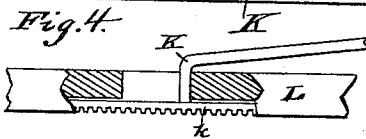
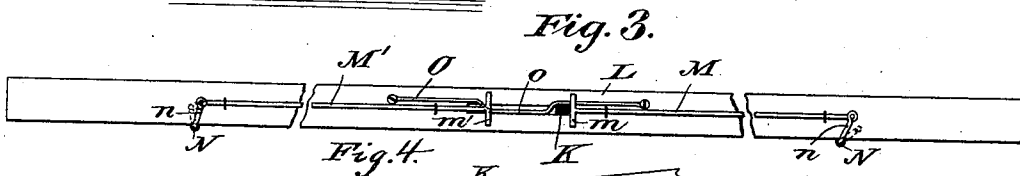
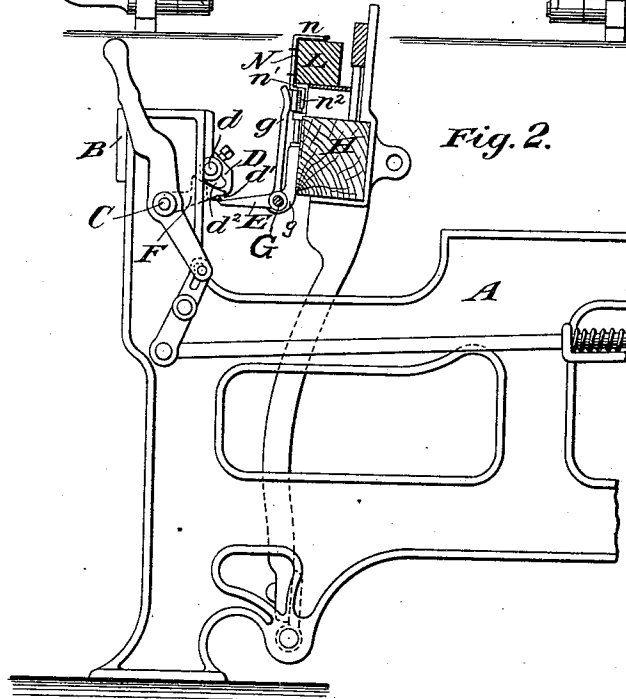
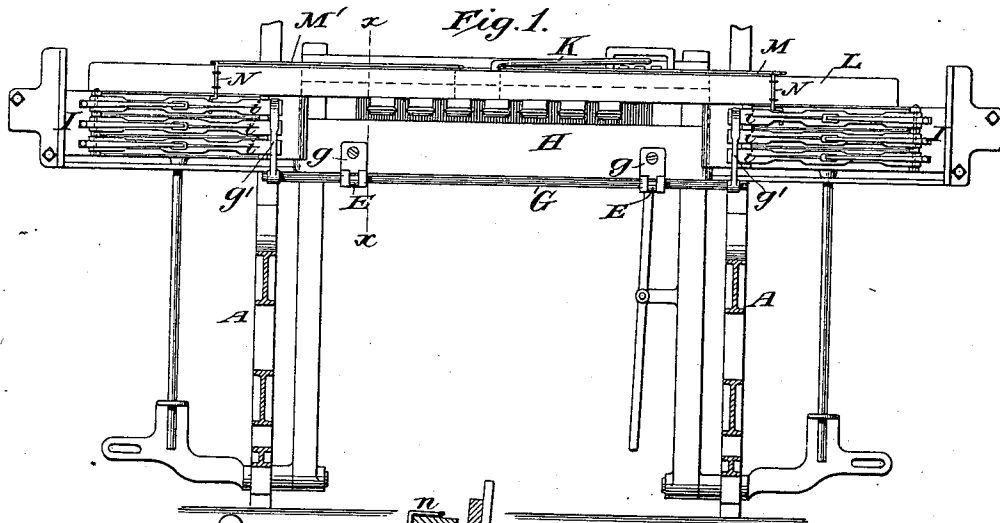


(No Model.)

