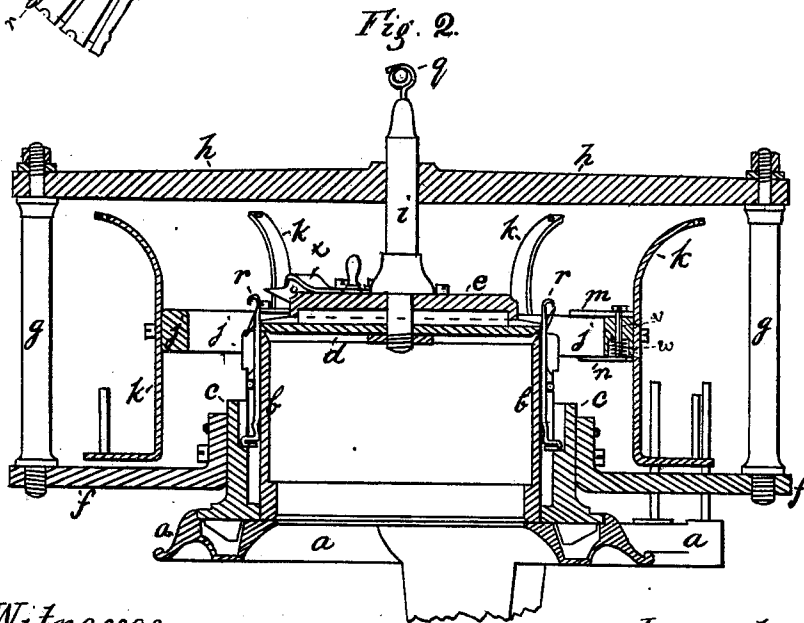
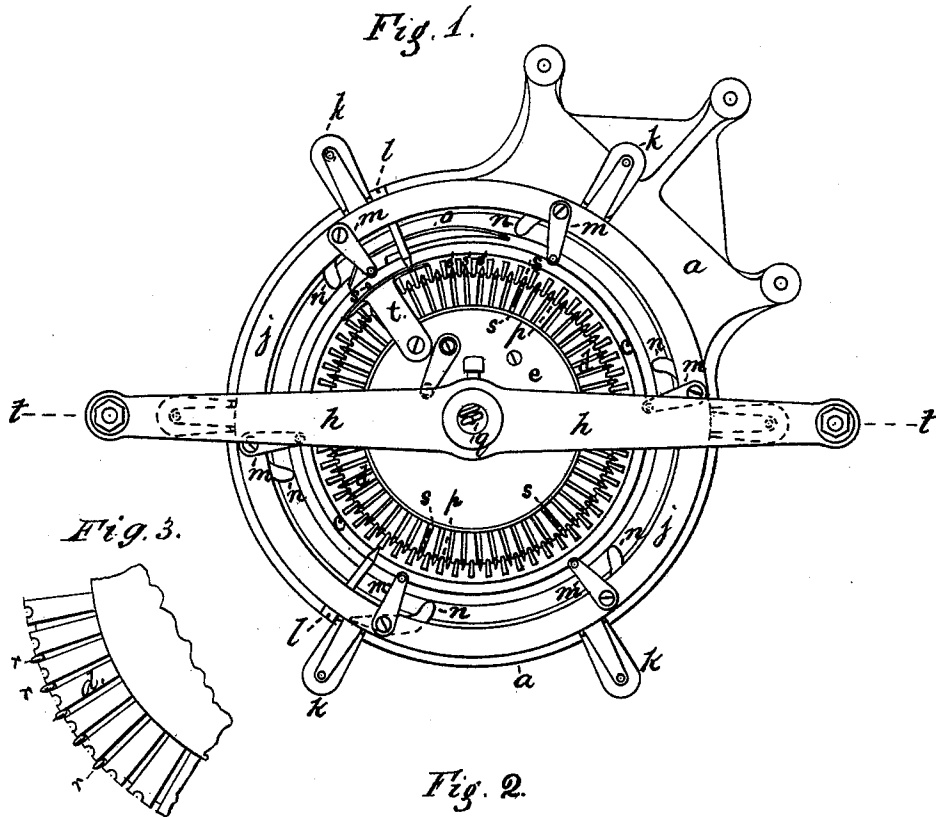


C. J. APPLETON.

EMBROIDERY RIB KNITTING-MACHINE.

No. 176,261.

Patented April 18, 1876.



