

(No Model.)

H. C. YOUNG.
KNITTING MACHINE.

No. 382,346.

Patented May 8, 1888.

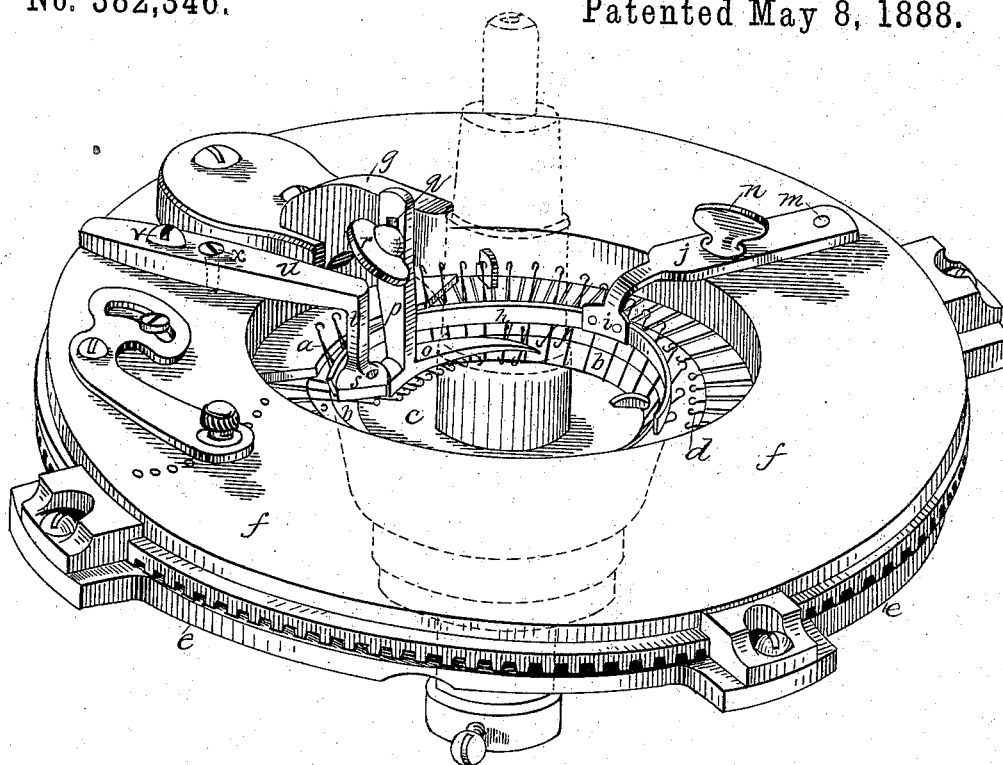


Fig. 1.

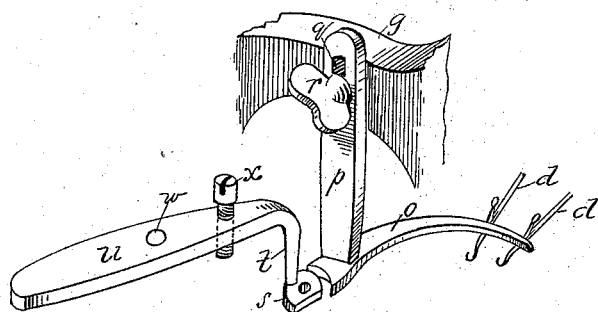


Fig. 2.

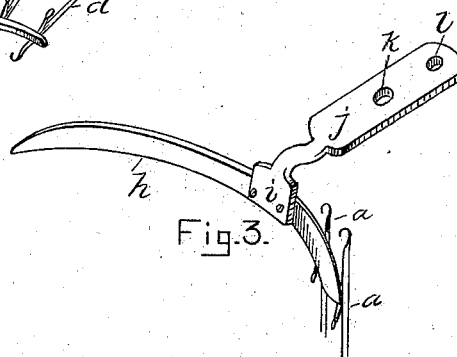


Fig. 3.

