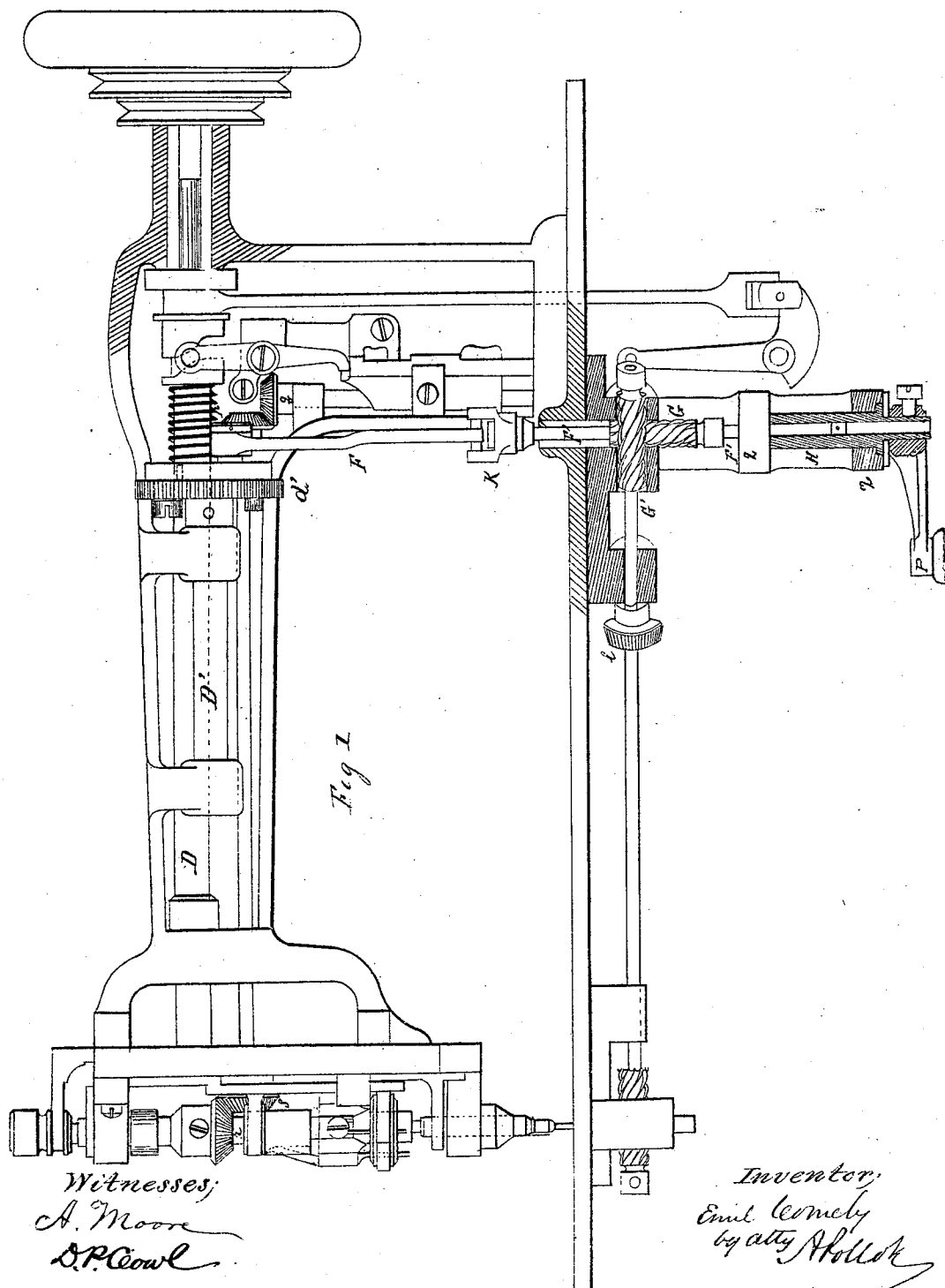


E. CORNELY.

Overseaming and Embroidering Machines.

