On the block *m* there are two pins *q r*, which engage, respectively, the upper and lower edges of free arm of the angle-lever *s* and actuate said lever when the block *m* is rocked outward by the engagement of the presser-wheel projections *i* with the blade *k*, so that the hole *t* shall register with the pin *x* on the presser-wheel support.

The mechanism thus far described is identical with that shown in the application above referred to and is not herein claimed specifically when in and of itself considered.

Journaled in the bed and running from the front to the rear thereof there is a rock-shaft *j*, on which there is a crank-arm 16, and a handle 22, by which said shaft may be rocked by hand to reset the device, as hereinafter specified. Pivoted to the outer end of crank-arm 16 there is a rod 17, which extends to and has its end hooked to overlap the hand-shipper D. This hand-shipper is pulled by a spring *d*, connecting with a boss *f* in the usual manner, and is held against the tension of said spring by a boss *b* on the bed, the parts being arranged so that by springing the shipper D

downward slightly it will pass under said boss *b* and permit the spring *d* to act.

Journaled in the bed adjacent the presser-wheel mechanism there is a vertically-arranged rock-shaft 15, on the upper end ridge of which there is a radially-projecting arm 21, designed to be carried under the shoulder 60 of the drop-wire *h* and support said wire. On the lower end of the rock-shaft 15 there is an arm 20, connected by a pivoted rod 19 with the main rock-shaft *j*.

On the needle-cylinder there is a tubular casing 31, vertically arranged and provided with a right-angle notch 72 or shoulder in its upper edge. Fitted to slide vertically in this tubular casing there is an inverted-U-shaped wire trip the ends of which, 33 and 34, are bent at right angles to the body of said trip and at right angles to each other. This trip is nominally disposed on the casing, at the top 39, at the edge of the depression or notch 72, the end 33 thereof being thus projected into the path of the pendent finger 30 of the presser-wheel bearing when said bearing has been released by the operation of the stop mechanism.

On the bed C there is arranged a horizontal swinging bell-crank lever, one arm 24 of which has its end arranged adjacent the needle-cylinder, whereby it may be struck by the end 34 of the trip 32 when said trip has been dropped into the notch 72. The opposite arm 25 of the bell-crank is bent downward over the front edge of the bed C at 25 and its lower end is beveled at 26 (see Fig. 1) to engage the hand-shipper D, when said bell-crank is actuated by the trip, and spring said shipper downward under the boss *b*, permitting spring *d* to act.

In the use of our invention normally the arm 21 on the vertical rock-shaft is out of contact with the drop-wire *h* and the foot 33 on the trip-arm 32 will pass the pendent arm 30 on the presser-wheel support as the cylinder rotates. When the shipper D is employed by hand to stop the machine and is thrown from left to right as viewed in Fig. 2, the connecting-rod 17 will rock the horizontal shaft *j* proportionately, and by means of the connection 19 the vertical rock-shaft is actuated correspondingly and its arm 21 thereby projected under the shoulder 60 of the drop-wire *h*, which prevents the falling of said wire as the thread slacks and the consequent releasing of the presser-wheel mechanism. This same action would also take place when the hand-shipper is operated by the ordinary stop-motion employed for imperfections or holes in the web. When the shipper is set again, it is necessary for the operator to rock shaft *j*, by means of the handle 22, by hand in order to release the drop-wire from the arm 21. When the thread breaks, letting the drop-wire fall and projecting the blade *k* into the path of the projections *i* on the presser, the block *m* is thrown inward, actuating the right-angle lever *s* and releasing the presser-wheel support, so that its pin will enter the hole *t* of said lever *s*. This operation is identical with that shown in the application above referred to, and the pendent arm 30 on the presser-wheel support is thereby thrown in position to engage the foot 33 of the trip 32, turning it so that it will drop into the notch 72 of its casing and assume the position shown by dotted lines in Fig. 5. As thus disposed, its foot 34 projects radially from the needle-cylinder, and at the completion of the next course or rotation of said cylinder said foot will engage the arm 24 of the bell-crank lever, rocking the same, so that its beveled end 26 will engage and throw the hand-shipper downward free of the boss *b*. Its spring *d*, now operating as before, moves said shipper to stop the machine and simultaneously rocks the vertical shaft 15, projecting the arm 21 thereon under the shoulder of the drop-wire, as before described.

Having thus described our invention, what we claim is—

1. In a circular-knitting machine a mechanism operated positively by a movement of the hand-shipper to project a support under the thread-supported drop-wire of the stop-motion.

2. In a stop-motion for circular-knitting machines a thread-supported drop-wire; movable presser-supporting mechanism; a trip on the needle-cylinder set by said mechanism; and mechanism operated by said trip for actuating the hand-shipper.

3. In a stop-motion for circular-knitting machines a thread-supported drop-wire; movable presser-supporting mechanism; a trip on the needle-cylinder set by said mechanism; mechanism operated by said trip for actuating the hand-shipper; and devices actuated by the movement of said shipper for projecting a support under said drop-wire.

4. In a stop-motion for circular-knitting machines, a presser release mechanism embodying a thread-supported drop-wire, in combination with a hand-shipper, a rock-shaft actuated by the movement thereof; and a support projected under said drop-wire by the rocking of said shaft, substantially as described.

5. The trip on the needle-cylinder, the hand-shipper, and the lever actuated by said trip for releasing said shipper, in combination with the movable presser-support having a projection adapted to engage and set said trip, substantially as specified.

6. In a circular-knitting-machine stop-motion embodying a thread-supported drop-wire, a hand-shipper and mechanism operated thereby for projecting a support under said drop-wire to prevent it releasing said stop mechanism.

ALBERT WHITE.
DANIEL F. SULLIVAN.

Witnesses:
O. M. SHAW,
T. M. SHUTE.