(No Model.) 3 Sheets—Sheet 1.

T. A. MACAULAY.

SEWING MACHINE.

No. 249,648. Patented Nov. 15, 1881.

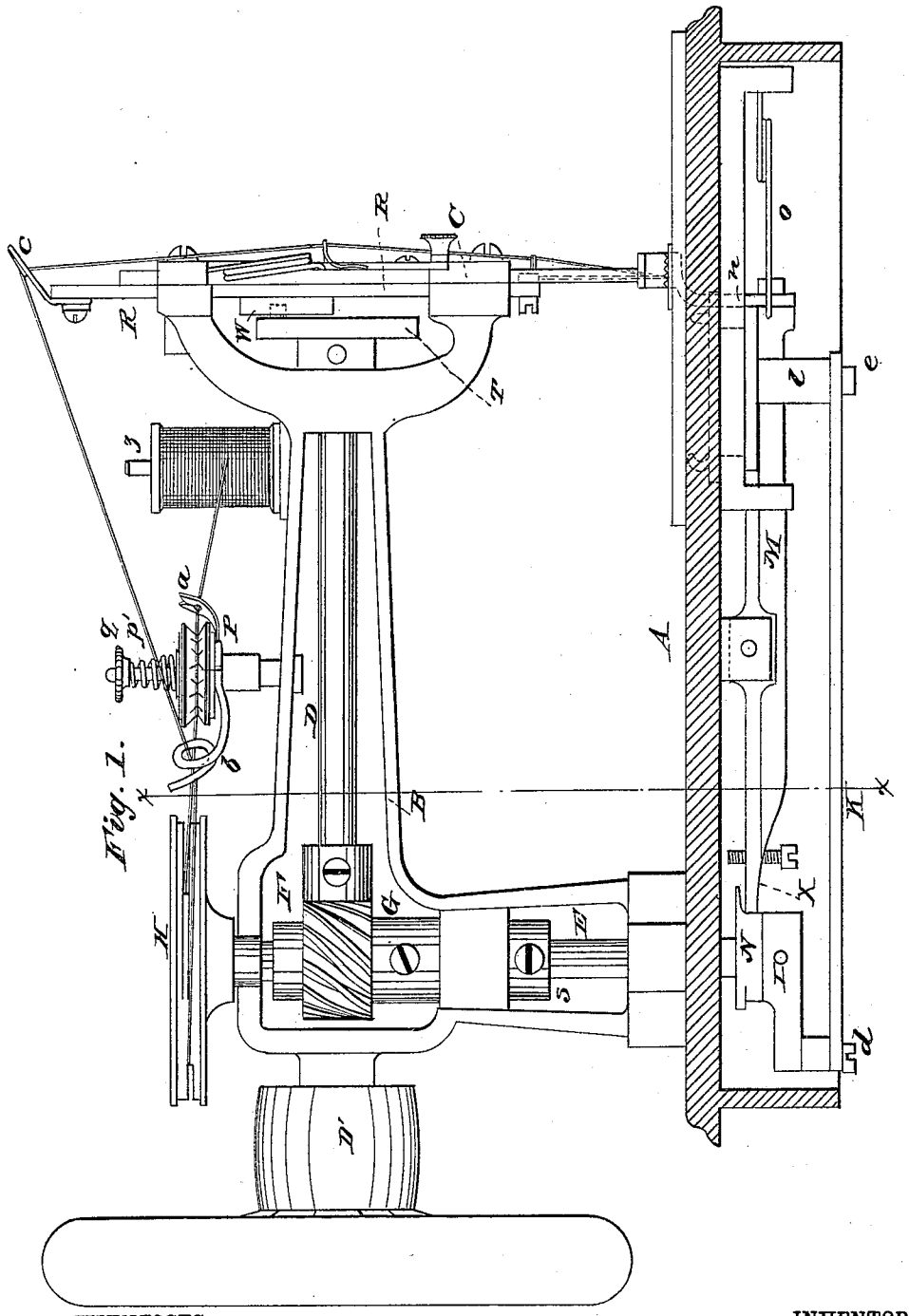

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

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Fig. 3.