No. 148,182.

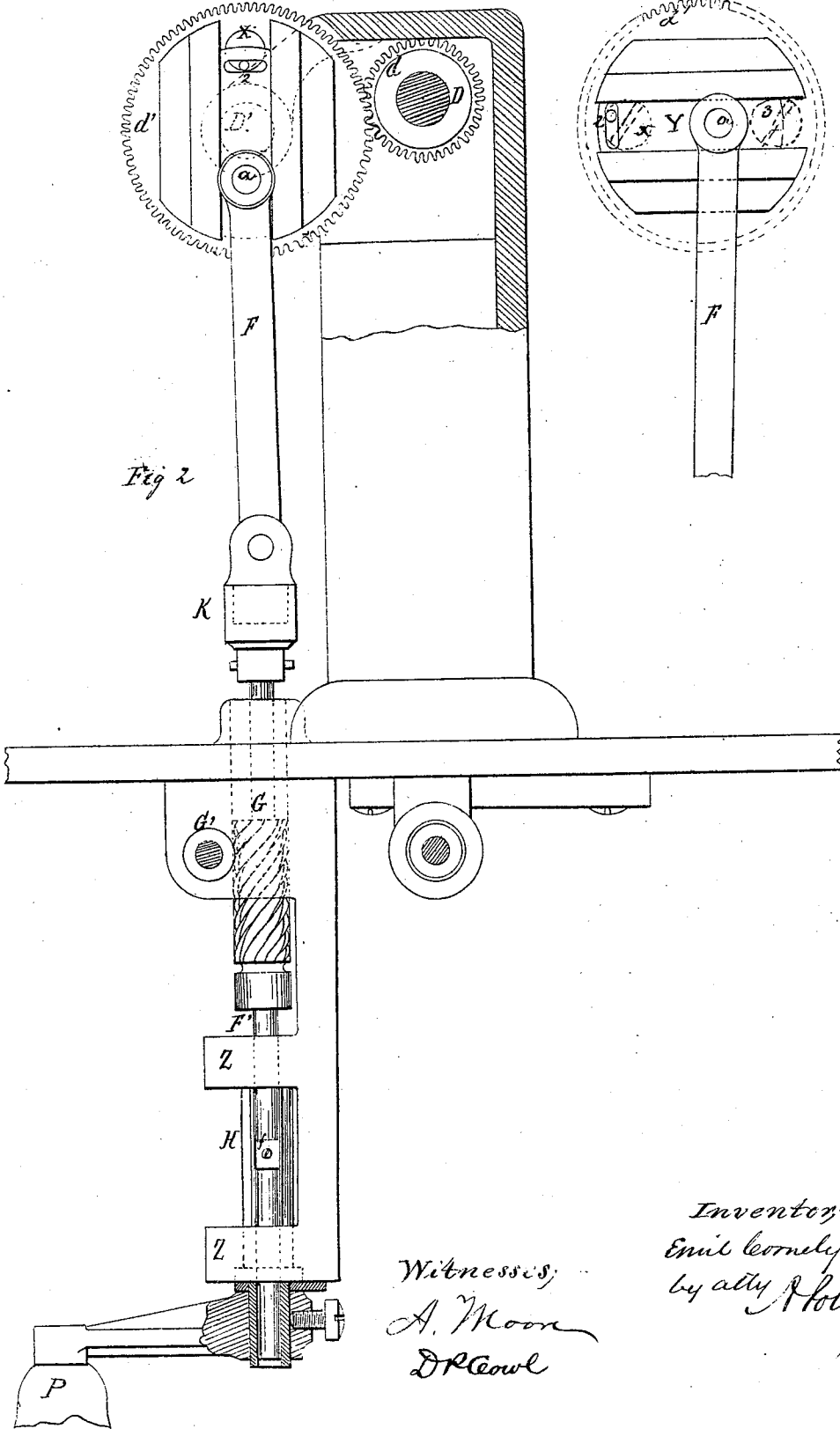
Patented March 3, 1874.



