2 Sheets—Sheet 1.

E. WRIGHT.

Sewing-Machine for Embroidering.

No. 221,650. **Patented Nov. 11, 1879.**

Fig. 1

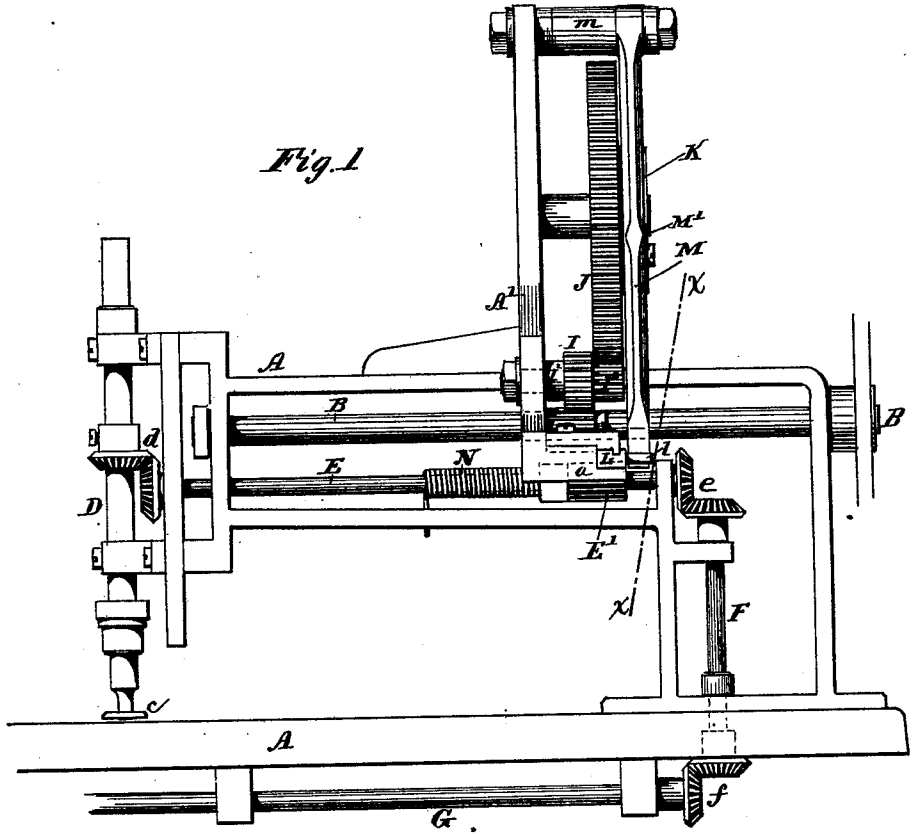


Fig. 3

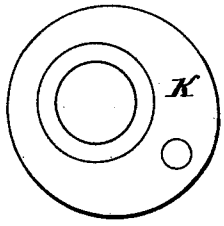


Fig. 4

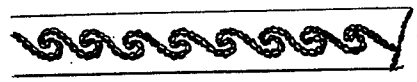
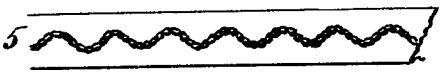


Fig. 5



Witnesses,
S. K. Barton
J. Walter Smith.

Inventor
Edward Wright
By Chas. H. Burleigh
Atty.

2 Sheets—Sheet 2.

E. WRIGHT.

Sewing-Machine for Embroidering.

