No. 626,367. Patented June 6, 1899.

E. & R. CORNELY.

EMBROIDERING AND EDGING MACHINE.

(Application filed Feb. 19, 1898.)

(No Model.) 3 Sheets—Sheet 1.

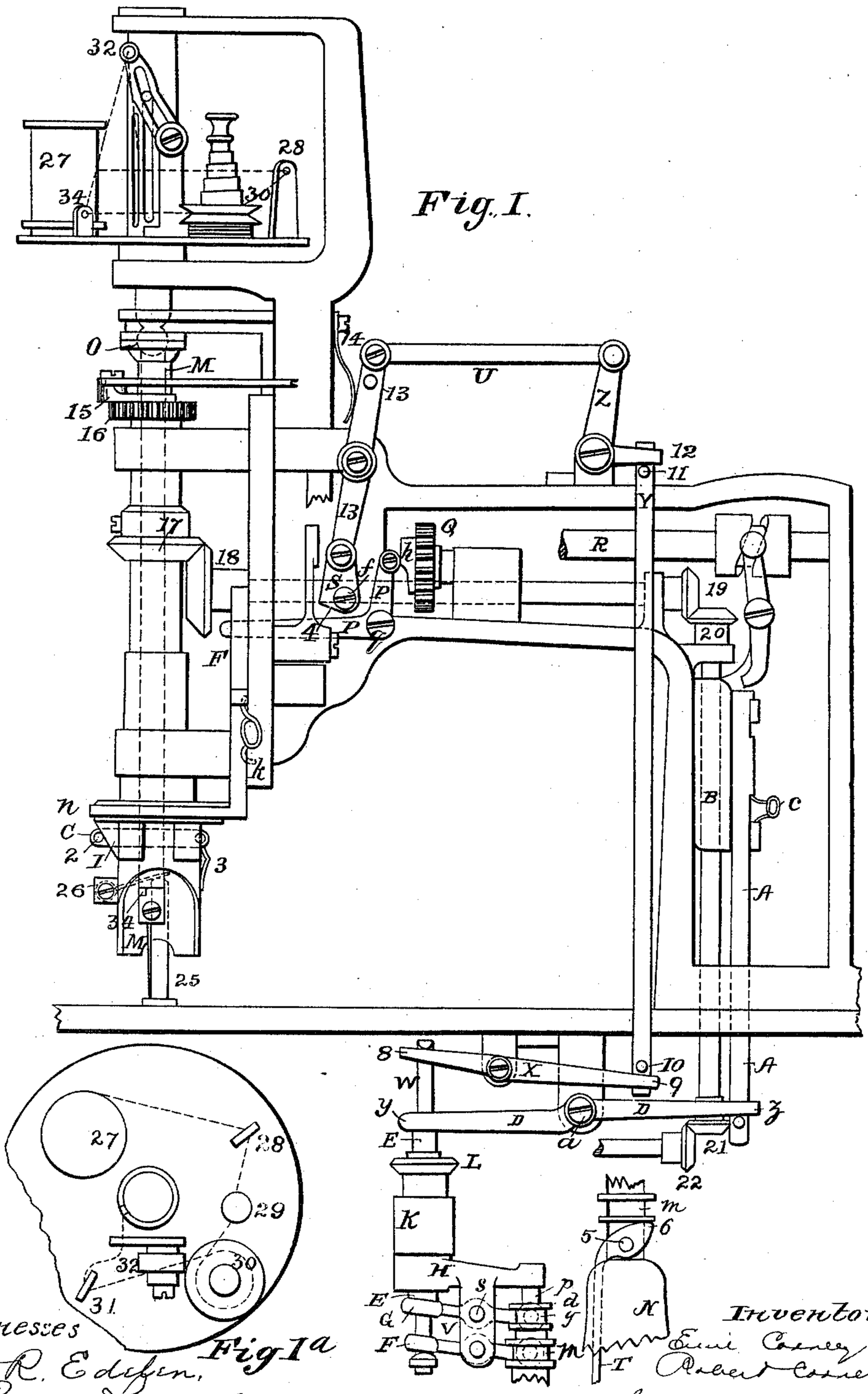

Fig. 1.

