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RICHARD COOK'S

*Automatic Stop for
a Narrowing Knitter.*

No. 119,448.

Patented Oct. 3, 1871.

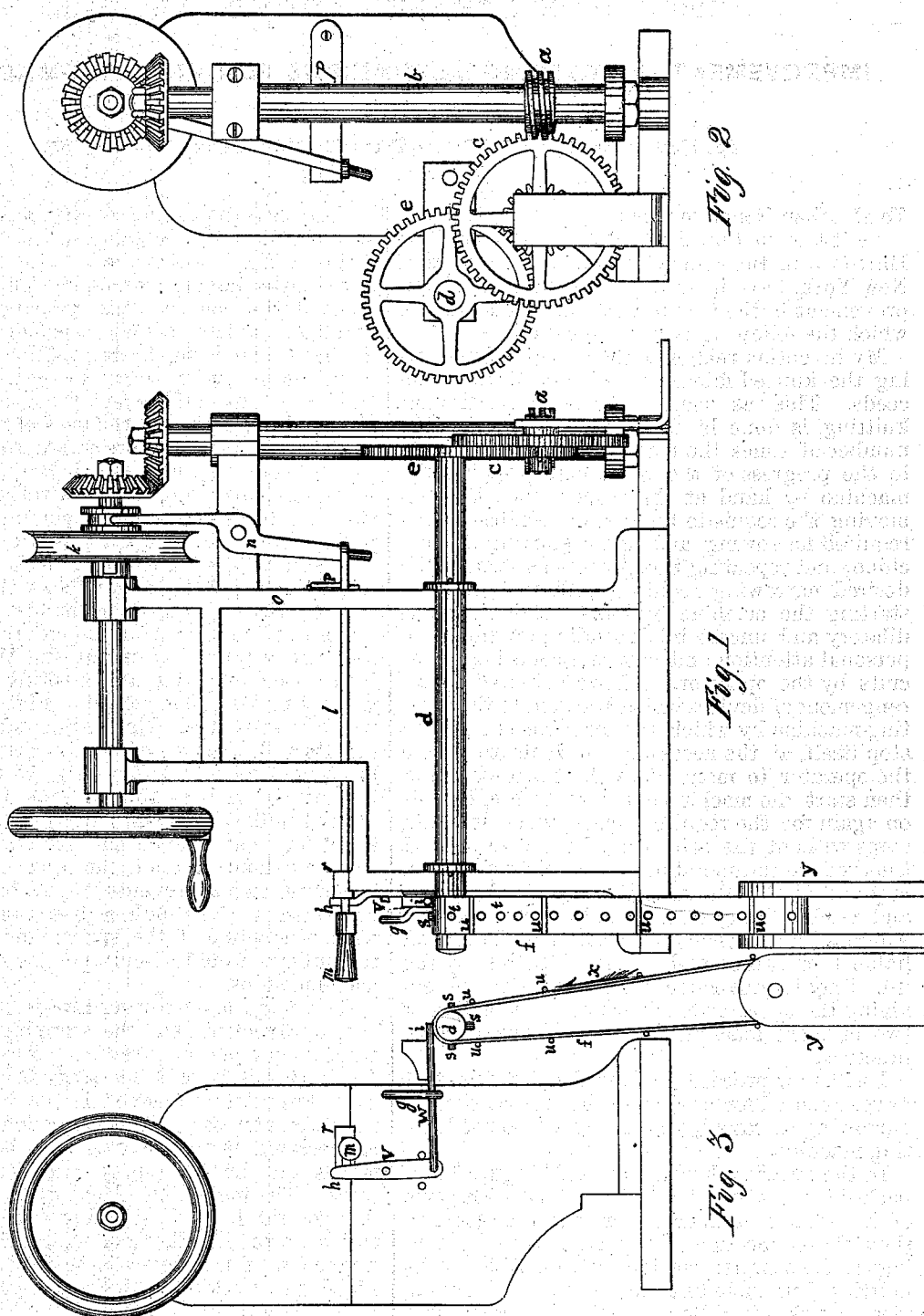


Fig. 2

Fig. 1

Fig. 3

WITNESSES

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IMPROVEMENT IN STOPPING MECHANISMS FOR KNITTING-MACHINES.

Specification forming part of Letters Patent No. 119,448, dated October 3, 1871.

To all whom it may concern:

Be it known that I, RICHARD COOK, of New Hartford, in the county of Oneida and State of New York, have invented a new and useful Improvement in the Circular Knitting-Machine, of which the following is a specification:

My invention relates to the process of narrowing the knitted fabric as the manufacture proceeds. This, as usually practiced in circular knitting, is done by the operator observing the number of times the machine is turned around in the progress of the work, and stopping the machine by hand at the proper time; then removing the requisite number of needles for the required narrowing, and again starting the machine; and repeating this process as often as the desired narrowing requires, both stopping and starting the machine by hand. This course is dilatory and uncertain, depending on the close personal attention and accurate counting of circuits by the operator. I have invented an arrangement of devices which I attach to the knitting-machine by which the machine is made to stop itself, at the necessary intervals, to enable the operator to manipulate the narrowing and then start the machine again as before, to knit on again for the required space, when it again stops without the attention of the operator. I thus relieve the operator from the close attention required to stop the machine correctly by hand, and render the operation uniform and certain; whereas by the usual method it is uncertain and liable to mistakes and errors. Besides, by the use of my improvement much time is saved, enabling the operator to superintend the action of two or more machines instead of one, as now practiced.

