

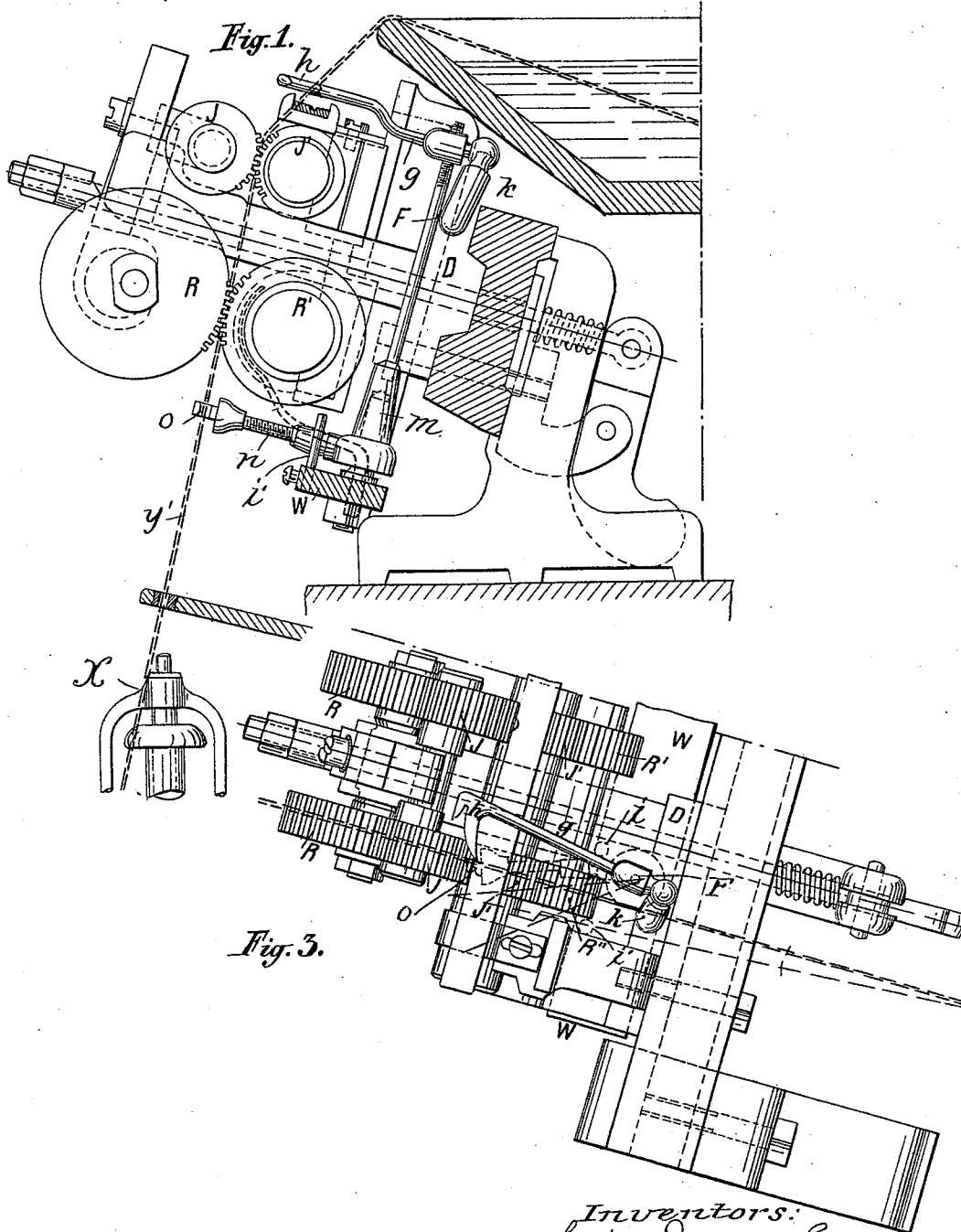
(No Model.)

2 Sheets—Sheet 1.

L. D. CROES, E. RODENBACH-MERGAERT & J. LAPIN.
SPINNING MACHINE.

No. 482,003.

Patented Sept. 6, 1892.



Witnesses:
E. R. Bolton
Alex. J. Underhill

Inventors:
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their Attorneys

(No Model.)

