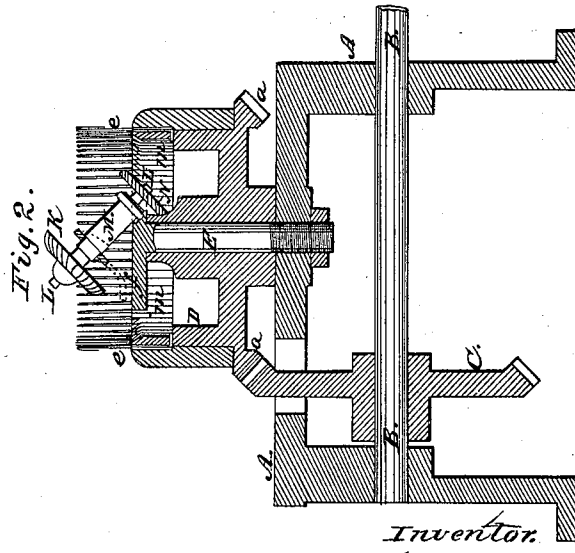
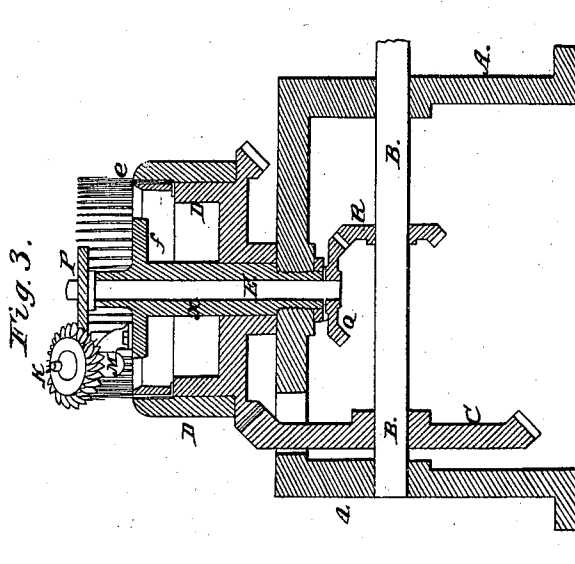
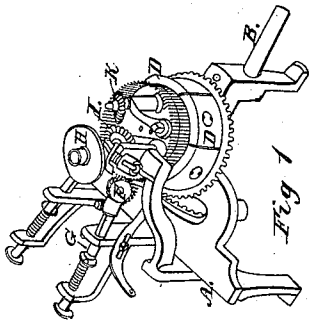


E. SHORE.  
KNITTING MACHINE.

No. 36,373.

Patented Sept. 2, 1862.



Witnesses.  
Charles Foster  
Charles Howson.

Inventor.  
Henry Howson  
Att'y for E Shore

# UNITED STATES PATENT OFFICE.

EDWARD SHORE, OF CONSHOHOCKEN, PENNSYLVANIA.

## IMPROVEMENT IN KNITTING-MACHINES.

Specification forming part of Letters Patent No. 36,373, dated September 2, 1902.

### *To all whom it may concern:*

Be it known that I, EDWARD SHORE, of Conshohocken, Montgomery county, Pennsylvania, have invented an Improvement in 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, and to the letters of reference marked thereon.

My invention relates to an improvement in what are known as "rotary" knitting-machines; and my invention consists in driving the stripper-wheel, and, if desired, the loop-wheel and landing-wheel by means of gearing from the main shaft of the machine, substantially as described hereinafter, so that the circular row of knitting-needles usually employed to turn the said wheels shall be relieved from that duty and from that undue strain which is liable to disarrange and in many cases break the said needles.

In addition to the saving of expense and time required in replacing and rearranging damaged needles, my invention possesses the further advantage of enabling me to use rotary knitting-machines, which are well known to be the most economical, for producing both coarse and fancy work, in knitting which other machines of a more elaborate and costly nature have been generally used.

In order to enable others, skilled in the art to make and use my invention, I will now proceed to describe the manner of carrying it into effect.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a perspective view of a rotary knitting-machine with my improvements; Fig. 2, a vertical section, and Fig. 3 also a vertical section, illustrating a modification of my improvements.

