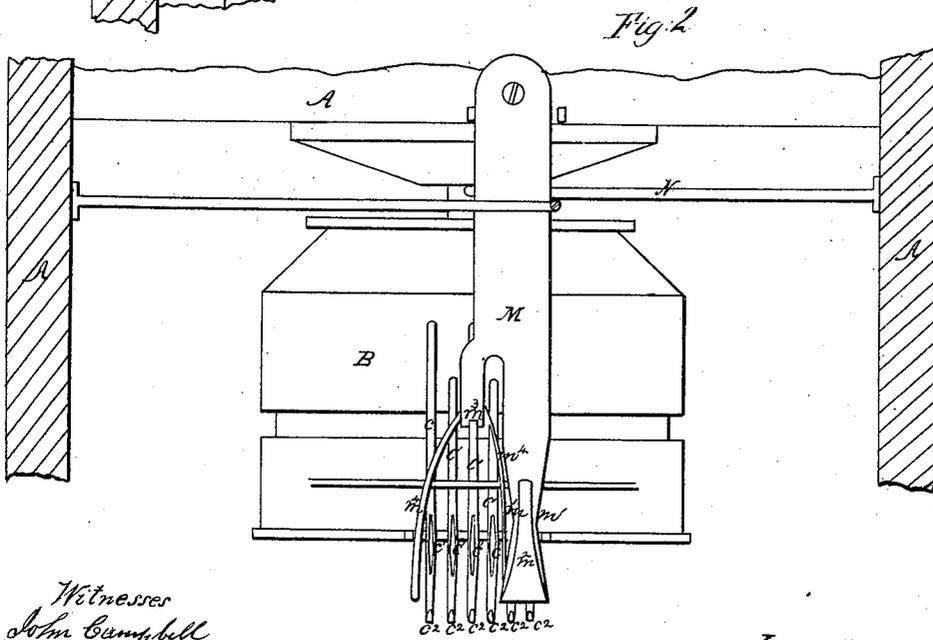
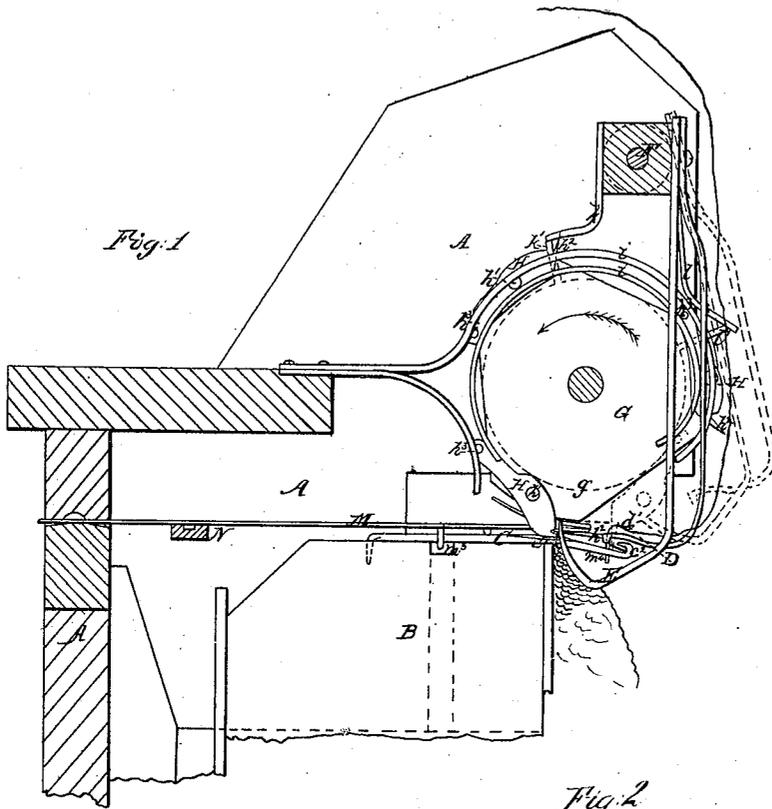


J. HOLLEN.
KNITTING MACHINE.

No. 36,351.

Patented Sept. 2, 1862.



Witnesses
John Campbell
John Gheer

Inventor:
Joseph Hollen

UNITED STATES PATENT OFFICE.