2 Sheets—Sheet .2.

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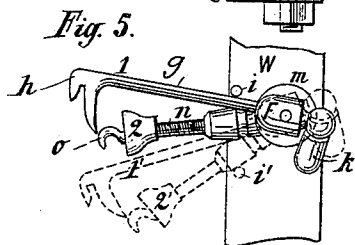
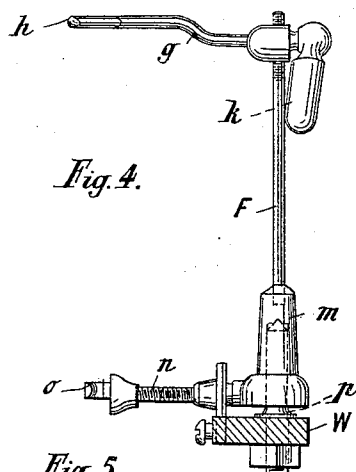
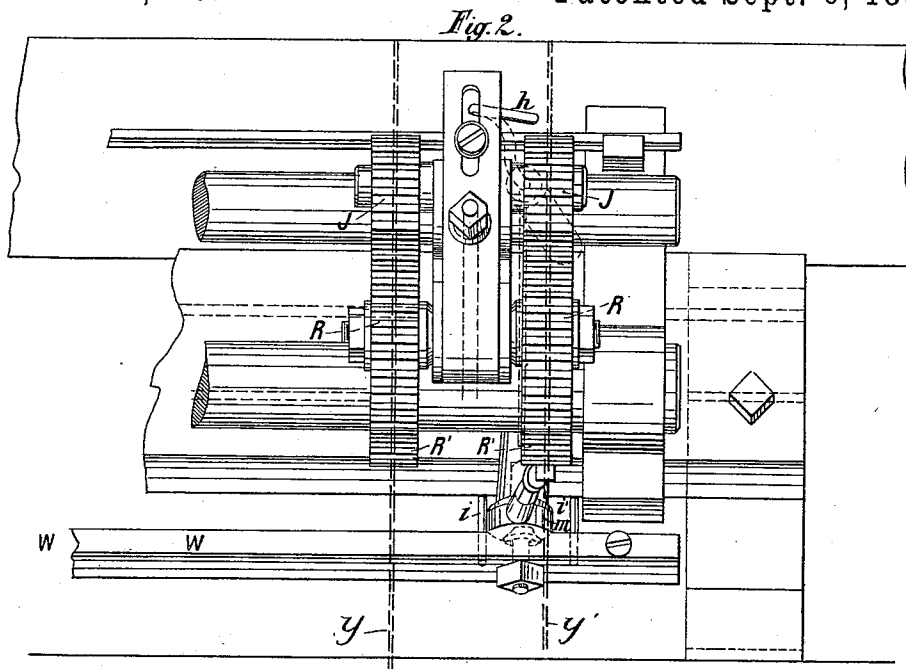


Fig. 6.

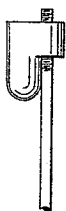
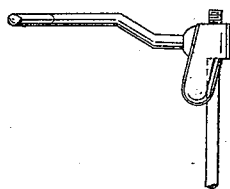


Fig. 7.



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UNITED STATES PATENT OFFICE.

LOUISA DAMMAN CROES, EDOUARD RODENBACH-MERGAERT, AND JEAN LAPIN, OF ROULERS, BELGIUM.

SPINNING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 482,003, dated September 6, 1892.

Application filed May 31, 1892. Serial No. 435,111. (No model.) Patented in Belgium March 11, 1891, No. 94,103; in France May 14, 1891, No. 213,480, and in England May 23, 1891, No. 8,790.

To all whom it may concern:

Be it known that we, LOUISA DAMMAN CROES, EDOUARD RODENBACH-MERGAERT, and JEAN LAPIN, subjects of the King of Belgium, residing at Roulers, in the Kingdom of Belgium, have invented certain new and useful Improvements in Spinning-Machines, of which the following is full, clear, and exact specification.

This invention has been patented in England May 23, 1891, No. 8,790; in Belgium March 11, 1891, No. 94,103, and in France May 14, 1891, No. 213,480.

The invention is designed for use in connection with spinning-machines of all kinds, and relates particularly to means for shifting the thread to one side of the drawing or stretching rollers in case the thread breaks, so that it will not be caught by the rollers and wound about them, thus creating waste of material and tending to damage the rollers by reason of the wear and distortion to which they would be subjected. The purpose is to render this shifting action entirely automatic and dependent upon the breaking of the thread, so that the broken ends are removed out of the reach of the rollers immediately upon the occurrence of the break.

The invention includes among its main elements an upper and lower pivoted arm arranged in different radial positions or planes and having an operating connection between them with means for applying a tension to operate the arms when free, both arms being adapted to move across the path of the yarn and so disposed relatively to each other that when the lower arm is in engagement with the yarn extending unbroken from the rollers to the cap the upper arm will be swung to one side of the yarn, where it will remain so long as the lower arm is held against the operating-tension by contact with the unbroken thread. The breaking of the thread releases the lower arm, and then the tension means exerts its force to throw the upper arm against the thread and shifts the same laterally and away from the bite of the rollers.