Witnesses;  
 A. Moore  
 D.P. Cowl

Inventor:  
 Emil Cornely  
 by atty Stoll

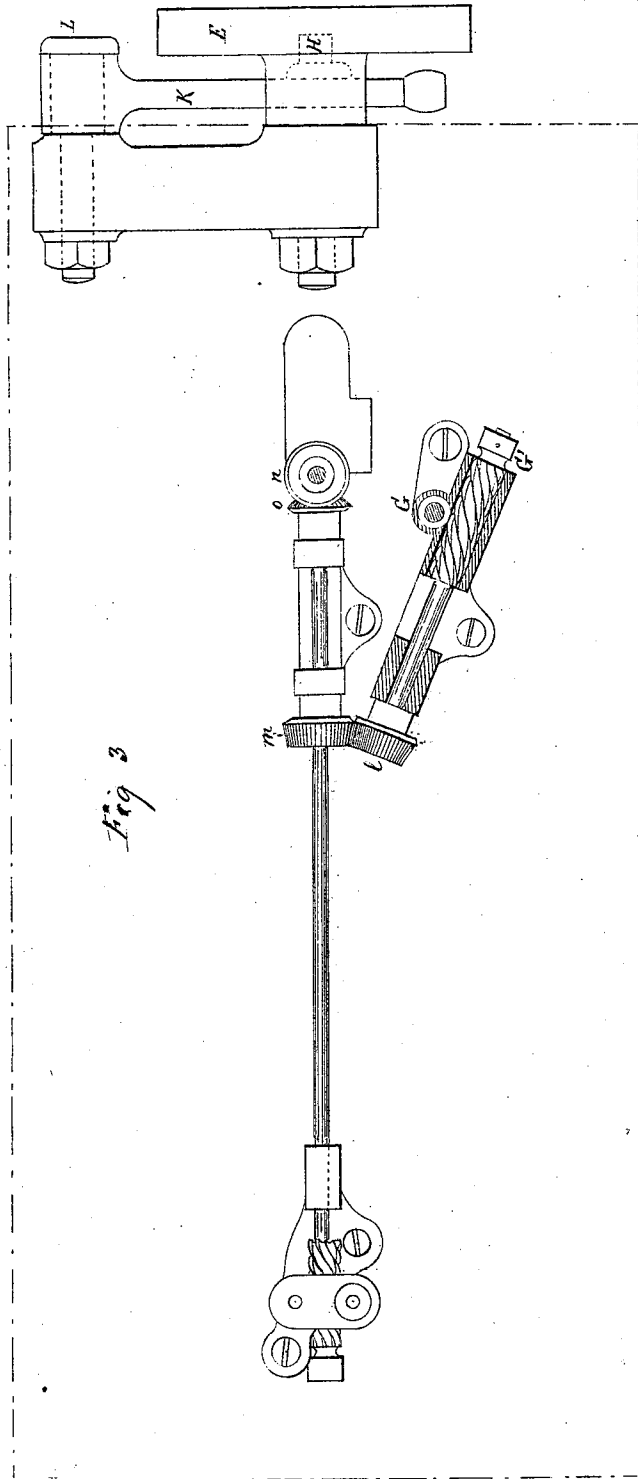
**E. CORNELY.**  
**Overseaming and Embroidering Machines.**  
No. 148,182. Patented March 3, 1874.