JOSEPH HOLLEN, OF FOSTORIA, PENNSYLVANIA.

KNITTING-MACHINE.

Specification of Letters Patent No. 36,351, dated September 2, 1862.

To all whom it may concern:

Be it known that I, JOSEPH HOLLEN, of Fostoria, in the county of Blair and State of Pennsylvania, have invented a new and useful Improvement in Knitting-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a sectional side view, and Fig. 2 a sectional plan view of the machine as improved.

Letters Patent, dated October 18th, 1859, were granted to me for a certain improvement in knitting machines, and the present invention relates to the same class of machines.

It consists in the peculiar construction and arrangement of devices, as hereinafter described and specified, for lifting the stitches off of hooked needles and giving the required periodical rotary motions to the needle cylinder.

In the drawings, A represents the frame of the machine; B, the needle cylinder; C, the needles; D, the thread carrier; E, the presser; F, the shaft or roller whereby the thread-carrier and the presser are vibrated, the said shaft being operated by the usual cam cylinder below it, and which is indicated by the dotted line *g*, in Fig. 1.

Fixed permanently against the inner end of the cylinder (*g*) there is a plate G, which carries three levers H, H, H of the first order, each of which turns freely and independently of the others upon a fulcrum pivot *h'* which is fixed in the plate and is provided with a pointed end *h²*, adapted to enter and move smoothly along in appropriate grooves *c'* in the needles (C), under-run the stitches thereon, lift them over their hooked ends, and then drop them—as the cam cylinder is rotated—the power-end of each of the said levers being provided with a stem *h³* which traverses a groove or space between curved guides *i, i*, and thus directs their points.

The needles (C) are each provided with a short hook *c²* instead of the spring barb described in my former specification, and are also applied and secured around the cylinder (B) so as to be stationary or immovable thereon during the operation of the

machine, substantially in the manner indicated in Fig. 2.

The roller (F) is provided with lever arms *k* and *l*, which are alternately raised by radial projection *k', l'*, arranged around the cam cylinder (*g*), so as to produce synchronous vibratory motions in the presser (E) and the thread carrier (D), the cylinder rotating in the direction of the arrow thereon and so that, as the point (*h²*) of each of the stitch lifting levers (H) successively pass under the stitches and bring them over the hooked ends of the needles (C), the presser (E) shall keep back the stitch and fabric until the said point has underrun the stitch, and then retreat from the same and stop outside of the end of the needle and there receive the forward end of the lever (H) and turn its point downward, so as to cause it to withdraw from or drop the stitch and bring its stem (*h³*) between the guiding curves (*i, i*), the thread carrier (D) laying the thread, *d'*, in the hook (*c²*) of the needle before the stitch is fitted over the same, it being operated by cams on the cylinder (*g*) and levers connected therewith, in the usual manner. The cam cylinder (*g*) has also a series of appropriate cams thereon, which during its rotary motion successively move a forked plate M alternately to the left and right, and also downward against the lifting tendency of a spring N, by encountering the inclined sides *m'* and bent end *m²* of the said plate in such a manner that the fork *m³* shall be forced down over the needle, so as thereby to drive the cylinder (B) around by two distinct motions for every stitch lifted off of the needles, the first motion taking place at the time the stitch is being lifted over the end of the needle and the second motion immediately after the point of the lever (H) has been withdrawn from between the needles, so as to allow the presser to return over the next needle and press back the fabric and the stitch on the said needle to meet the next advancing lever's point. Attached to this plate M there are two hooks *m⁴, m⁴*, which serve to prevent the fabric from being pulled off of the needles as the stitch lifters H successively carry the single stitches of the same over the hooked ends of the needles C.

Having thus fully described the construction and operation of my improvement,

what I claim as new therein of my invention and desire to secure by Letters Patent is,

1. The stitch lifting levers H, H, H, arranged around the end of the cam cylinder, *g*, so as to operate in combination with the needles, O, and presser E, substantially in the manner described, for the purpose specified.

2. Giving to the needle cylinder B, the

periodic motions described, by means of the forked plate M, or its equivalent, operated by the cam cylinder, *g*, and spring N, substantially in the manner described, for the purposes specified.

JOSEPH HOLLEN.

Witnesses:

JOHN CAMPBELL,
JOHN GHEER.