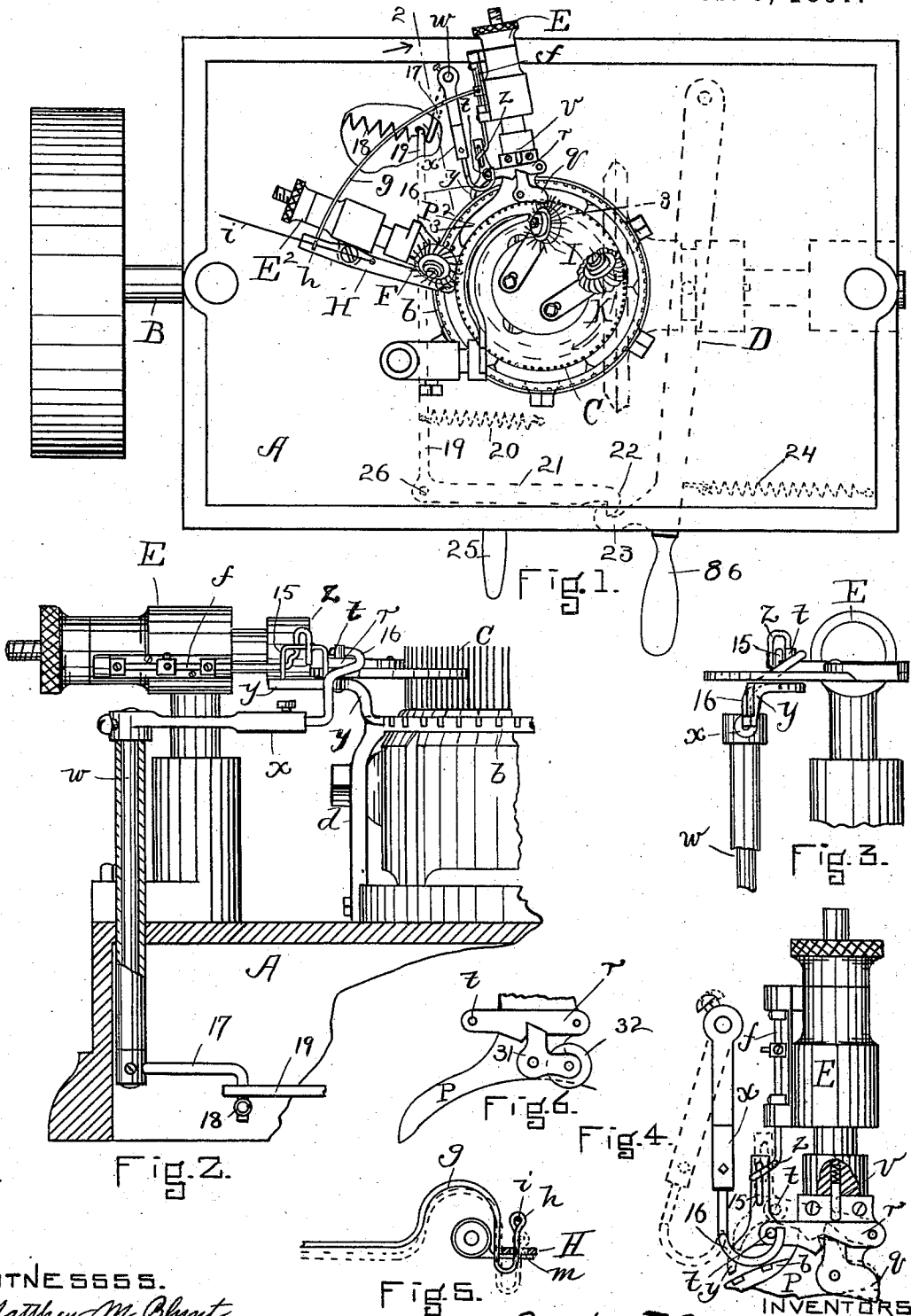


(No Model.)

D. F. SULLIVAN & A. WHITE.  
STOP MOTION FOR CIRCULAR KNITTING MACHINES.

No. 576,987.

Patented Feb. 9, 1897.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## STOP-MOTION FOR CIRCULAR-KNITTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 576,987, dated February 9, 1897.

Application filed May 18, 1896. Serial No. 592,034. (No model.)

*To all whom it may concern:*

Be it known that we, DANIEL F. SULLIVAN and ALBERT WHITE, of Lowell, in the county of Middlesex, State of Massachusetts, have  
5 made 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  
10 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 part of this specification, in which—

Figure 1 is a top plan view of a knitting-machine of ordinary form in this class provided with our improvement; Fig. 2, a vertical transverse section of the same on line 2 2; Fig. 3, an elevation on line 3 3; Fig. 4, an elevation of the thread-carrying arm; Fig. 5, a  
20 plan view, enlarged, showing details of the presser and its releasing mechanism; and Fig. 6, a plan illustrating a modification.

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

Our invention relates especially to a stop-motion for circular spring-needle knitting-machines which is actuated by the breaking of the thread, and to mechanism whereby  
30 either the rotary or stationary presser is simultaneously disengaged from the needles as the cylinder is stopped, the object being particularly to so construct the presser-foot that, while it may be adjusted in proper position  
35 close under the loop-wheel, its heel portion can be thrown off and conjointly actuate the stop-motion.

