C. J. APPLETON.

EMBROIDERY RIB KNITTING-MACHINE.

No. 176,261. Patented April 18, 1876.

Fig. 1.

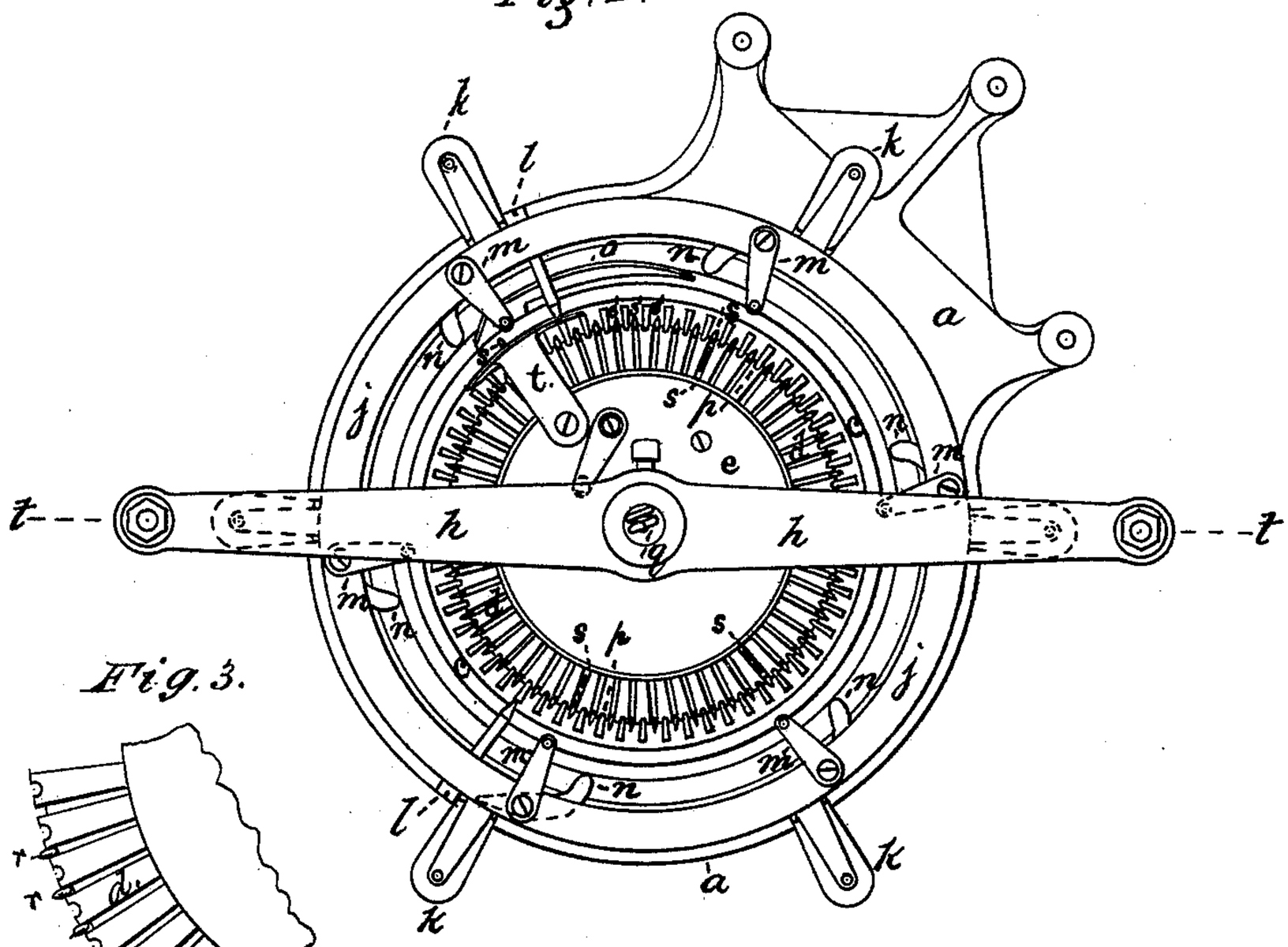
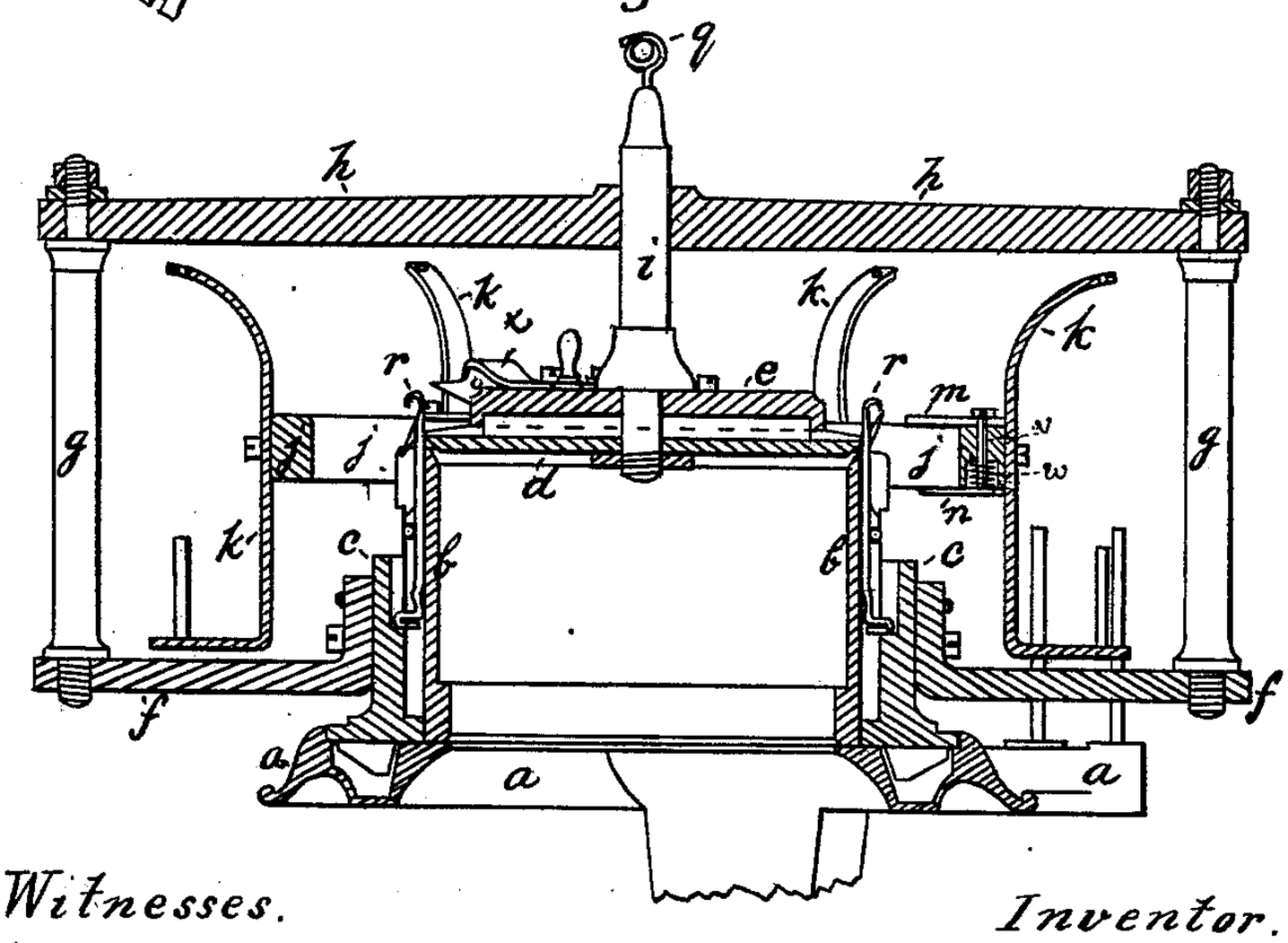


Fig. 3.

Fig. 2.



Witnesses.

W. L. Bennett.

Jas. S. Wightman

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 f r the purpose described.

CHARLES JAMES APPLETON.

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