No. 221,650. **Patented Nov. 11, 1879.**

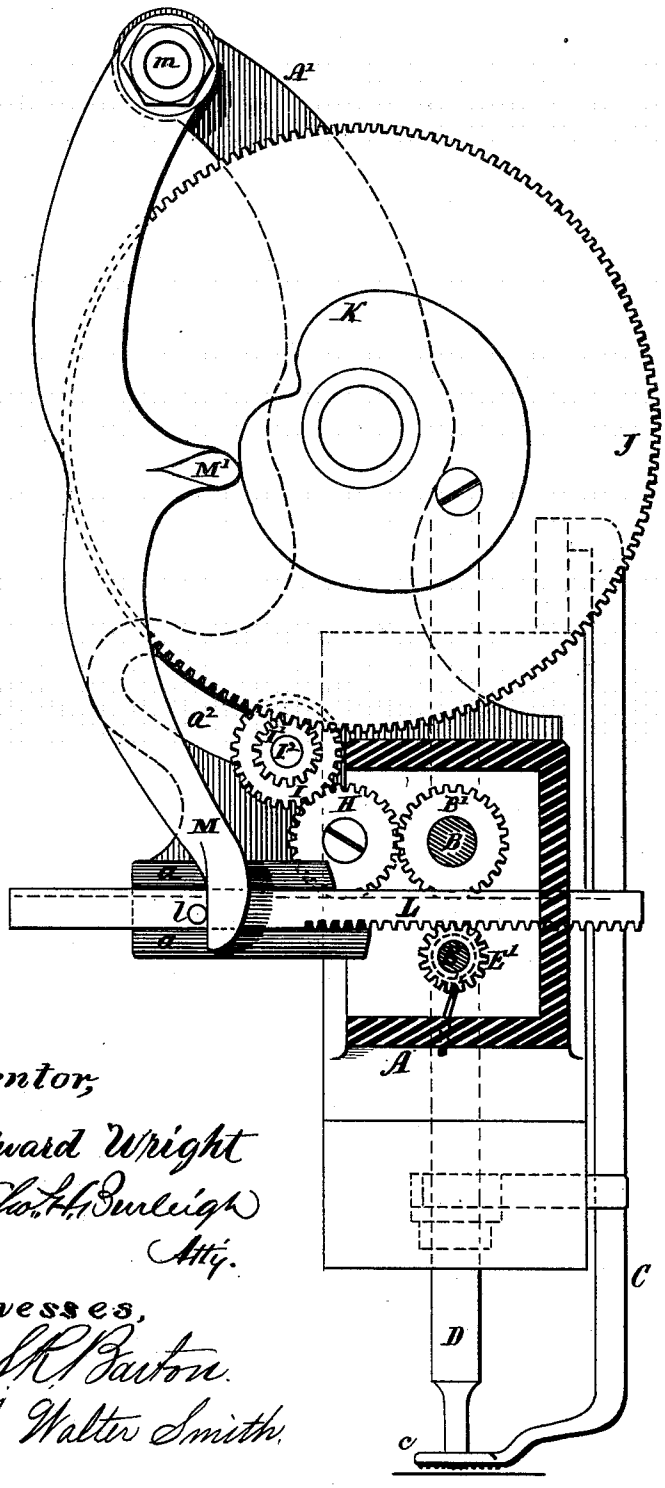


Fig. 2

Inventor,
Edward Wright
by Chas. H. Burleigh
Atty.

Witnesses,
S. R. Barton
J. Walter Smith

UNITED STATES PATENT OFFICE.

EDWARD WRIGHT, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES FOR EMBROIDERING.

Specification forming part of Letters Patent No. **221,650**, dated November 11, 1879; application filed April 14, 1879.

To all whom it may concern:

Be it known that I, EDWARD WRIGHT, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines for Embroidering; and I do hereby declare the following to be a description of my said invention sufficiently full, clear, and exact to enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 represents a front view of such parts of a sewing-machine for embroidering as are necessary to illustrate the nature of my invention. Fig. 2 represents a vertical section at line *x x*, Fig. 1, drawn on a larger scale. Fig. 3 shows a modified form of cam, and Figs. 4 and 5 illustrate two patterns of embroidery.

This invention relates to machines of that class known as the "Bonnaz" machine, for embroidery-stitching, braiding, and similar work, invented by Antoine Bonnaz, and described in Letters Patent Nos. 83,909 and 83,910, dated November 10, 1868; and my invention consists in the automatically-operating governor device, constructed and arranged as hereinafter described, for controlling the action of the universal-feed mechanism in said machines for the continuous production, in a uniform series, of a figure or embroidery pattern, as more fully hereinafter explained, the particular subject-matter claimed being hereinafter definitely specified.