Witnesses;  
*A. Moon*  
*D. Cowl*

*Inventor*  
*Emil Cornely*  
*by atty A. Hollak*

**E. CORNELY.**  
**Overseaming and Embroidering Machines.**  
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*Fig 3*

*Witnesses,*  
*A Moore*  
*D.P. Lowl*

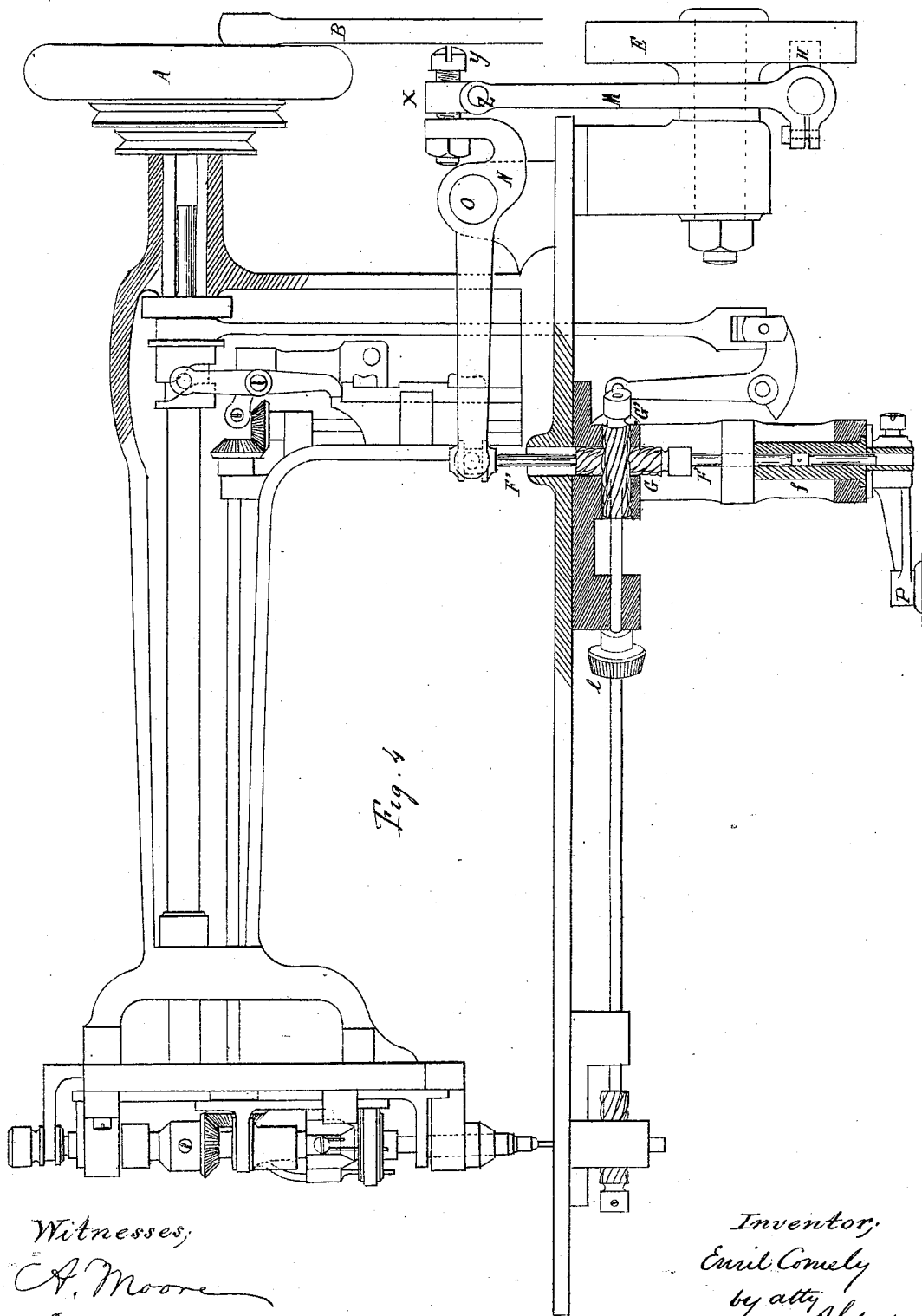
*Inventor,*  
*Emil Cornely*  
*by atty*  
*Attest*

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Witnesses:  
*A. Moore*  
*D.P. Cowl*