Fig 1a

Witnesses
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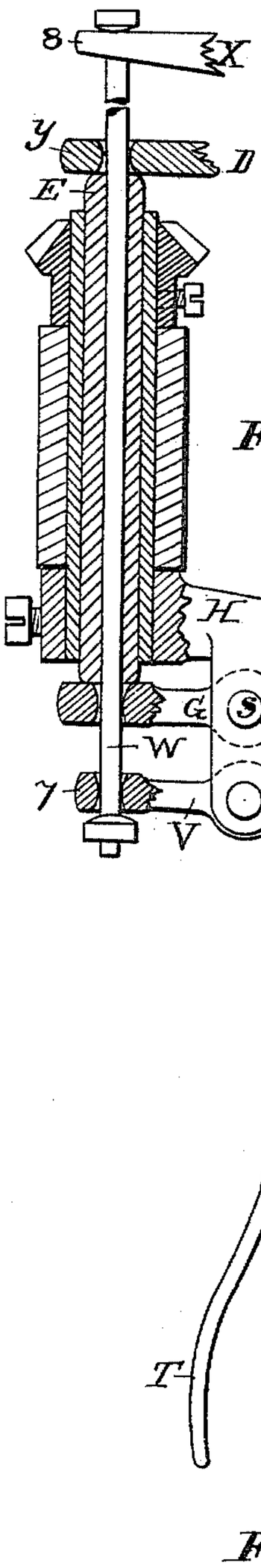

Fig. 2.

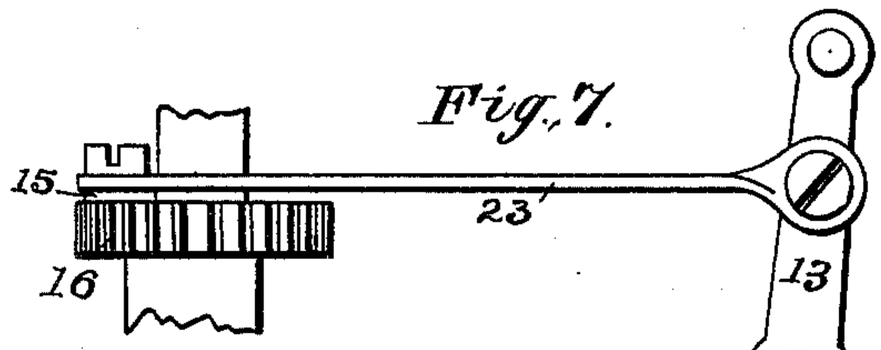

Fig. 7.

