2 Sheets—Sheet 1.

W. H. & G. D. MAYO.

Knitting-Machine.

No. 214,678. Patented April 22, 1879.

Fig. 1.

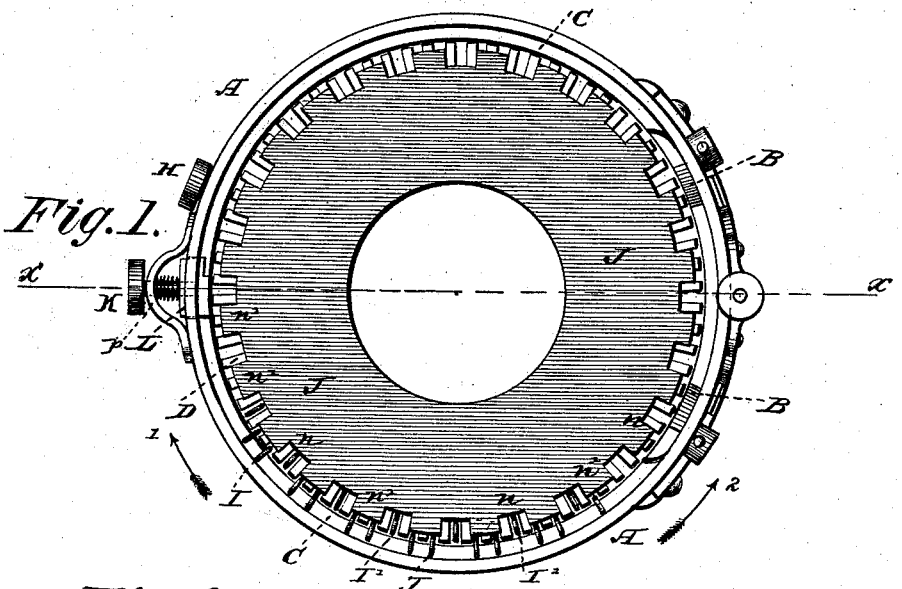

Fig. 2.

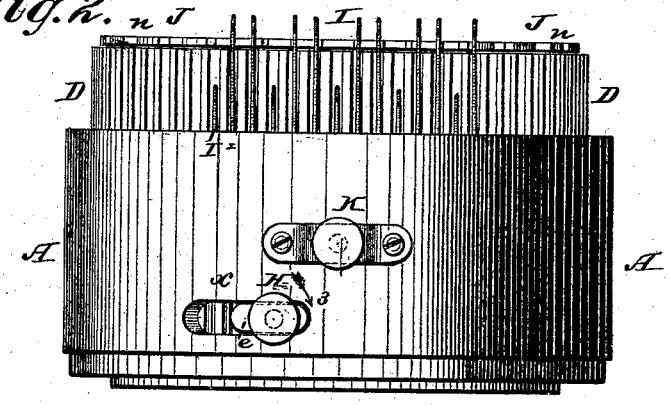

Fig. 3.

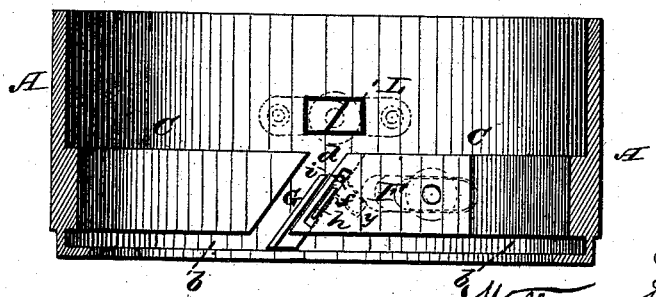

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Fig. 4.

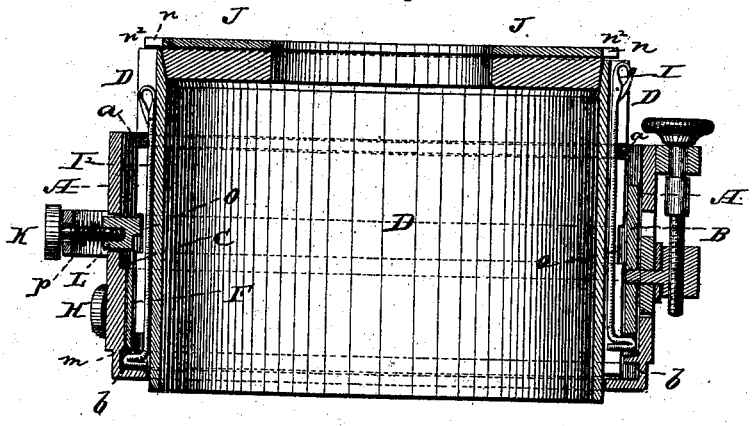

Fig. 5.

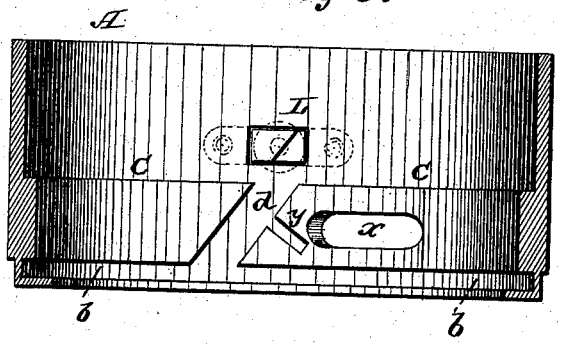

Fig. 6.