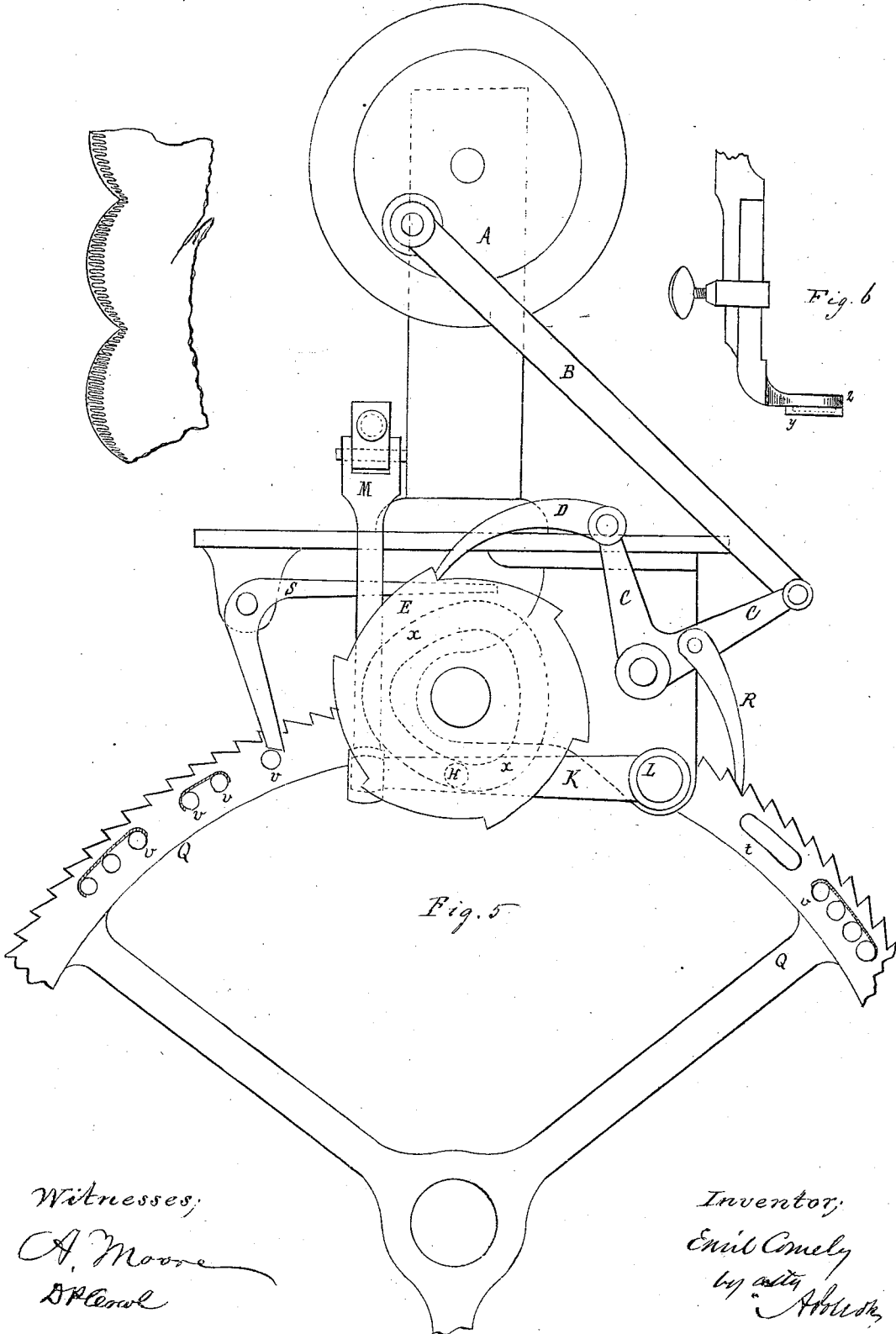
Inventor:  
*E. Cornely*  
by atty *Hollak*

E. CORNELY.

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Witnesses:

A. Moore  
D. Crowl

Inventor:

Emil Cornely  
by atty. Ables

# UNITED STATES PATENT OFFICE.

EMIL CORNELY, OF PARIS, FRANCE.