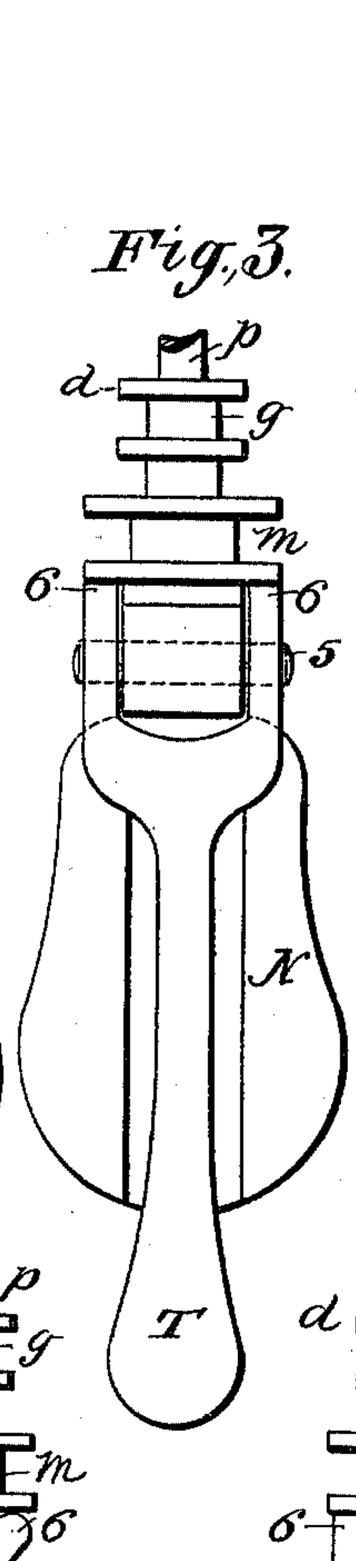

Fig. 3.

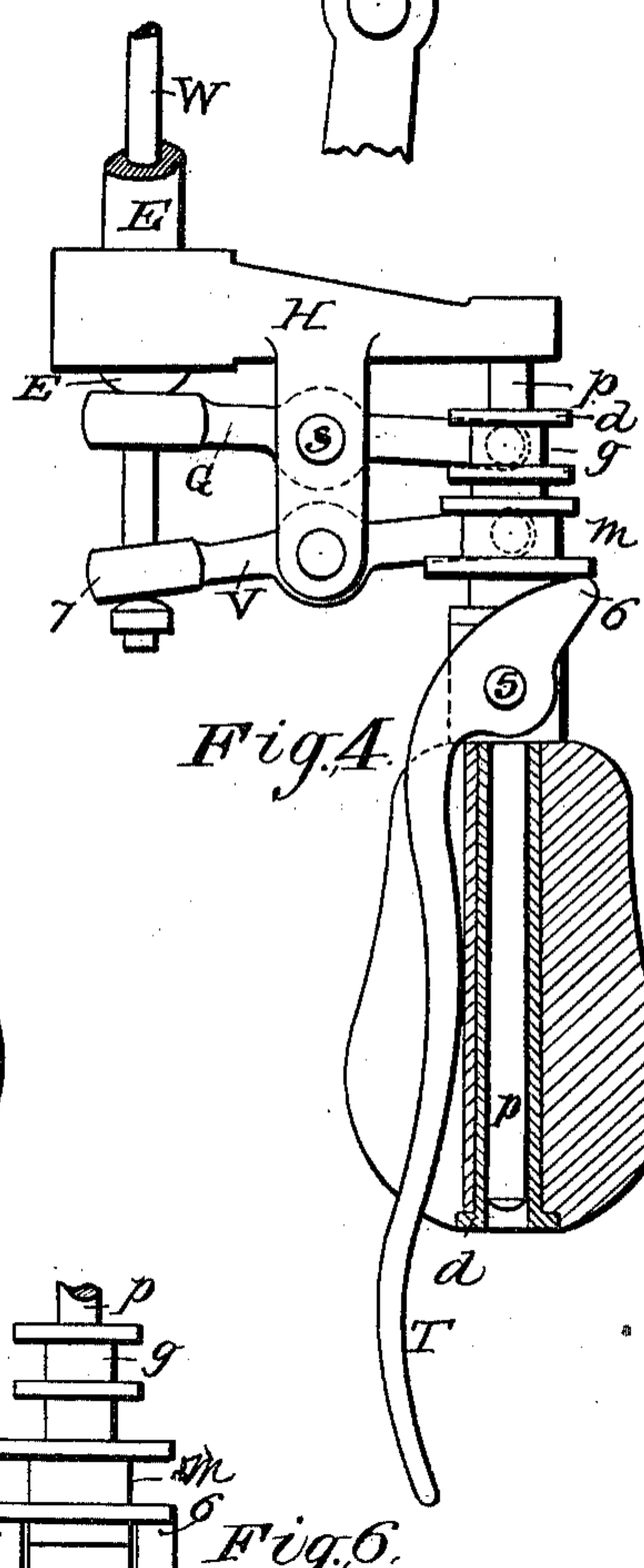

Fig. 4.

