(No Model.)

L. JONES, Jr.

LATCH OPENER FOR KNITTING MACHINES.

No. 386,636. Patented July 24, 1888.

Fig. 1.

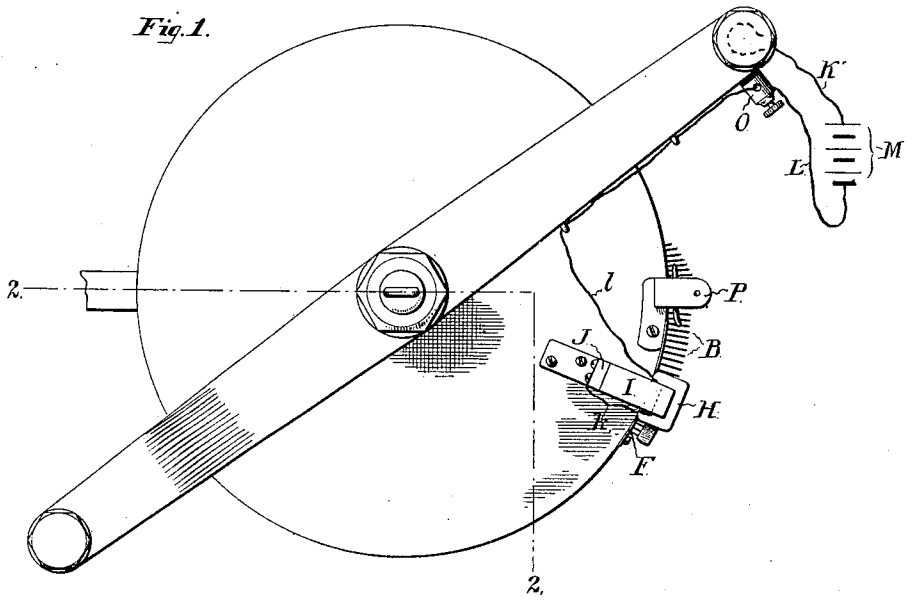
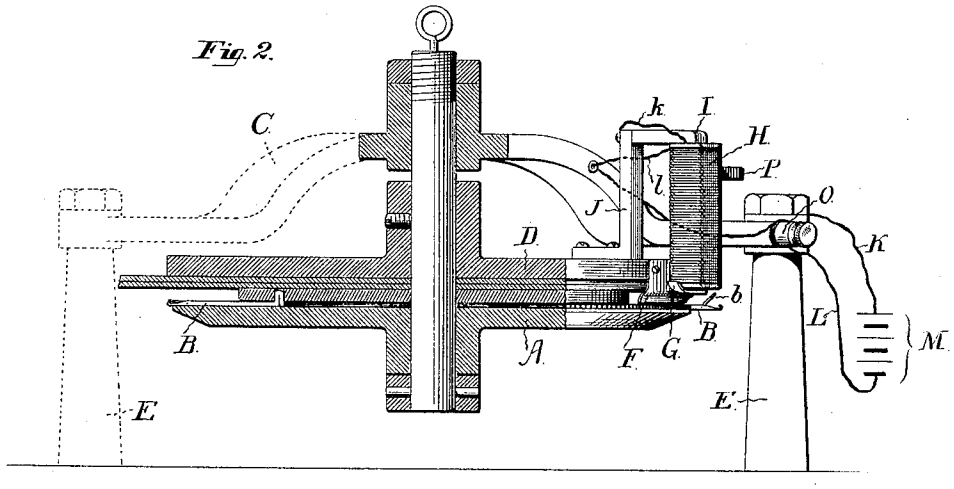


Fig. 2.



WITNESSES:

James H. Bell.

Edward P. Burket.

INVENTOR.

Lewis Jones Jr.

By Hollingsworth & Whaley,

Attorneys.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

LEWIS JONES, JR., OF OVERBROOK, PENNSYLVANIA.

LATCH-OPENER FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 386,636, dated July 24, 1888.

Application filed April 14, 1888. Serial No. 270,710. (No model.)

To all whom it may concern:

Be it known that I, LEWIS JONES, Jr., of Overbrook, in the State of Pennsylvania, have invented certain new and useful Improvements in Latch-Openers for Knitting-Machines, whereof the following is a specification, reference being had to the accompanying drawings.

My invention is particularly adapted for use in connection with that class of circular-knitting machines in which a "dial-plate" or horizontal rotating disk is employed to carry a horizontal series of needles, and in the accompanying drawings I have illustrated the invention as thus embodied.

Figure 1 is a partial top or plan view of the machine, and Fig. 2 is a partial vertical section through the center of the dial-plate.

As my improvements only relate to certain limited portions of the mechanism, I have omitted from said drawings all the remaining parts of the machine whose construction is well understood.

In the use of this class of machines a difficulty frequently occurs, owing to the fact that the latches of the horizontal series of needles do not open at the proper time to receive the thread, and hence defective work is produced.

The object of my invention is to insure an opening or raising of the latch just before the needle in rotating reaches the thread-guide, and I accomplish this by arranging at the proper point in the time of rotation, and in the requisite proximity to the plane of rotation of the needle-latches, a magnet of sufficient energy to raise them as they pass it into approximately vertical position.

In the drawings, A represents the rotating dial-plate, carrying the needles B, only two of which are shown in order to avoid confusion. Said needles, of course, have their latches *b* uppermost.

The vertical series of needles, whose arrangement and function are well understood, is not shown in the drawings.

C is the cross-head which supports the dial-plate system and its operating-cams.

Upon the stationary plate D is mounted the thread-guide P, and at a short distance upon that side thereof toward which the horizontal needles in rotating approach I mount a vertical electro-magnet, H. This may be conveniently constructed and supported, as shown in Fig. 2—that is to say, the right-angled piece I, of soft iron, is secured at one end to a vertical standard, J, mounted upon the top of the stationary plate D. The other leg of the said right-angled piece I carries the helix, one of whose terminals, K, is connected at a convenient point with any part of the metal frame of the machine, while the other, *l*, is carried through suitable supporting-eyes to a binding-post, O.

The lower end of the core of the electro-magnet is arranged a short distance above the plane of rotation of the needle-latches *b*, and I prefer to provide upon the side toward which the needles move a curved guard-plate, G, of brass, to prevent any needle which may accidentally be displaced from flying up against the magnet and attaching itself thereto. The ordinary guide-plate, F, may, however, be found sufficient to accomplish this result.

A galvanic battery, M, or the source of electro energy, has one of its poles connected by the wire L with the binding-post O, while the other pole is connected by the wire K with some portion of the metallic frame of the machine.

When the magnet is energized, the needle-latches *b* in passing under it are raised into the position indicated upon the right-hand side of Fig. 2, and because of the proximity of the magnet to the thread-guide P they will retain this position until the taking hold of the thread is thus insured.

I have described what I consider the most advantageous embodiment of my invention; but I do not wish to be understood as limiting myself to such an arrangement. Thus a permanent magnet might be employed in place of the electro-magnet, or the form of the latter may be varied, and obviously any method of producing the necessary electric current may be employed without varying the principle of my invention.

I claim—

1. The combination, with the series of horizontal needles and the thread-guide, of a magnet arranged above the plane of rotation of

the needle-latches and in advance of the thread-guide, substantially as and for the purpose set forth.

2. The combination, with the series of horizontal needles, the thread-guide, and the magnet arranged above the plane of rotation of the needle-latches and in advance of the thread-guide, of a guard-plate arranged at that side of the magnet toward which the needles approach.

LEWIS JONES, JR.

Witnesses:
E. P. BURKET,
GEORGE W. WORMAN.