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UNITED STATES PATENT OFFICE.

HIRAM C. YOUNG, OF WASHINGTON, NEW HAMPSHIRE.

KNITTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 382,346, dated May 8, 1888.

Application filed March 21, 1887. Serial No. 231,639. (No model.)

To all whom it may concern:

Be it known that I, HIRAM C. YOUNG, of Washington, in the county of Sullivan and State of New Hampshire, have invented certain new and useful Improvements in Knitting-Machines, of which the following is a specification.

My invention relates to knitting-machines, and particularly to that class or type shown and described in Letters Patent of the United States granted to C. J. Appleton, No. 107,750, dated September 27, 1870.

It is the object of my invention to provide a latch guard or holder for the cylinder-needles of said machine, so constructed and arranged as to hold the latches open or down, after they shall have been opened by rising through the loops of yarn thereon, and until after they shall have passed the yarn-guide and received yarn to form new loops or stitches.

It is also the object of my invention to provide improved means for attaching or securing the latch-guard aforesaid to the machine in proper relationship to the needles.

It is also the object of my invention to provide a latch guard or holder for the radial needles of said machine, which guard or holder shall be adapted to operate in substantially the same manner and for the same purpose as the latch guard or holder for the cylinder-needles, just referred to.

It is also the object of my invention to provide a yarn-guide adapted to the machine aforesaid, which yarn-guide, while being formed as a separate part or piece, may be adapted to co-operate with the latch guard or holder for the radial needles, so as to constitute practically one piece or part and yet be independently removable or adjustable.

It is also the object of my invention to provide improved means for adjusting the yarn-guide with respect to the needles.

It is well known by those skilled in the art of knitting and acquainted with machines constructed in accordance with the patent aforesaid that the latch-openers therein employed are liable to catch upon and break any needles that may chance to be slightly drawn or sprung out of line and into the path of travel of said latch-openers, and that this happening is not of infrequent occurrence. Again, when by

mischance the needles or any of them are sprung away from the latch-openers, the latter will fail altogether in performing the functions designed to be accomplished by them. Furthermore, the latch-openers as commonly employed in said machines, in order to accomplish any useful result, require adjustment with the utmost nicety, so that a highly-skilled knitter only is capable of performing this work when it is called for.

My improvements are designed to overcome these and other objections, as I will now proceed to describe and claim.

Reference is to be had to the accompanying drawings, and to the letters of reference marked thereon, forming a part of this specification, in which drawings the same letters indicate the same parts wherever they occur.

Of the drawings, Figure 1 represents a perspective view of a knitting-machine with my improvements applied thereto, parts being shown in dotted lines. Figs. 2 and 3 are perspective detail views hereinafter referred to.

In the drawings, *a* represents the cylinder-needles; *b*, their bed, and *c* the cam-cylinder or cone for operating the same. *d* indicates the radial needles; *e*, their bed; *f*, the cam-plate by which the radial needles are operated, and *g* the arm attached to cam-plate *f* and sustaining in proper position the bed for the cylinder-needles and their operating cam cone or cylinder, and providing means whereby the latter may be rotated in unison with cam-plate *f*.

All of the parts mentioned are of common construction, and may be operated for the purpose of knitting ribbed work in any of the ways usually employed in the use of knitting-machines.

h represents a latch guard or holder consisting of a curved finger formed so that it may extend around in close proximity to the latch-point of the cylinder-needles *a* as the latter are raised and lowered by the cam cone or cylinder *c*. Said latch guard or holder is attached at *i* to a shank piece or arm, *j*, provided on its outer portion with two holes, *k* *l*, the latter of which is adapted to receive a pin, *m*, secured in cam-plate *f*, and the former, *k*, is constructed to receive the shank of a set-screw, *n*, adapted to bescrewed into cam-plate *f*. Shank

j extends out over the upper ends of the needles *a* and sustains latch-guard *h* in such position with respect thereto as that when said needles are raised through the stitches thereon to receive new loops and the latches are opened or thrown back, as they certainly will be, said guard will prevent said latches from being accidentally closed upon the hooks of the needles until after yarn for new loops shall have been fed therein. Pin *m* being fixed on the cam-plate and set-screw *n* passing through a hole in the shank *j* into a hole in the cam-plate, afford a construction whereby the latch-guard *h* when affixed to the machine at all must be fixed in a certain position, which position is a properly operative one, so that the services of a skilled knitter need not be called in to see that the latch-guard is properly arranged or adjusted relatively to the needles.

