

(No Model.)

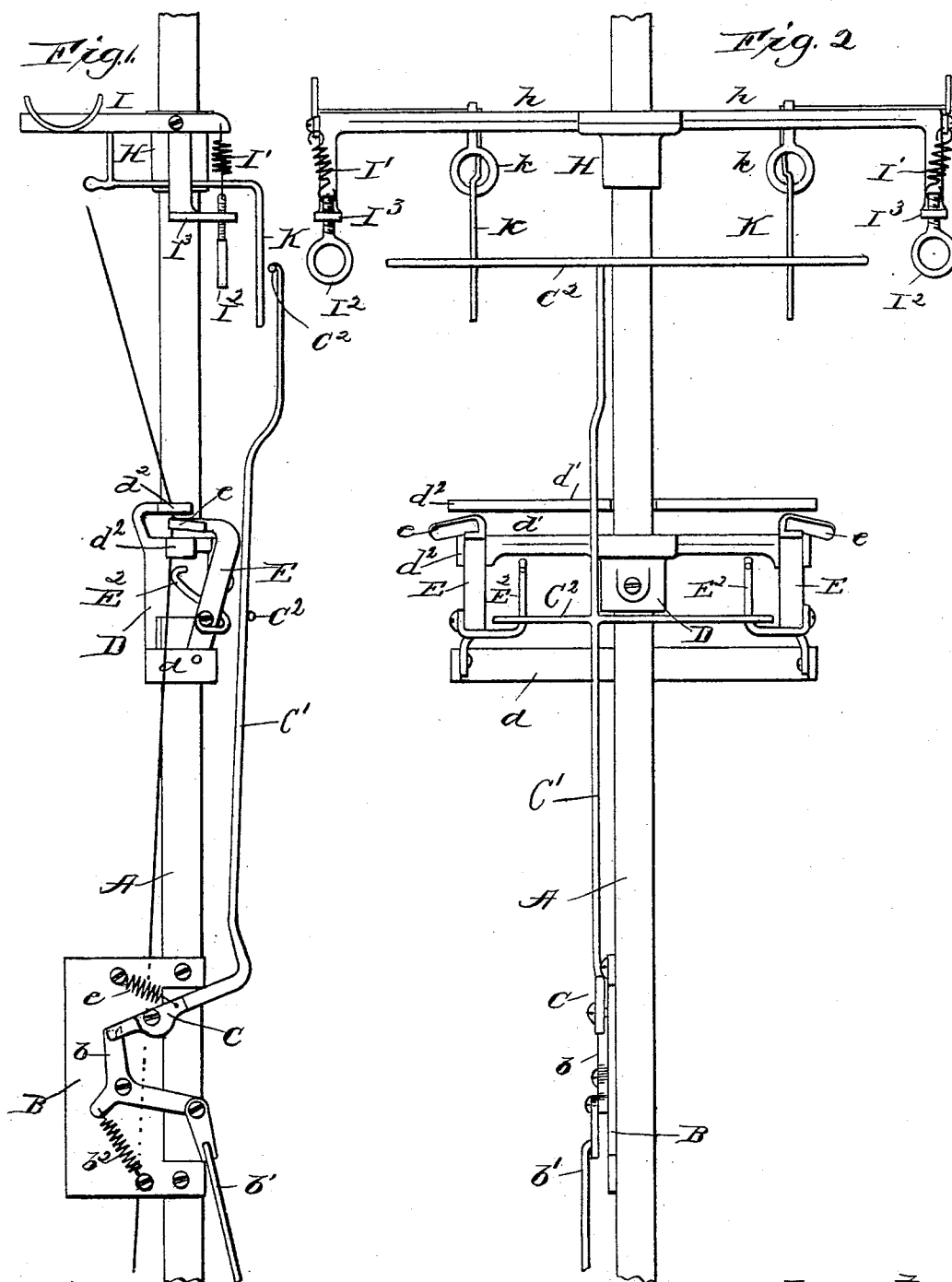
2 Sheets—Sheet 1.

S. CREAGER.

STOP MOTION FOR KNITTING MACHINES.

No. 569,324.

Patented Oct. 13, 1896.



Witnesses:

J. M. Fowler Jr.
Thomas Quant

Inventor
Samuel Creager
by Charles & Church
his Attorneys.