## IMPROVEMENT IN OVERSEAMING AND EMBROIDERING MACHINES.

Specification forming part of Letters Patent No. 148,182, dated March 3, 1874; application filed January 20, 1874.

To all whom it may concern:

Be it known that I, EMIL CORNELY, of the city of Washington, residing at Paris, in the French Republic, have invented new and useful Improvements in Overseaming and Embroidering Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 represents an elevation of said machine. Fig. 2 represents an end view. Figs. 3, 4, 5, and 6 represent views hereafter to be referred to.

My invention relates to certain improvements on the Bonnaz embroidering-machine for which Letters Patent of the United States were granted to me on 10th November, 1868, as assignee of A. Bonnaz. A description of said machine having been fully given in said Letters Patent, it is needless to repeat it in this specification.

Before proceeding to explain the mechanism which constitutes my improvement, I will state that the object of my invention is to make a zigzag chain-stitch, or an overseaming-stitch, by means of the mechanism of the Bonnaz embroidering-machine, which, in its ordinary operation, makes an ordinary chain-stitch only. This I accomplish by reversing the feed motion of the machine after each stitch by means of an additional mechanism, which is combined with the machine in such a manner that its operation in no way interferes with the universal feed motion of said machine, by which the most intricate embroidery can be produced without turning the material. I am thus enabled to do overseaming work or edging, as well as to make a highly-ornamental embroidering-stitch, which, by the aid of the universal feed motion, can be employed to execute the most intricate designs without turning the material.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A pinion, *a*, is secured to the main shaft D, Fig. 2, and drives a cogged wheel, *d'*, which is secured to an auxiliary shaft, D'. The pinion *d'*, having double the diameter of pinion *a*, makes only one revolution to each two revolutions of the latter, and drives, by means of a

crank-pin, *a*, a pitman, F, a rod, F', and a screw-gear, G, which latter is in gear with the horizontal screw-gear G', and imparts to it an oscillating motion upon its axis, which is communicated to the feed motion, as well as to the other principal elements of the machine, by means of the gearings *l m n o p q r s*, Figs. 1 and 5; and as the length of stroke of rod F' is such as to turn the screw-gear G' less than half a turn, the feed motion of the machine is thereby reversed less than half a turn, thereby producing a zigzag chain-stitch, the machine making one stitch to the right, one to the left, one to the right, &c.

As in the Bonnaz embroidering-machine, the feed of the machine is directed by means of a crank-handle, P, but whose operation must not interfere with the vertical reciprocating motion of the rod F and of the screw-gearings G and G'. To obtain this result I have fixed a stud, *f*, upon the rod F', and said stud slides within a groove of the sleeve H, which can turn freely in a support, Z. The crank-handle being secured upon the end of the sleeve H, it can turn the latter while the rod F' slides therein freely, but upon turning the crank P and the sleeve H the latter will also turn the shaft F', through the stud *f*, as well as the gearings G G' *l m n o p q r s*, and the entire feed apparatus as well as the needle and looper of the machine. The rod F' is connected with the pitman F by means of a universal joint, so as to permit the former to play freely on its vertical axis.

It is necessary that the stroke of the rod F' and of its screw-gear G should be made adjustable, so that the oscillation of the screw G' can be regulated very accurately, to produce a wider or narrower zigzag or overseaming stitch. This is effected by securing the crank-pin *a* not directly to the wheel *d'*, but to a slide, Y, which is dovetailed in said wheel. A screw, X, is provided with an eccentric-pin, 2, which reaches into a slot of the slide Y, and by turning it said slide can be adjusted so as to bring the crank-pin *a* nearer to or farther off from the center shaft D', thereby reducing or increasing the length of stroke of shaft F', and consequently the width of the overseaming-stitch. The slide Y is secured against the wheel *d'* by the set-screw 3.