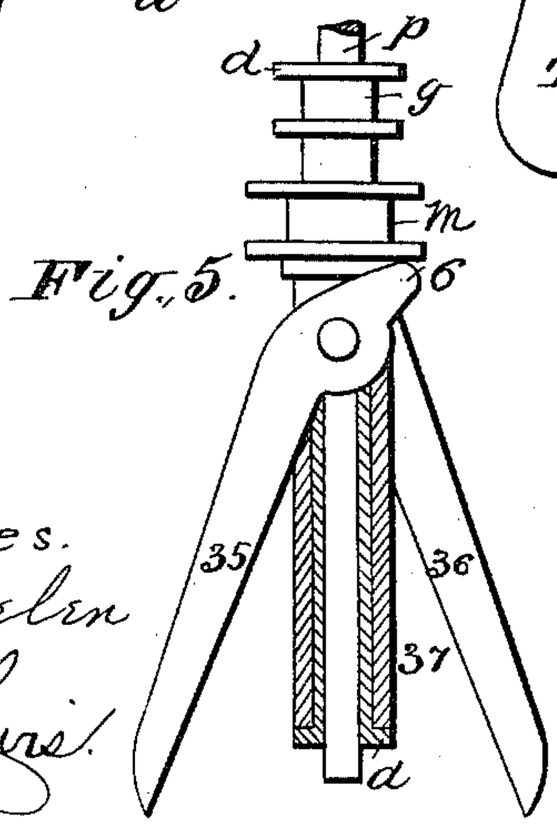

Fig. 5.

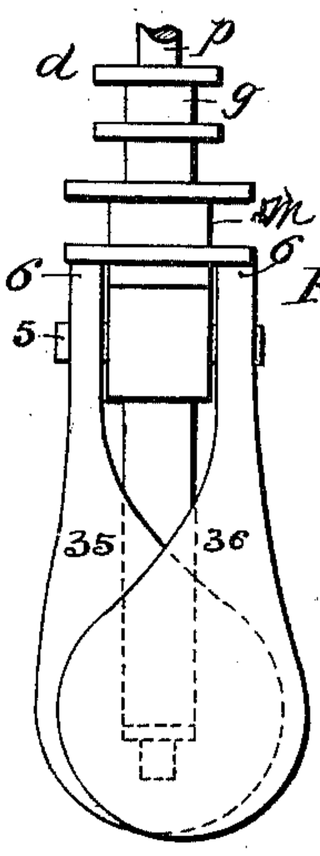

Fig. 6.

Witnesses.
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Geo. Lewis.