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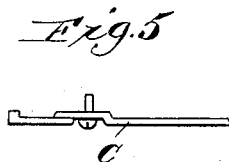
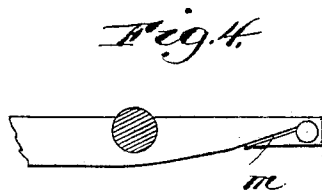
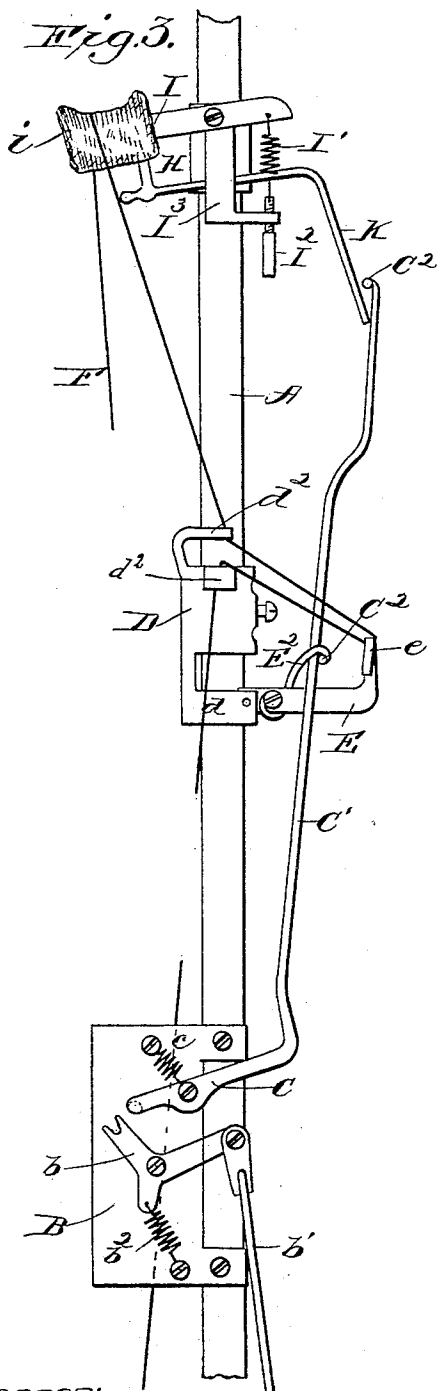
2 Sheets—Sheet 2.

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STOP MOTION FOR KNITTING MACHINES.

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Patented Oct. 13, 1896.



Witnesses:

J. M. Fowler Jr.
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UNITED STATES PATENT OFFICE.

SAMUEL CREAGER, OF HAGERSTOWN MARYLAND, ASSIGNOR OF ONE-HALF
TO CHARLES S. EMMERT, OF SAME PLACE.

STOP-MOTION FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 569,324, dated October 13, 1896.

Application filed February 7, 1896. Serial No. 578,382. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL CREAGER, of Hagerstown, in the county of Washington, State of Maryland, have invented certain new and useful Improvements in Stop-Motions for Knitting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to stop-motions such as are particularly applicable to knitting-machines, and it has for its object to provide a simple mechanical device which may be readily applied to any of the ordinary knitting-machines now in use, and which will insure automatically an instantaneous stopping of the machine either when the yarn breaks or when the tension on the same becomes too great to permit the machine to operate normally.

With these objects in view the invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be now described, and pointed out particularly in the appended claims.

Referring to the accompanying drawings, Figure 1 is a side elevation of a stop mechanism constructed in accordance with my present invention, the knitting mechanism and power mechanism, together with the shifting connection or clutch controlled by the stop mechanism, being omitted. Fig. 2 is a view at right angles to Fig. 1. Fig. 3 is a similar view to Fig. 1, showing the yarn broken and the parts in their operated position. Figs. 4 and 5 are details of one of the eyes through which the yarn passes and the catch for holding the stop mechanism in its normal position.

Like letters of reference in the several figures indicate the same parts.

The letter A indicates a standard or rod which is adapted to be secured in place on the frame of any ordinary knitting-machine, and upon this rod I mount the entire operating mechanism for the stop-motion, which operating mechanism is adapted for one, two, or more yarns, if so desired, the structure

illustrated, however, being adapted for two yarns only. Near the base of the rod or standard I mount a bracket B, to which is pivotally connected the bell-crank *b*, having a rod *b'* for operating any of the ordinary belt-shifting or clutch mechanisms adapted to throw the knitting-machine into or out of operation. This bell-crank is spring-actuated or held by the spring *b²* in position to stop the machine, and in order to hold it in the opposite position or with the clutch or belt shifting mechanism in connection with the machine I provide a latch or catch C, which is pivotally mounted on the bracket B and adapted to engage the other arm of the bell-crank *b*, the engagement of these two members being maintained by a relatively light spring *c*. From the end of the latch C a long arm or rod *C'* projects up and at suitable intervals is provided with cross-arms *C²*, which latter are adapted to be struck by the tripping mechanism when the yarn breaks or the tension on the same becomes too great.

Above the bracket B and at the point approximately opposite the first arm *C²* the standard A is provided with a second bracket D, having cross-arms *d d'*, the upper arms *d'* being provided at their ends with eyes *d²*, through which the yarn passes, and between which arms the eye *e* on the pivoted trip E is adapted to pass. This trip E is pivotally mounted on the lower arm *d*, and it is so arranged with relation to its pivot that the force of gravity tends to normally cause the same to drop to the position indicated in Fig. 3, but its vertical position is maintained by the yarn F, which passes from the bobbin or cop through the three eyes *d²* and *e* up over the tension device to be presently described.

The arm *C²* on the rod *C'* projects in proximity to the trip E, and the trip E is provided with a curved operating-arm *E²*, which strikes the cross-arm *C²* when the trip is released by the breaking of the yarn and causes the pivoted retaining-latch to release the clutch or belt shifter and stop the machine, the relative positions of the parts in their normal and abnormal positions being shown in Figs. 1 and 3, respectively.