I will now proceed to describe the devices I have invented for producing the stop-motion for narrowing aforesaid, which I attach to the knitting-machine.

In the drawing hereto annexed, Figure 1 is a back side elevation of sufficient of the main parts of the frame of a machine for circuit knitting to show the connection of my improvement, leaving off the complex machinery applicable to the knitting, but including all the parts of my device, and showing their connections. Fig. 2 is a view of the end of the machine at the right hand from the view just mentioned, and Fig. 3 is a view of the left-hand end.

The parts belonging to my improvement, as seen in these three figures, are—the endless screw *a*, Fig. 2, which I add to the upright shaft *b*, the latter having a quick motion in the movement of the machine; the gearing *c e*, Figs. 1 and 2, for further reducing the motion, the shaft *d*, Fig. 1, extending horizontally across the machine, as shown, in order to receive and carry the belt *f*; the endless belt *f*, Figs. 1 and 3, and the smaller parts *g h i*, the uses of which will be explained. As was before stated, the machine as usually constructed is stopped by hand for the purpose of narrowing. This, as well as again starting the machine, is done by moving the driving-pulley *k* horizontally upon its shaft, thus making it alternately a tight and a loose pulley. To do this the operator manipulates the horizontal bar *l* by taking hold of the handle *m*. The bar *l* operates the lever *n*, and moves the pulley *k* on its shaft by a familiar operation. When the bar *l* is pressed in it actuates a spring lying transversely across the standard *o*, Fig. 1, the end of which is seen at *p*. This spring is therefore under its full tension, while the driving-pulley *k* has a hold upon and turns its shaft, and would instantly bring back the bar *l* and disengage the driving-pulley, thus stopping the machine, were it not for a catch upon the bar *l* within the inclosure *r*, holding upon the square edge of this inclosure, which prevents it. A trifling lateral movement of the handle *m* disengages the catch when the action of the spring aforesaid moves the pulley *k* from its hold upon its shaft and the machine stops.

It is not the narrowing that is performed by my improvement, but the stopping of the machine at the proper intervals for that purpose. To do this it is only necessary to produce this slight lateral movement of the bar *l* to disengage the catch aforesaid. This being done, the spring *p*, operating upon the lever *n*, as before stated, moves the driving-pulley *k*, and the machine stops. The immediate agent that does this is the upright lever *h*, standing back of the bar and near the handle *m*, as shown in Fig. 1. A front view of this lever is seen at *h* in Fig. 3. This lever, working on its center-pin or fulcrum *V*, is operated by the wire rod *W*, Fig. 3, one end of which is hooked into the lower end of the lever, and the other lies on the belt *f* at *i*, as that passes over the shaft *d*. *g* is a guard for

the wire rod *W*. The belt is carried by the shaft *d*, the latter having short projecting pins *S* which match with and penetrate corresponding eyelets, *t*, Fig. 1, in the belt. These pins are seen penetrating the eyelets in the belt at *S*, Fig. 3. They correspond with the eyelets *t*, Fig. 1, and insure the constant and equal movement of the belt. There are also the metal bars *u* lying across, and fastened to the outer surface of the belt. These are graduated at such distances as correspond to the desired narrowing in any given manufacture. In the movement of the belt in the direction indicated by the arrow *x*, Fig. 3, these cross-bars successively strike against the end *i* of the wire rod *W*, which, acting upon the lever *h*, disengages the bar *l* from its catch-fastening, and the driving-pulley *k* being thus loosened, as before described, the machine stops and the operator proceeds to manipulate the narrowing. This being done, he lifts the wire rod *W* upon the cross-bar then to be passed and starts the machine again in the usual way, to run on until the next cross-bar is met, when the same operation

and result take place. The spacing of the belt by these cross-bars varies according to the character and degree of narrowing in the required manufacture. The endless belt *f*, it is plain, is stretched from the cogged end of the shaft *d* to a pulley in a standard, *y*. The cross-bars *u* are light, and of a size corresponding with the size of the rod *W*. The movement is not rapid but slow, and not liable to derangement, and accomplishes the desired work very perfectly.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination of the endless screw *a*, gearing *c*, and shaft *d* with the endless belt *f*, provided with the cross-bars *u*, the rod *W*, and the lever *h*, all constructed, arranged, and operating as and for the purpose described.

RICHARD COOK.

Witnesses:

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