It will be understood that the sewing mechanism, universal-feed motion, and other portions of the machine not herein shown or specifically described are to be constructed and arranged as in the ordinary Bonnaz machines now in use.

In the drawings, A denotes the frame; B, the driving-shaft; C, the universal-jointed feed-bar with presser-foot *c*, for holding and guiding the cloth; D, the needle-bar carrier; and E, F, and G, the connecting-shafts, provided with intermeshing bevel-gears *d e f*, whereby the simultaneous action of the feeding and looping devices above and below the table is effected. Said devices are arranged and combined with the usual operating parts as now used on the Bonnaz machines, all of which being well known, further illustration and description thereof are herein omitted.

In connection with the driving-shaft B, I arrange a gear, B′, and intermeshing and operated therefrom a train of gears, H, I, I′, and J, said latter gears being supported by a suitable bracket or standard, A′, secured to the frame A. Connected to the gear J, and revolving therewith, is a pattern-plate or cam, K, the face form of which depends upon the style of figure or design to be produced by the machine, sets of cams K being interchangeable for the production of different designs at pleasure.

E′ indicates a gear fixed on the shaft E and meshing with a reciprocating rack, L, which is retained to move in suitable guides *a* in such manner that longitudinal action of said rack L causes a rotary movement of the shafts E F G.

M indicates an arm or lever, pivoted at its upper end, *m*, to the bracket A′, with its lower extremity extended downward to engage with the pin or lug *l* on the rack L. A lug or bearing-finger, M′, on the side of said arm M rests upon the face of the cam K, so that revolution of said cam imparts a swinging action to the arm M, which, in turn, reciprocates the rack L, and operates the shafts E F G and parts connected therewith. Thus the face form of the cam K controls the action of the universal-feed mechanism in the development of the design upon the cloth or other material to be embroidered.

N indicates a spring, which acts on the parts in opposition to the bar M, and serves to hold the lug M′ against the face of the cam K. In the present instance said spring is coiled about the shaft E; but it can be arranged in any suitable manner or position for effecting the desired result; or by employing a grooved cam that would move the arm in both directions the spring might be omitted.

In the operation of my improved devices a continuous rotary movement of the cam or pattern-plate K is imparted from the driving-shaft B, while an irregular, intermittent, or variable movement forward or backward as controlled by the cam-face is transmitted to the shaft E, and thence to the universal-feed motions of the machine, thus causing said feed-

motion to develop the particular design required, and to repeat said design in a perfect and uniform manner at each revolution of the governing-cam, and without any attention from the operator.

By using a cam of the form shown in Fig. 2 a design like Fig. 4 is produced, while a cam similar to Fig. 3 causes the production of a design similar to Fig. 5. Other designs can be made by varying the form of cams, while the pattern can also be more or less extended by change in the relative size of the gears I I′, and to facilitate such change their supporting-stud I^2 is made adjustable by means of the curved slot a^1 in the bracket A′.

A curved segment may be used in lieu of the straight rack L, and the governor mechanism may be fitted to act on either of the shafts E, F, or G without change in the result.

Automatic governing attachments such as herein shown and described can be readily applied to any of the Bonnaz machines now in use without material change in their present mechanism.

What I claim as of my invention, and desire to secure by Letters Patent, is—

In combination with universal-feed mechanism and shafts B and E as employed in a Bonnaz sewing and embroidering machine, the automatic governing mechanism consisting of the gears B′, H, I, I′, J, and E′, the pattern-plate or cam K, the arm or lever M, and the reciprocating rack L, said parts being constructed and organized for operation substantially as and for the purpose set forth.

Witness my hand this 2d day of April, A. D. 1879.

EDWARD WRIGHT.

Witnesses:
CHAS. H. BURLEIGH,
J. WALTER SMITH.