The invention also includes the particular manner of connecting the arms, consisting of

the rock-shaft, on which the arms are fastened in different radial positions, this form of connection securing simplicity and efficiency.

The invention includes other features hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a vertical section of the device with the thread in place and the parts adjusted for action in case of breakage. Fig. 2 is a front view of Fig. 1. Fig. 3 is a plan view, the dotted radial lines indicating the position assumed by the arms when the thread breaks. Fig. 4 is a detached elevation of the arms and the connections between them. Fig. 5 is a plan view of the same, showing in dotted lines the shifted position of the parts caused by the breaking of the thread. Fig. 6 is a view of a modified arrangement of the weight and rock-shaft. Fig. 7 is a view of the same a quarter-turn from Fig. 6.

The rollers between which the thread passes are shown at $J J'$ and $R R'$, journaled in suitable bearings and arranged in sets corresponding to the number of threads on the machine, two of which threads are indicated in dotted lines at $y y'$. The cop or winding-spindle is shown at X , Fig. 1, to which the thread passes from the stretching-rollers.

The automatic shifting device comprises the upper arm g and lower arm n , the former being above the rollers $J J'$, while the latter is below the rollers $R R'$. These arms are connected to each other by the rock-spindle F , the said spindle having a socket m at its lower end bearing on the conical end of the stud p , supported on the rail or beam W , the said bearing allowing the rock-shaft to turn. The lower arm is attached directly to the socket. As will be seen from an inspection of Figs. 3 and 5, the said arms project radially from the spindle in different directions, so that while the lower arm has its outer end directly beneath the rollers and in contact with the thread the upper arm will lie to one side of the said rollers and away from the thread.

A tension is applied to the rock-spindle with its arms, and a weight k is shown herein for this purpose, through it will be under-

stood that we do not limit ourselves to the use of this particular means. This tends constantly to turn the spindle and carry the arms from the position shown in Fig. 3 and in full lines 1 2, Fig. 5, to those indicated by the dotted lines 1' 2' in said latter figure. This tendency is resisted, ordinarily, by the arm *n* being in contact with the stretched thread, which thus holds the arm *g* to one side of the rollers; but immediately upon the breaking of the thread the arm *n* is no longer restrained. The weight exerts its force to turn the parts so that the upper arm engages the free end of the thread above the rollers and moves the same out of the reach of the rollers, and thus prevents the loose end from being drawn around the rollers and wound thereon, which, besides being wasteful, as before noted, is damaging to the rollers and causes annoyance and loss of time in rejoining the thread.

It will be understood that the tension on the parts is very slight and can be easily adjusted so that the arm *n* will bear slightly on the thread and yet be quick enough in its action to insure good results, and it will be observed that the arm *n* is utilized itself for keeping the parts under restraint until the thread breaks, and there is thus no need for complicated parts or employing trip mechanism. As the upper arm is held normally to one side of the thread, it will be noticed the weight will act for a little while before said arm strikes the thread, and thus the arm will have sufficient force to insure the lateral displacement of the thread. By reason of this free movement the weight need not be heavy.

The movement of the parts is limited by the pins *i i'* on the beam *W* projecting in the range of the lower arm.

The arms may or may not have the hooks *h* and *o*, respectively, for engaging the thread.

We claim as our invention—

1. In combination, the rollers, and the shifting device consisting of the upper part to engage the thread, the lower part, the positive connection between the same, joined at its ends to both said parts, being under tension, and the lower one arranged to engage the thread and hold the shifter against the said tension until the thread breaks, substantially as described.

2. In combination, the rollers, the upper and lower arms, the rock-spindle extending between and connecting the said arms, and the means for placing the arms under tension, the said lower arm being arranged to engage the thread and hold the parts under restraint until the thread breaks, whereupon the rock-shaft will turn under the tension and cause the upper arm to withdraw the thread from the rollers, substantially as described.

3. In combination, the rollers, the upper and lower arms, and the positive connections between them joined to both, said arms being pivotally supported and extending in different radial directions, whereby when the lower arm is engaging the thread to hold the parts against movement the upper arm will be to one side of the said thread, substantially as described.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

LOUISA DAMMAN CROES.
ED. RODENBACH-MERGAERT.
JEAN LAPIN.

Witnesses:

GEORGE BEDE,
AUG. GÉNARD.