On reference to Figs. 1 and 2, A represents the stationary frame of the machine; B, the driving-shaft, furnished with a bevel-wheel, C, the latter gearing into a similar wheel, *a*, which is secured to or forms a part of the cylinder D. This cylinder revolves on a vertical pin, E, secured to the stationary frame, and is furnished with the usual circular row of bearded needles, *e*.

F, Fig. 1, is the "loop-wheel," turning on a pin on the end of the adjustable bar G, and

having the usual angular teeth for passing the thread under the beards of the needles.

H is the usual presser-wheel, I the angular toothed "landing-wheel" for lifting the thread over the beards of the needles, and K is the "stripper-wheel" by means of which the loops are detached from the needles.

The above mentioned parts are common to ordinary rotary knitting-machines and are too well understood by all familiar with machines of this class to require minute description either of their construction or operation.

In rotary knitting-machines as heretofore constructed the stripping-wheel K has been turned by the revolving needles—a plan which is objectionable for the following reasons:

First, the needles are liable to be broken or disarranged by the pressure to which they are necessarily subjected, the renewal or rearrangement of the needles and the spoiling of the fabric or rendering it imperfect being a source of constant expense and delay.

Secondly, in knitting coarse circular work—such as the jackets worn by artisans—there is not sufficient power in the needles to turn the stripper-wheel. The use of rotary machines, which are well known to be the most economical, has consequently been for the most part confined to the smaller class of work, such as the legs of stockings, &c.

Thirdly, in knitting fancy fabrics, the work being more or less open, the needles have to be arranged at a greater distance apart from each other than when arranged for knitting ordinary fabrics. The needles are consequently more liable to yield, and the use of rotary machines for fancy or open work has been very limited.

My invention has been especially designed with the view of remedying these defects of rotary knitting-machines and of bringing the latter into more general use for a greater variety of work than that to which they have been hitherto adapted.

It will be observed on reference to Fig. 2 that the stripper-wheel K is secured to an inclined shaft, L, which turns in a bracket, M, the latter being secured to a plate, *f*, which forms the head of the vertical pin E. To the lower end of the inclined shaft is secured a wheel, N, having inclined teeth for gearing into teeth *m*, formed on the inside of the cylinder,

so that as the latter revolves a determined rotary motion will be imparted to the stripper-wheel. The needles being thus relieved from the usual strain will have but little liability to become broken or disarranged, the capacity of rotary knitting-machines for producing either coarse or fancy fabrics being consequently increased.

Although I have hitherto alluded to the stripper-wheel as the main cause of straining the needles, more or less lateral pressure is imparted to them by the landing-wheel I and loop-wheel E. It will be evident that a revolving motion may be imparted directly from the cylinder to the landing-wheel in the same manner as that described in reference to the stripper-wheel. It will also be evident that teeth may be cut on the outside of the cylinder for imparting a revolving motion to the loop-wheel, the needles thereby being relieved from the strain to which they are subjected when used for driving these two wheels.

In the modification illustrated by Fig. 3 the stripper-wheel K is arranged to turn loosely on a pin on the bracket M, the latter being secured to a hollow stationary pin, X, on which the cylinder revolves, a shaft, E, being arranged to turn within the hollow spindle, and this shaft being furnished with a wheel, P, hav-

ing inclined teeth for gearing into the stripper-wheel K. The lower end of the shaft E is furnished with a bevel-wheel, Q, which gears into a similar wheel, R, on the driving-shaft B, so that a positive rotary motion in the proper direction is imparted to the stripper-wheel without subjecting the needles to any undue strain.

I am aware that in Timothy Bailey's patent of November 20, 1855, the sinking or other burrs of a rotary knitting-machine are actuated by means of gear-wheels, to which motion is communicated from the shanks of the needles, so that the points of the latter may be relieved from the friction of the sinker.

I therefore limit my claim to and desire to secure Letters Patent for—

Driving the stripper-wheel of a rotary knitting-machine, and, if desired, the landing and loop wheels, by means of gearing from the main shaft of the machine, substantially as herein set forth, for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD SHORE.

Witnesses:

HENRY HOWSON,  
JOHN WHITE.