The original Bonnaz embroidering-machine

is provided with a ring-shaped toothed feed-surface, which, being secured to a feed-bar hinged upon a universal joint, performs the universal feed in any desired direction. The feed-bar being pivoted to a hinge, I find that it does not bear equally well upon the material in any position, which is very essential, chiefly in the overseaming work, and on very light goods, such as muslin or tulle. Instead, therefore, of employing a circular toothed feed-surface, I employ a circular feeder, *z*, Fig. 6, provided with an india-rubber ring or washer, *y*, which is set upon a collar of the feeder *z*, and which, by reason of its elasticity, bears equally well upon the material in any position, and produces a more perfect and reliable feed.

The operation of the rod *F'*, and consequently of the zigzag movement above described, may be stopped during certain intervals, during which the machine produces ordinary chain-stitches, so as to make mixed stitches—for instance, one stitch to the right and an ordinary chain-stitch; one stitch to the left and two ordinary chain-stitches; one stitch to the right and three ordinary chain-stitches; one stitch to the left and four ordinary chain-stitches, &c.

The mechanism for producing said mixed stitches is illustrated in Figs. 4 and 5, and operates in the following manner: The fly-wheel *A* drives the pitman *B*, lever *C*, and clutch *D*, and the six-toothed ratchet *E*, which consequently makes one-sixth of a revolution at each stroke of the machine. The friction-roller *H*, whose axis is secured to the lever *K*, reaches into the cam-groove *x* of the ratchet-wheel *E*, and as the latter is operated upon it operates the lever *K*, causing it to swing upon its pivot *L*. The end of the lever *K* is connected to the pitman *M*, which latter, being attached to the short arm of the lever *N*, Fig. 4, operates said lever and drives the rod *F'*, the screw-gearings *G* and *G'*, and the entire zigzag or overseaming apparatus, in the manner above described, thus showing an equivalent mechanical device or combination for producing the same result, as above described. But the motion of the entire apparatus may be instantly stopped if the pawl *D* is raised at certain intervals, although the motion of the ma-

chine may continue. To effect this I employ a large ratchet-wheel, *Q*, which is driven by means of the pawl *R* of the lever *C*. It is provided with pins or studs *v*, and when one of them comes in contact with the vertical arm of the lever *S*, it turns said lever, raising its horizontal arm, and consequently the pawl *D*, thus stopping instantaneously the motion of the ratchet-wheel *E* and of the entire zigzag apparatus.

The pins *v* on the wheel *Q* are arranged in such an order as to produce the desired stoppages. If the intervals are to be during several strokes of the machine, several pins may be united by covering them with small metal caps, or studs *t* of the desired length may be employed.

The length of the stroke of the rod *F* may be adjusted by means of the screw *y*, Fig. 4, on which a collar, *X*, is adjusted, to which the pitman *M* is pivoted at *Z*. Thus the said pivot *Z* can be brought nearer to or farther from the fulcrum *O* of the lever *N*, producing the desired adjustments in the stroke of rod *F*.

Having thus fully described the nature of my invention, what I claim herein as new, and desired to secure by Letters Patent, is—

1. In an embroidering-machine, substantially as described, the combination, with the universally-jointed feed-bar, of the rising-and-falling shaft *F'*, and the system of shafts and gearing connecting said shaft and feed-bar, and imparting to the latter during the operation of the machine a reciprocating or oscillating movement, for the production of a zigzag or overseaming stitch, substantially in the manner herein shown and set forth.

2. The combination of the wheels *d d'*, rods *F F'*, screw-gears *G G'*, sleeve *H*, and crank *P*, substantially as and in the manner and for the purposes described.

3. The combination, with the wheel *d'*, of the adjustable slide *Y*, eccentric-screw *X*, set-screw *3*, and crank-pin *a*, for the purpose of adjusting the length of the stroke, and consequently the width of the overseaming-stitch, substantially in the manner herein described.

E. CORNELLY.

Witnesses:

A. POLLOK,  
J. HENRY JOHNSON.