The operation of the device will be understood by those conversant with such matters from the following explanation:

In the drawings, A represents the bed of the machine; B, the drive-shaft; C, the needle-cylinder; D, the ordinary hand shipping-lever of the stop-motion; E, the presser-foot-supporting bracket, and E<sup>2</sup> the supporting-bracket of the loop-wheel F, these parts being all of the usual form and construction.

The landing-wheel I and cast-off wheel K are in the usual position.

50 The thread-guide H on the bracket E<sup>2</sup> is extended outwardly and slotted at *m*. On the

bracket E a horizontal rock-shaft *f* is mounted, and fast on said shaft there is an arm *g*, which extends over the bracket E<sup>2</sup>, its end being turned vertically upward through the slot *m*  
55 in the thread-guide extension. This end is provided with an eye *h*, through which the thread *i* is passed. The arm is supported by the tension of the thread, and when said thread breaks the arm will fall and rock the  
60 shaft *f* correspondingly.

The presser P, adjustable on its bracket in the usual manner, is provided with a pivoted heel *q*, which is bell-crank in shape and has one arm engaging the needles. A latch *r* is  
65 pivoted on the presser and is notched to engage and lock the opposite arm of the heel, said latch being pushed inwardly by a spring-pushed pin *v*.

Outside the cylinder C there is a notched  
70 ring *b*, supported by standards *d* on the cylinder.

In the free end of the latch there is an upwardly-projecting pin *t*, on the lower end of which a dog *y* is pivoted. This dog is offset  
75 downwardly, which places its toe in position to be engaged in the notches of said ring. On the inner end of the shaft *f* there is a hook-shaped arm or offset *z*, which loops over a staple 15 on the outer end of the dog, and  
80 whereby when the shaft is rocked by the dropping of the arm *g* when a thread breaks, as hereinafter described, the dog will be thrown into the path of the ring.

In the frame there is a vertical rocking  
85 spindle *w*, provided with a horizontal arm *x* on its upper end, which is extended vertically and looped around the pin *t* at 16 on the latch *r*. On the lower end of the spindle there is an arm 17, offset downwardly and connected  
90 to the frame by a pull-spring 18. The pin *t* on the latch serves as a lock for the spindle against the rotation by spring 18.

An arm 19 of a bell-crank, pivoted in the frame at 26, engages the lower arm 17 on the  
95 spindle *w* and is pulled by a spring 20 of less strength than the spring 18. The opposite arm of this bell-crank 21 has a hinged latch 22, which is normally engaged in a hook 23 on the shipping-lever D, holding it against the  
100 tension of a pull-spring 24, connecting it with the frame, and tending to operate the shipper

and stop the machine. The bell-crank has a handle 25 and the shipping-lever a handle 86, whereby they may be disconnected by hand and the shipper thus operated when necessary.

In the use of our improvement, when a thread breaks and permits the wire arm *g* to drop, the shaft *f* is rocked thereby and drives the dog *y* from left to right, as viewed in Fig. 1, which will cause it to engage in the ring *b*, carried by the cylinder. As said cylinder is rotating in the direction indicated by the arrow, the dog is forced outward by the ring, disconnecting the arm 16 from the pin *t*. This permits the spring 18 to act and rock the spindle *w*, driving the arm 19 of the bell-crank from right to left and disengaging the latch 22 from the hook-arm of the shipping-lever. The spring 24 immediately acts to throw said lever and stop the machine. Simultaneously with the release of the pin *t* from the arm 16, as described, the dog being moved back by the ring carries the latch *r* outward on its pivot against the pressure of the spring-pin *v*, and thereby releases the heel *q* of the presser and frees the needles.

It will be seen that by the use of our mechanism the presser-release and the stop-motion are actuated conjointly, preventing imperfect work and breaking of the needles. Instead of having the dog catch in the ring described, it may be made to engage the needles and thus operate the device, or the ring may be substituted by any suitable projection on the cylinder.

The bell-crank heel of the presser may be substituted by a wheel 32, (see Fig. 6,) mounted on a latch-arm, and produce substantially the same effect. By means of either of these

pivoted heels in a stationary presser the beards of the needles at the landing-wheel are pressed and the remainder of the presser closes the beards and keeps the stitch in proper place. This eases the pressure on the needles at the point of revolution where it is the hardest.

Having thus explained our invention, what we claim is—

1. The combination with the presser having a pivoted heel of a locking mechanism for said heel adapted to be released by the breaking of a thread whereby the tension of the heel on the needles is abated.

2. The combination with the cylinder of a presser having a pivoted heel; a locking mechanism therefor adapted to be released by the breaking of a thread; and a machine stop mechanism simultaneously released by the release of said locking mechanism.

3. The combination of the presser having the pivoted heel; the latch therefor; the rock-shaft bearing an arm carrying the thread to the cylinder; and a projection on the latch adapted to be thrown by the rocking of said shaft into the path of the cylinder substantially as and for the purpose specified.

4. The combination of the presser having the pivoted heel; a latch therefor; mechanism for releasing the latch when a thread breaks; a spring-actuated shipping-lever; a lock therefor; and devices connecting said lock and latch whereby they may be conjointly released.

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Witnesses:

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