W. J. LUTTON.
STOPPING MECHANISM FOR SWIVEL LOOMS.
No. 461,584. Patented Oct. 20, 1891.



Witnesses:-

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UNITED STATES PATENT OFFICE.

WILLIAM J. LUTTON, OF PATERSON, NEW JERSEY.

STOPPING MECHANISM FOR SWIVEL-LOOMS.

SPECIFICATION forming part of Letters Patent No. 461,584, dated October 20, 1891.

Application filed October 9, 1890. Serial No. 367,503. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. LUTTON, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful
5 Improvement in Stopping Mechanisms for Swivel-Looms, of which the following is a specification.

My invention relates to an improvement in safety attachments for looms, and more particularly to mechanism for stopping the operation of a loom in which swivel-shuttles are employed upon the failure of the shuttles to complete their stroke in either direction.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents a portion of a loom embodying my invention in front elevation, the breast-beam and portion of the main frame being removed. Fig. 2 is a partial end elevation showing the lay and mechanism attached thereto in transverse section through line *xx* of Fig. 1. Fig. 3 is a top plan view of the swivel-shuttle beam, a portion of the
25 arm for operating the swivel-shuttles being removed; and Fig. 4 is a partial side view of the swivel-shuttle beam, broken away to show the swivel-shuttle-operating bar.

The loom, portions of which I have represented in the accompanying drawings for the purpose of illustrating my invention, is of the drop-box type and is provided with swivel-shuttle mechanism supported upon the drop-boxes and adapted to rise and fall therewith,
35 so as to be brought into operation when the drop-boxes at the side are dropping out of operative position.

A represents the loom-frame; B, the breast-beam; C, the shipper-lever shaft, having connected with it any ordinary belt-shifting mechanism, and also a handle, by which said mechanism may be operated by hand.

D represents the knock-off lever, rigidly secured to a rock-shaft *d* and provided with a
45 notch *d'* to receive the thrust of a dagger E. There is also a cam *d*² secured to the rock-shaft *d*, which bears upon an arm F, secured to the rock-shaft C, in order to operate the belt-shipper shaft when the dagger strikes
50 the said notch *d'*. The several operative parts for shifting the belt which I have enumerated are well known in the art and are

illustrated in Letters Patent No. 376,776, granted to L. J. Knowles January 24, 1888.

The dagger or daggers E are fixed upon a
55 rock-shaft G, journaled in suitable bearings *g*, attached to the lay H. The rock-shaft G is provided at its opposite ends with arms *g'*, fixed thereto, the free ends of said arms extending upwardly opposite the free ends of
60 the spring-actuated covers *i* of the drop-boxes L. The position of the arms *g'* with relation to the drop-box covers is such that the covers of the set of drop-boxes in use will swing against them as the shuttle enters the box,
65 thereby rocking the shaft G, and hence the dagger E, so that it will not engage the notch *d'* in the knock-off lever D as the lay swings forwardly.

When the swivel-shuttle mechanism is supported upon the drop-boxes to rise and fall therewith, as represented in the accompanying drawings, the upper set of drop-boxes at the side will be thrown out of use for purposes of receiving shuttles, a series of swivel-
75 shuttles being arranged to take their place in the operation of weaving.

The swivel-shuttle mechanism which I have chosen for the purpose of illustrating my stop mechanism is quite similar to that shown and
80 described in my pending application, Serial No. 365,252, filed September 17, 1890, and need not be particularly described herein. The arm for operating the rack-bar *k*, which operates the shuttles, is here represented by K,
85 and has a vibratory movement relative to the swivel-shuttle beam L. My present invention comprises means whereby the back-and-forth movement of the rack-bar which drives
90 the swivel-shuttles will serve to rock the dagger into a position which will clear the belt-shifting mechanism so long as the swivel-shuttles complete their stroke, but which will, upon the failure of said shuttles to complete
95 their stroke, fail to so rock the dagger, and will thereby set in operation the belt-shifting mechanism to stop the loom.