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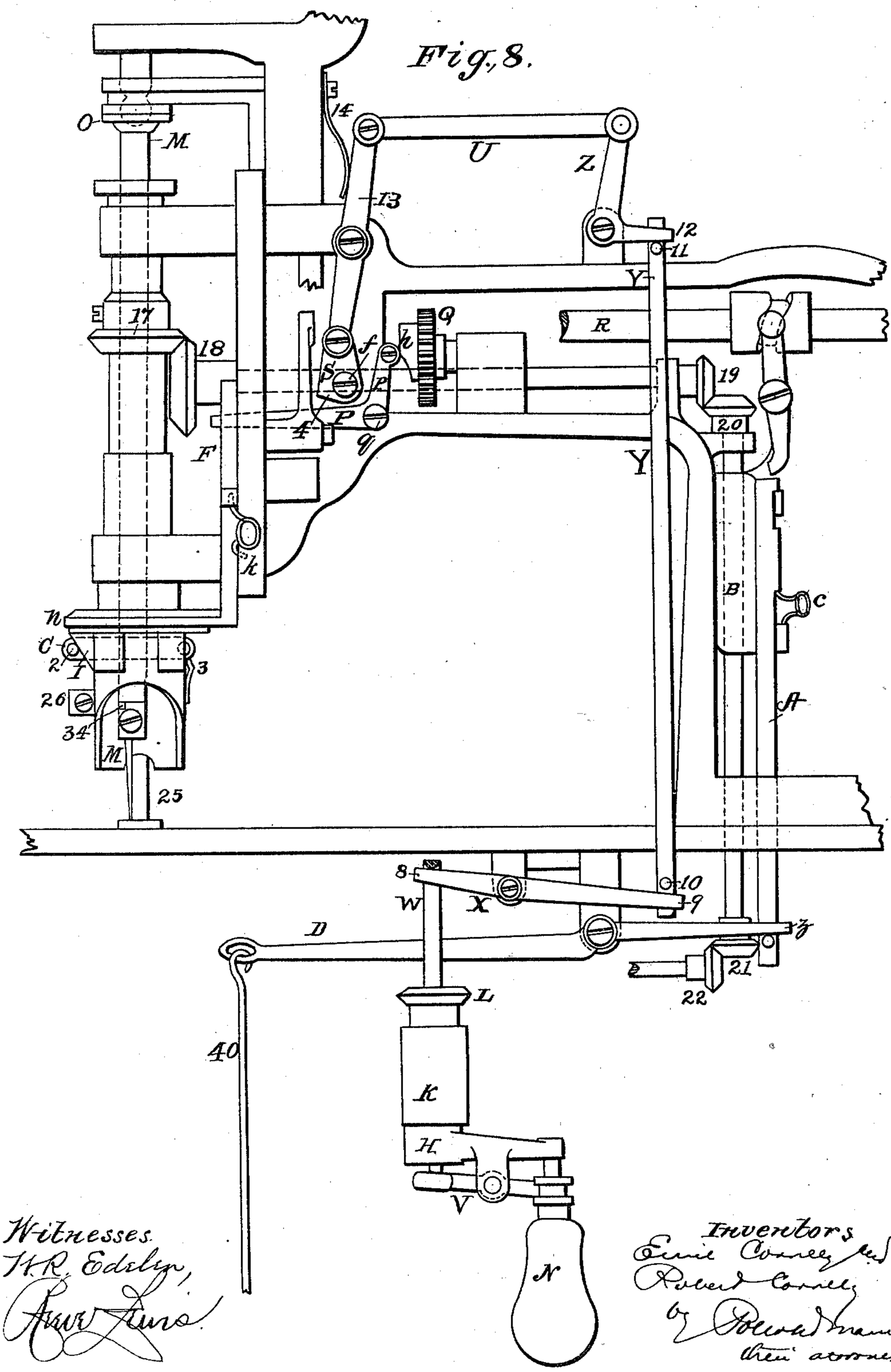
E. & R. CORNELY.

EMBROIDERING AND EDGING MACHINE.

(Application filed Feb. 19, 1898.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 8.



Witnesses.
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Arthur Lunn.

Inventors
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UNITED STATES PATENT OFFICE.

EMIL CORNELY AND ROBERT CORNELY, OF PARIS, FRANCE.

EMBROIDERING AND EDGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 626,367, dated June 6, 1899.

Application filed February 19, 1898. Serial No. 670,959. (No model.)

To all whom it may concern:

Be it known that we, EMIL CORNELY and ROBERT CORNELY, citizens of the United States, residing at Paris, France, have invented Improvements in Embroidering and Edging Machines, of which the following is a specification.

The present invention relates to machines in which the needle effectuates an oscillating motion combined with its up-and-down motion.

The object of the invention is to make this oscillation of the needle variable in order to produce edging or embroidering seams of variable width. This new mechanism is governed by the crank-handle of the universal feed mechanism of the machine and can either be made automatic for the production of edging-scallops of regular form or can be made governable by hand for the production of embroidering-seams of variable width.