In order now that the machine may be brought to rest if the tension on the yarn becomes too great, I provide the rod or standard A with a third bracket H, to the ends of oppositely-projecting arms *h* of which there are pivoted tension-bars I, having at one end a wiper, formed, preferably, of wire bent to semi-circular form, as shown clearly in Fig. 1, and covered with a suitable fabric *i*, over which the yarn passes, and at the opposite end a tension-spring I', the spring of which may be adjusted by a set-screw I², passing through an arm I³ on the bracket. By having the yarn pass over the wiper, if too much yarn should be drawn from the bobbin, as frequently happens, the friction between the yarn and the fabrics of the wiper will prevent too much of the yarn being fed to the work. Thus there will be a constant and even feed of the yarn. With such an arrangement, when the tension on the yarn becomes too great the forward end of the tension-lever will be depressed, and in order to effect the releasing of the belt or clutch shifter by such movement the tension-lever I is provided with a "kicker" K, rigidly secured at one end to the tension-lever and carried inward toward the standard or rod and thence passing downwardly and rearwardly through guides or screw-eyes *k* and having its rear end brought down in juxtaposition to the cross-arm C² on the rod C', from which it follows that when the tension-lever is depressed by the tension on the yarn this kicker K strikes the cross-arm C², causes the same to move away from the standard, and moves the catch out of engagement with the belt or clutch shifting lever *b*, and the latter, under the influence of its spring, at once arrests the motion of the machine.

To facilitate the threading of the yarn through the eyes, the latter are preferably slit or have passage-ways formed into them, as shown at *m*, Fig. 4, although it will be understood that ordinary eyes may be employed, if so desired.

Any number of yarns may be run through the device by providing a corresponding number of tension-trips and break-trips for operating upon the cross-arms of the latch, and consequently, while I have shown but two, I do not wish to be limited to any particular number.

All working parts of the device, it will be noted, may be mounted on a single standard or rod, and this standard or rod may be readily attached to the frame or table of any ordinary knitting-machine now in use.

Obviously the pivoted trip E may be operated by a light spring instead of by gravity, and so, also, may the tension-lever be held in normal position by a weight instead of a spring, the equivalency of such arrangement being well known in the mechanical arts.

Having thus described my invention, what I claim as new is—

1. In a stop-motion for knitting-machines,

the combination with the belt or clutch shifter operating lever and the latch for holding said lever in normal position having the operating rod or arm, of the gravitating trip having the operating-arm for coöperation with the arm or rod on the latch, guide-eyes through which the yarn passes and an eye on the trip adapted to be held in alinement therewith by the yarn passing through the eyes; substantially as described.

2. In a stop-motion for knitting-machines, the combination with the clutch or belt shifter operating lever and the latch for holding said lever in normal position with the rod or arm connected therewith for operating the same; of a tension-trip held out of engagement with said operating rod or arm by spring-pressure; substantially as described.

3. In a stop-motion for knitting-machines, the combination with the belt or clutch shifter operating lever and the latch for holding the same in normal position having the operating arm or rod, of the gravitating trip having the curved operating-arm for coöperation with the arm or rod on the latch, guide-eyes through which the yarn passes and an eye on the trip adapted to be held in alinement therewith by the yarn passing through the eyes; substantially as described.

4. In a stop-motion for knitting-machines, the combination with the standard, the pivoted clutch or belt shifter operating lever, the pivoted latch for holding said lever in normal position having the upwardly-extending rod or arm, of a bracket on the standard having guide-eyes for the yarn, a trip pivoted to said bracket adapted to engage the latch-operating arm or rod to release the latter and having an eye adapted to be held in alinement with the guide-eyes by the yarn passing through the same; substantially as described.

5. In a stop-motion for knitting-machines, the combination with the clutch or belt shifter operating lever, the spring-actuated pivoted latch coöperating therewith to hold the lever in normal position and the operating arm or rod connected with said latch and having the cross-arms thereon, of the guide-eyes, the pivoted trip having an eye adapted to be held in alinement with the guide-eyes by the yarn, and the curved operating-arm on the trip adapted to strike the cross-arm when the yarn is broken and the trip operated, substantially as described.

6. In a stop-motion for knitting-machines, the combination with the clutch or belt shifter operating lever and the spring-actuated latch for holding said lever in normal position, of the standard, the bracket mounted on said standard, the tension-lever pivotally mounted on said bracket and the kicker rigidly connected with said tension-lever; substantially as described.

7. The combination with the standard of the bracket secured therein, the clutch or belt shifter operating lever pivotally mounted

on said bracket and the latch for holding said lever in normal position also mounted on said bracket and having the upwardly-extending operating rod or arm, the bracket mounted
5 on the standard near the top thereof and having a pivoted tension-lever thereon with a kicker connected with said lever and adapted to cooperate with the latch-operating rod or arm when the lever is depressed by the tension of the yarn; substantially as described. 10

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Witnesses:

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