A pair of sliding rods M and M' are secured to the swivel-shuttle beam and are subject to a limited sliding movement under the impulse of the swivel-shuttle-operating bar. In the present instance I have shown them in position to be engaged by the operating-arm K, fixed to the swivel-shuttle-operating bar;
100

but it is obvious that other well-known or suitable operating devices might be employed in lieu of the arm K to suit various structures or arrangements of the swivel-shuttle-operating bar. The adjacent ends m and m' of the sliding rods are here shown as provided with cross-heads, which, when the rods are in their normal positions, project a short distance over the ends of the path which arm K traverses. In Fig. 3 the end m' of the rod M' is shown in such normal position, while the end m of the rod M is shown as forced back by the engagement of the arm K therewith. At their opposite ends the rods M and M' are connected with the end of an arm n of a double crank N , secured to the side of the beam L , so as to rock the said double crank, forming in effect a rocking lever. The other arm n' of the double crank is provided with a pin n^2 , which, when the said crank N is rocked in one direction, will engage the spring-actuated cover i of the upper drop-box and force it outwardly against the arm g' , and thereby throw the dagger, as hereinbefore stated, into a position to clear the belt-shifting mechanism. The said double crank is rocked back when the operating rod M or M' is released by means of the pressure of the spring-actuated cover i tending to return to its closed position. Such movement of the double crank N serves to set the operating rod M or M' into position to be engaged by the arm K. From this construction and arrangement it follows that when the arm K completes its stroke in either direction, and hence when the swivel-shuttles complete their stroke in either direction, the dagger E will be thrown so as to clear the belt-shifting mechanism; but if the arm K, and hence the swivel-shuttles, fail to complete their stroke in either direction the crank N will not be rocked sufficiently to throw the spring-actuated cover i into engagement with the arm g' to rock the dagger clear of the belt-shifting mechanism, and it will therefore engage such mechanism and the loom may be stopped.

In order to prevent the swivel-shuttles from displacement, either under the tension of the spring-actuated cover i or from other cause, after the arm K has completed its stroke and before it is positively forced in the opposite direction, I provide a spring O , the central portion o of which is adapted to rest normally across the path of the arm K, but which will

readily recede when the arm K is intentionally forced from one end of its stroke to the other.

What I claim as my invention is—

1. The combination, with swivel mechanism and mechanism for stopping the operation of a loom, of a sliding rod intermediate of the swivel-shuttle-operating bar and the mechanism for stopping the loom, said sliding rod being subject to the impulse of the swivel-shuttle-operating bar to prevent the stopping of loom when the shuttles complete their stroke, substantially as set forth.

2. The combination, with the bar for operating the swivel-shuttles and a rocking arm adapted to set in motion the loom-stopping mechanism, of a sliding rod subject to the impulse of the swivel-shuttle-operating bar, a rocking lever, and connections intermediate the rocking lever and rocking arm for communicating the movement of the sliding rod to the said rocking arm to prevent the stopping of the loom when the swivel-shuttles complete their stroke, substantially as set forth.

3. The combination, with the swivel-shuttle beam, the bar for operating the swivel-shuttles, and rocking arms for setting in motion the loom-stopping mechanism, the swivel-shuttle-operating bar being provided with an arm fixed thereto, of sliding rods secured to the swivel-shuttle beam in position to engage the arm on the operating-bar at the opposite ends of its stroke, spring-actuated drop-box covers, connections intermediate the spring-actuated covers, and the rocking arms and cranks connected with the opposite ends of the rods in position to operate the spring-actuated covers to prevent the stopping of the loom when the swivel-shuttles complete their stroke, substantially as set forth.

4. The combination, with the swivel-shuttle-operating bar, its support, and the devices for communicating the motions of the bar to a loom-stopping mechanism, of a spring adapted to hold the swivel-shuttle-operating bar at the limits of its stroke in either direction against unintentional displacement, substantially as set forth.

WILLIAM J. LUTTON.

Witnesses:

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