o indicates a latch guard or holder for the radial needles *d*, which latch-guard *o* consists of a curved plate extending around in close proximity to the latch-point of such of the radial needles as are being moved outward and retracted, its office being to hold back the latches of the radial needles after said latches have been thrown back by passing through the loops thereon, in the same manner as has been described with reference to latch guard or holder *h*. Latch-guard *o* is provided with a shank, *p*, slotted at its upper end, as at *q*, a thumb-screw, *r*, providing means whereby it may be secured to arm *g*, and slot *q* affording means for its adjustment vertically.

s is the yarn-guide secured to the lower end of the vertical portion *t* of its angular supporting-shank *u*. The yarn-guide is rounded in form at the point where it meets latch-guard *o*, and the latter device is given a corresponding reverse form at its contacting-point with the yarn-guide, so that when the two are in proper operative position the yarn-guide will form a substantial extension of latch guard or holder *o*, as represented in Fig. 1.

In Fig. 2 yarn-guide *s* and latch guard or holder *o* are shown as slightly separated, this being simply for the purpose of better illustrating their construction and adaptability of their arrangement.

Shank *u* of the yarn-guide is secured to cam-plate *f* by means of screw *v* passing through hole *w* of said shank and into a screw-threaded hole in said cam-plate.

x represents a screw passing through a screw-threaded hole in shank *u* and adapted at its lower end to bear upon the cam-plate *f*, whereby yarn-guide *s* may be adjusted vertically with the utmost nicety, and when once said screw *x* is turned to proper position the yarn-guide

may be removed and replaced and secured in position by means of screw *v* with certainty of proper adjustment.

By constructing finger or guard *o* as a separate piece or part from yarn-guide *s* the former can be loosened and swung inward out of the way of the latter when its presence is in the way of any work that it may be wanted to do on the adjacent needles.

In Figs. 2 and 3 the relationship of the latch guards or holders to their respective needles is clearly shown.

Although I have been particular to describe the form and arrangement of the various parts constituting my invention, it is obvious that these may be changed within the limits of mechanical skill without departing from the nature or spirit of the invention.

Having thus described my invention, what I claim is—

1. The combination, with the cam-plate, the cylinder and cylinder-needles, and means for operating them, of a latch guard or holder consisting of a curved finger extending around in close proximity to the latch-point of the needles being raised and lowered, said guard or holder being provided with a shank extending out over the tops of the needles to maintain said guard or holder in position, as aforesaid, said shank being provided with holes, as described, a pin in the cam-plate entering one of said holes, and a set-screw passing through the other of said holes, whereby the guard or holder may always be set in proper position, substantially as described.

2. The combination, with the radial needles and their bed and the cam-plate, of the arm *g*, a latch guard or holder, *o*, provided with the slotted shank *p*, thumb-screw *r*, for adjustably securing said latch-guard and its shank to said arm, yarn-guide *s*, having an angular shank, *u*, securing-screw *v*, and adjusting-screw *x*, as set forth.

3. The combination, with the radial needles and their bed, the cam-plate, the yarn-guide and its shank, of an adjusting-screw in said shank bearing at its lower end on said cam-plate, and an attaching-screw passing through said shank and into said cam-plate to secure the yarn-guide to said cam-plate, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 4th day of March, A. D. 1887.

HIRAM C. YOUNG.

Witnesses:

ARTHUR W. CROSSLEY,
C. F. BROWN.