In order to facilitate the comprehension of this invention, it is shown in the accompanying drawings in this application upon the machine described in Letters Patent No. 462,858, of November 10, 1891, in which the needle effectuates an oscillating motion, and thus, according to the length of the stitches, produces overseaming, zigzag, or edging seams.

In said drawings, Figure 1 is a side elevation of a machine embodying our invention. Fig. 1ª is a plan of the thread-guide and tension devices seen at the top of Fig. 1. Fig. 2 is a vertical section of the crank-handle and parts connected therewith. Fig. 3 is an elevation of the crank-handle and lever. Fig. 4 is a view of the same, showing the parts in a different position. Figs. 5 and 6 are views of modified forms of crank-handle and lever. Fig. 7 is a fragmentary detail, and Fig. 8 is a broken elevation showing means for operating the stop mechanism by foot.

The oscillating motion of the needle-bar is obtained in the following way: The main shaft R of the machine, Fig. 1, is provided with a small cog-wheel which drives a cog-wheel Q of double its size. This cog-wheel Q is provided with a cam *h*, which operates lever P, the latter (lever P) playing upon its fulcrum *q*. The horizontal arm of lever P operates slide F, which by means of its fork *n* drives cone I. This latter (cone I) works against pin 2 of sliding part C. When, therefore, cone I descends, then it pushes sliding part C to the left, and when slide F is raised by the action of spring K then pin 2 is released from the pressure of cone I, and the sliding part C is then moved to the right by the action of spring 3.

Needle-bar M is suspended at its upper end by means of a ball-joint O, while the under end of said needle-bar projects through sliding part C, which thus transmits its oscillating motion to the needle-bar. An eccentric disk S plays freely upon its pivot *f*, and the under edge 4 of said disk S forms an eccentric curve to its fulcrum *f*. In its oscillating motion lever P strikes against eccentric disk S, and according to the position of said eccentric disk S the motion of lever P will be increased or decreased, and therefore according to the eccentric disk S being pushed to the right or to the left the motion of the slide F will be increased or decreased, and consequently the oscillating motion of needle-bar M will vary accordingly, thus varying the width of the seam. It is therefore necessary, in order to vary the width of the seam according to the work required, that the operator should be able to shift the eccentric disk S while the machine is in operation. For this purpose we utilize the stop-motion described in Letters Patent No. 182,804, of October 3, 1876, but changing it in such a way that this stop-motion while operating the eccentric disk S still governs the stop-motion of the machine, as well as the direction of the feed. This new arrangement is represented in Fig. 1 and on a large scale in Figs. 2, 3, and 4, wherein N is the handle of the stop-motion, which is secured upon tube *d*, provided with a circular groove *g*, which tube slides freely up and down upon rod *p*. A lever G swings upon pivot *s*. One of its ends penetrates into groove *g*, while its other end works against the end of tube E. When now handle N is pushed downward, then lever G pushes tube E upward. This tube E acts against the end *y* of lever D and pushes it upward, whereby the other end *z* of lever D, Fig. 1, descends and draws the stop-motion rod A downward, thus throwing the machine into gear.

The mechanism which operates the eccentric disk S is composed of lever T, which works

upon its pivot 5, which is secured upon the handle N of the stop-motion. The short arm 6 of this lever works against a sliding collar provided with a groove *m*. While working, the operator holds the handle N by means of the thumb, forefinger, and middle finger in order to throw the machine into gear and to govern the direction of the feed. At the same time the two other fingers can press against the end of lever T and push it into the groove of handle N, as represented in Fig. 4. In this case the collar *m* is pushed upward, whereby the end 7 of lever V descends, and with the latter rod W, Fig. 1, and the end 8 of lever X, while the end 9 of said lever X is pushed upward. This lever X works against pin 10 of rod Y, which at its upper end is provided with a pin 11. This pin 11 operates lever Z, which latter by means of rod U transmits its motion to lever 13, which operates eccentric disk S, and thus shifts this disk as may be required in order to regulate the oscillation of lever P according to the width of seam desired. When the pressure upon lever T ceases, then spring 14 pushes lever 13 to the right, and thus the whole system of levers U, Z, Y, W, V, and T returns back to the position represented in Figs. 1 and 2.