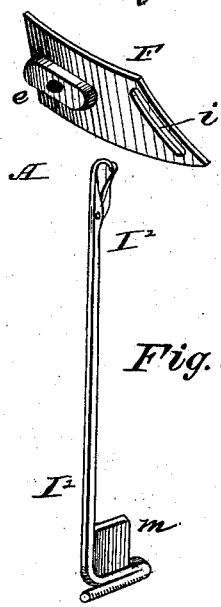

Fig. 7.

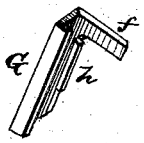

Fig. 8.

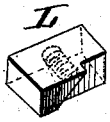

Fig. 9.

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UNITED STATES PATENT OFFICE.

WILLIAM H. MAYO AND GEORGE D. MAYO, OF ST. JOSEPH, MICHIGAN.

IMPROVEMENT IN KNITTING-MACHINES.

Specification forming part of Letters Patent No. **214,678**, dated April 22, 1879; application filed November 4, 1878.

To all whom it may concern:

Be it known that we, WILLIAM H. MAYO and GEORGE D. MAYO, of St. Joseph, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Knitting-Machines; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to cylinder knitting-machines; and it consists in devices for disposing of a part of the needles when not in use without removing them from the machine, as will be hereinafter more fully set forth.

In the annexed drawings, to which reference is made, and which fully illustrate the invention, Figure 1 is a plan view of part of a cylinder knitting-machine embodying our invention. Fig. 2 is a side elevation of the same. Fig. 3 is a central vertical section of the cam-cylinder with the compound slide in position. Fig. 4 is a central vertical section, showing the principal parts of the entire machine. Fig. 5 is a central vertical section of the cam-cylinder with the double slide removed. Figs. 6 and 7 are detailed views of the compound slide. Fig. 8 represents an inclined adjustable block used in the cam-cylinder. Fig. 9 shows one of the needles.

A represents the cam-cylinder, provided with the cams B and ledge or projection C, upon which latter the needles rest when in motion. D is the needle-cylinder, with circumferential groove, in which is placed the spring-band *a*, for holding the needles I I′ in their places. These parts are constructed substantially in the same manner as in any of the well-known cylinder knitting-machines.

The object of this invention is to dispose of a part of the needles when not in use without removing them from the machine; and to this end a groove, *b*, is cut below the cams and working parts of the machine, on the inside of the outer or cam cylinder, for the superfluous needles to run in when not in use. In order to get the needles into this groove a channel, *d*, is cut from the ledge or projection C, at an angle of about forty-five degrees, down to the groove *b*. To open and close this channel and groove as may be required, a compound slide, F G, is placed therein, which slide is operated from the outside by a thumb-screw, H.

The main part F of the compound slide has a projection or lug, *e*, which fits in a horizontal slot, *x*, in the cam-cylinder, and the thumb-screw H is screwed therein for holding it in place.

The inner end of the slide F is made inclined, to correspond with the channel, and over this inside end is placed the part G, which is provided with an arm, *f*, fitting in an inclined groove at *y* in the cam-cylinder. This part G has also a flange, *h*, which enters an inclined slot, *i*, in the inner end of the slide F.

It will readily be seen that when the slide F is moved so as to open the channel *d*, the slide G will move downward to form an inclined obstruction or stop in the groove *b*. When, however, the slide F is moved to close the channel *d*, the slide G is moved thereby upward, to leave the groove *b* unobstructed.

Those needles, I′, which are to be removed have an extra projection, *m*, formed on or attached to the shank.

On top of the machine is placed a notched disk, J, with its notches *n* opposite the needles, I′, that are to be removed, and the projections *n′* (between the notches) against the needles, I, that are to be retained, thereby pressing these latter needles against the band or spring *a* in the groove on the needle-cylinder, allowing the other needles, I′, to drop into the channel *b*.

Directly over the mouth of the channel *d*, and high enough above the ledge C to allow the natural or not retired needles I to pass, is placed an inclined plane, L, which passes through the outer cylinder, A, and presses into a circumferential groove, *o*, in the inner or needle cylinder, by means of a spring, *p*, and thumb-screw K.

After the machine is set up with the required number of needles, I′, having the projection *m*—say every third one—the mode of operation is as follows: To dispose of part of the needles until wanted, place the disk J in the top of the machine, as described; then loosen the thumb-screw H and draw back the slide F,

which will open the channel *d*, and at the same time the small slide G will drop down and close the groove *b* at the rear of the channel *d*. The screw K is then loosened sufficient to let the incline L press into the groove *o* of the needle-cylinder. Give the machine one turn to the left, in the direction shown by arrow 1, when the needles, I′, having the extra projection *m* will come in contact with the incline and run into the channel. Then move the screw H to the right in the direction shown by arrow 3, closing the channel and opening the groove, which gives the needles I′ a free passage around the groove *b*.

After the web of the sock is knit and all the needles are required, open the channel, give the machine one turn to the right, in the direction shown by arrow 2, and the needles will come into position, after which close the channel.

Having thus fully described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. The combination of the cam-cylinder A, formed with the ledge C, having groove *b* underneath the same and channel *d* through it, as shown, with the compound slide F G, all constructed and arranged to operate substantially as and for the purposes herein set forth.

2. The combination, with the cam-cylinder A, having ledge C, groove *b*, and channel *d*, of the compound slide F G, the inclined block L, passing through the cylinder and pressed into a groove, *o*, on the inner or needle cylinder, and the spring *p* and thumb-screw K, substantially as and for the purposes herein set forth.

3. The needles I′, provided, in addition to the usual shoulder or projection at the lower end, with the extra projection *m*, extending a less distance from the body of the needle, as shown, and for the purposes set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

WILLIAM H. MAYO.
GEORGE D. MAYO.

Witnesses:
H. C. WARD,
R. H. MATHEWS.