Witnesses.

W. L. Bennett.
Ed. S. Nightman

Inventor.

Charles James Appleton

UNITED STATES PATENT OFFICE.

CHARLES JAMES APPLETON, OF ELIZABETH, NEW JERSEY.

IMPROVEMENT IN EMBROIDERY-RIB-KNITTING MACHINES.

Specification forming part of Letters Patent No. **176,261**, dated April 18, 1876; application filed March 1, 1876.

To all whom it may concern:

Be it known that I, CHARLES JAMES APPLETON, of Elizabeth, Union county, and State of New Jersey, have invented a new and Improved Embroidery-Rib-Knitting Machine; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, and the letters of reference marked thereon, in which the same letter represents the same thing in each figure.

Figure 1 represents a plan view of my embroidery-rib-knitting machine. Fig. 2 represents a vertical central section thereof. Fig. 3 represents a portion of the dial, showing the manner in which it is held stationary by means of the grooves on its edge and the cylinder-needles.

Letter *a* represents the bed-plate; *b*, the needle-cylinder; *c*, the cam-ring; *d*, the dial; *e*, the cap; *f f*, the brackets; *g g*, the bracket-studs; *h*, the cross-piece; *i*, the cross-piece stud; *j*, the embroidery-ring; *k k*, the embroidery bobbin-holders; *l l*, the embroidery-ring adjustable screws; *m m*, the embroidery yarn-guide; *n n*, the embroidery yarn-guide pawls; *o*, the embroidery pawl-cam; *p p*, the grooves on the dial edge; *q*, the revolving yarn-guides; *r r*, the cylinder-needles; *s s*, the dial embroidery-needles; *s' s'*, the other dial-needles, having longer latches than the embroidery-needles; *t*, the yarn-guide attached to the dial-cap; *v*, the stud in embroidery-ring, to which yarn-guide *m* and pawl *n* are attached; *w*, the spring surrounding and controlling the stud.

The object of my invention is to produce, on a rib-knitting machine, vertical stripes or wales of embroidery, each wale being made from a particular thread of colored yarn.

Needle-cylinder *b* being attached to bed-plate *a*, revolving cam-ring *c* gives needles *r r*, in cylinder *b*, reciprocating motion. Bracket *f*, attached to cam-ring *c*, supports studs *g g*, securing cross-piece *h*; dial *d*, cap *e*, on stud *i*, are suspended from cross-piece *h*. Cam-cap *e* revolves with stud *i*, dial *d* remaining stationary, secured to cylinder-needles by grooves

cut on its edge. Embroidery-ring *j* is held in position by adjustable screws *l l*. On the upper side of ring *j* yarn-guides *m m* are attached, receiving motion from pawl *n* and cam *o*. Bobbin-holders *k k* are secured to ring *j*.

The machine operates as follows: Revolving yarn-guide *q* feeds needles *r r*, placing a portion of yarn behind the latches of embroidery-needles *s s*, having shorter latches than the other dial-needles. The dial-needles are arranged to slide by cams in cam-cap *e*. When out, yarn-guide *m*, by action of pawl *n* and cam *o*, crosses embroidery-needle *s*, and lays the yarn in the hook; on the return of embroidery-needle *s*, the loop of ordinary yarn laid behind the latch is thrown off the needle-head upon the embroidery-yarn, between the needle-head and guide, and the two yarns are interlocked, forming the vertical embroidery-stripe.

No claim is made to the cams, and devices for operating them in the dial, as they form part of the subject-matter of another pending application.

What I claim as my invention is—

1. The combination of the dial *d*, having needles *s* and *s'*, the latches of which are of different lengths, with the cam-cap *e*, embroidery-ring *j*, pawls *n n*, cam *o*, yarn-guides *m m* and *t*, cam-ring *c*, cylinder *b*, and vertical needles *r r*, substantially as and for the purpose described.

2. The combination of grooved-edged dial *d*, cylinder *b*, and needles *r r*, operating together substantially as and for the purpose described.

3. The combination of ring *j*, adjustable screws *l l*, and cylinder *b*, operating together substantially as and for the purpose described.

4. The combination of cam-ring *c*, embroidery-ring *j*, pawls *n n*, cam *o*, yarn-guides *m m*, and needles *s s*, operating together substantially as and for the purpose described.

CHARLES JAMES APPLETON.

Witnesses:

S. J. GORDON,
G. D. RIPLEY.