When edging-scallops are to be produced the scallops of which have to be broad in the middle and narrow toward the angles of the arcs, then the motion of the eccentric disk S can be produced automatically. For this purpose a tooth-wheel 16, Figs. 1 and 7, which turns with the feed motion of the machine, is provided with a crank 15, which operates lever 13 by means of rod 23. In this case rod U, which drives lever 13 in the above-described mechanism, has to be removed. The turning motion of the crank-handle N is transmitted to tooth-wheel 17 by means of wheels 18, 19, 20, 21, and 22, and thus the eccentric disk S is operated automatically in order to decrease the oscillations of the needle in the angles of the scallops and to increase said oscillations in the center of the arcs.

In place of the handle represented in Figs. 2, 3, and 4, a handle can be employed as shown in Figs. 5 and 6. In this case the handle itself is composed of two levers 35 and 36, which act at the same time as handle and as levers. These two levers are secured upon tube 37, which is itself placed upon tube *d*, as above described in reference to Figs. 2, 3, and 4. When the two levers 35 and 36 are pressed together, then the pressure of their upper ends 6 produces exactly the same motions as above described in reference to Figs. 2, 3, and 4.

For the formation of the seam the small presser-nipple 25, through which the needle passes, has to press the cloth as long as the needle is in the cloth. This nipple 25 is pressed upon the cloth by the action of spring 26 and is lifted upward by the motion of the needle-bar M, which is for this purpose provided with a projection which takes hold of the nipple 25 at the right moment.

The sewing or embroidering silk or thread comes from spool 27, from whence it goes through guides 28 and 29, then around turning disks 30, through guides 31 and 32, guide 34, and at last through the eye of the needle.

Fig. 8 represents the same machine in which the stop-motion of the machine is operated by the foot of the operator by means of rod 40, which acts upon lever D, the stop-motion rod A, and thus throws the machine in gear, as above described. The eccentric disk S is then operated by the crank-handle N by means of levers V, W, X, Y, Z, U, and 13, as above described.

We claim—

1. In sewing and embroidering machines, the combination of universal feed mechanism, a crank arm and handle for operating the same, an oscillating needle and means effecting the oscillations thereof, with a regulating device for said means normally held in a predetermined position, and a lever pivoted on said crank-arm and in operative relation with said regulating device.

2. In sewing and embroidering machines, the combination of universal feed mechanism, a crank arm and handle for operating the same, an oscillating needle and means for effecting the oscillations thereof, with a regulating-cam for said means, a spring tending to hold it in a predetermined position, and a lever pivoted on said crank-arm and in operative relation with said cam.

3. In sewing and embroidering machines, the combination of universal feed mechanism, a crank arm and handle for operating the same, an oscillating needle and a cam operating through suitable connections to effect the oscillations thereof, with a regulating-cam controlling the movements of said connections and a lever pivoted on said crank-arm and in operative relation with said cam.

4. In sewing and embroidering machines, the combination of universal feed mechanism having an operative crank arm and handle, an oscillating needle, and means effecting the oscillations thereof, an independent regulating device for said means whereby the length of the oscillations is determined, a lever mounted on said crank-arm and controlling said regulating device, and operative connections between the lever and crank-arm handle.

In witness whereof we have hereunto set our hands in presence of two witnesses.

EMIL CORNELY.
ROBERT CORNELY.

Witnesses:
EDWARD P. MACLEAN,
JOHN S. ABERCROMBIE.