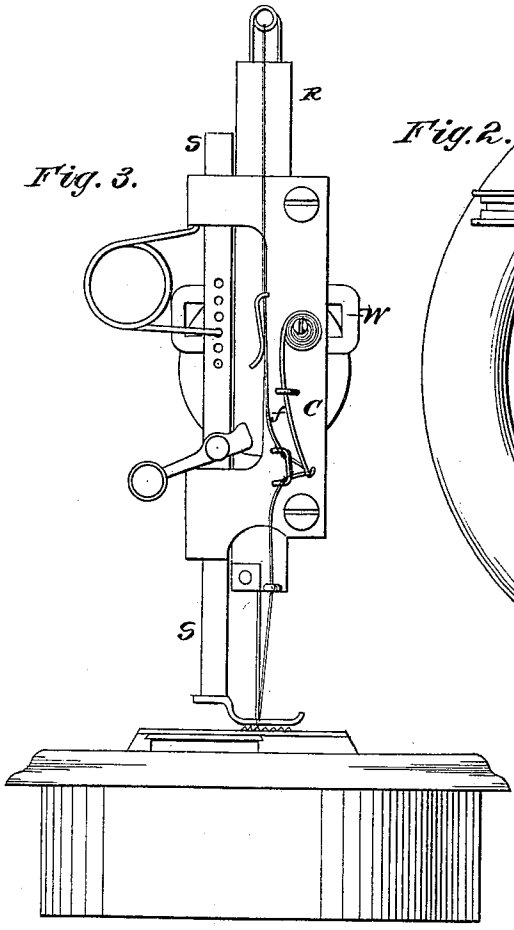
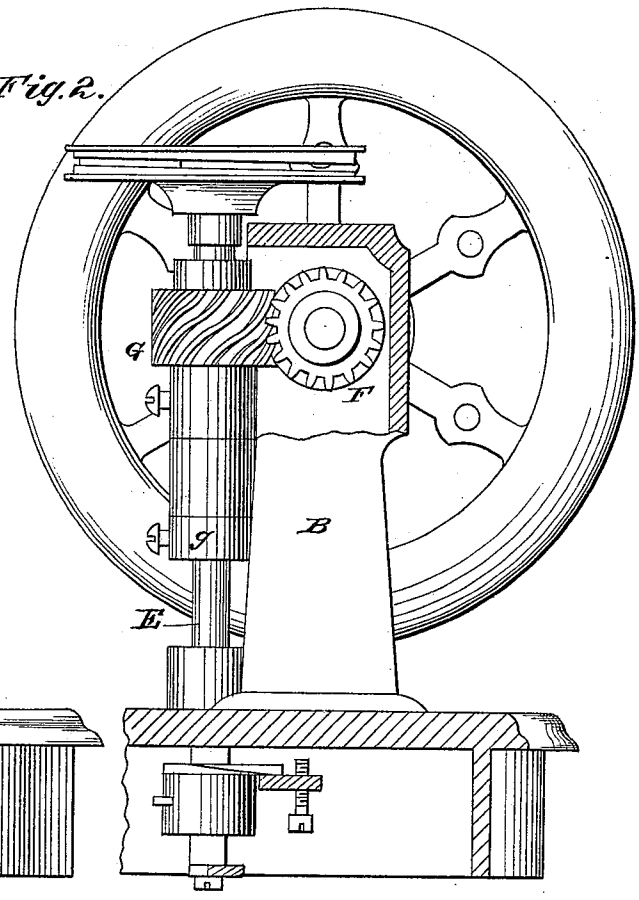


Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

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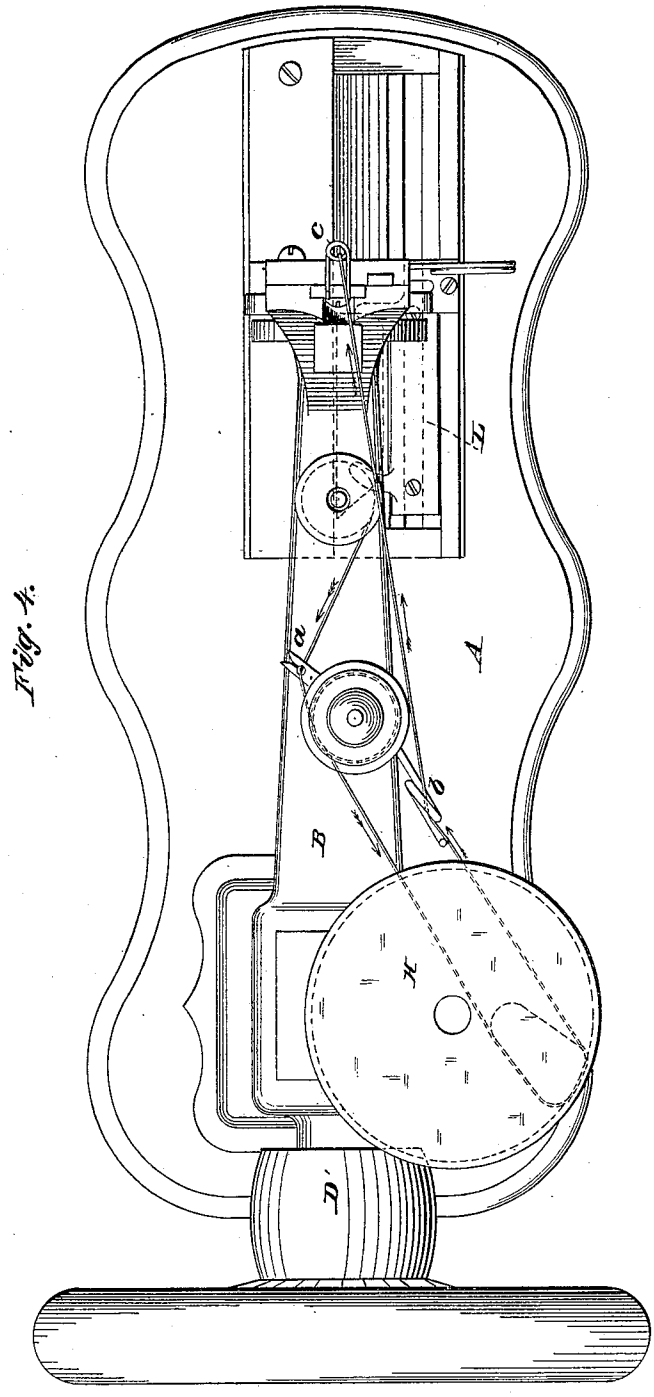

Fig. 4.

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UNITED STATES PATENT OFFICE.

THOMAS A. MACAULAY, OF NEW YORK, N. Y.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 249,648, dated November 15, 1881.

Application filed September 8, 1881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. MACAULAY, of the city, county, and State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following, with the accompanying drawings, is a specification.

Similar letters refer to like parts.

My invention relates to the thread-controlling device in connection with the devices for conveying motion to the under-thread-operating mechanism.

In the drawings, Figure 1 is a rear side elevation, with the bed-plate in section, of a sewing-machine embodying my invention. Fig. 2 is a cross-section of the same through line *x x* of Fig. 1. Fig. 3 is a front elevation of the head. Fig. 4 is a top view.

A is the bed-plate. B is the arm. C is the face-plate. D is the main driving-shaft; D′, driving-wheel. E is a vertical shaft. F is a spiral screw-gear on the main shaft. G is a similar one on the vertical shaft. H is a revolving take-up wheel. I is a crank. K is a pitman. L is a shuttle-driver. M is a feed-lever. N is a feed-cam. *o* is a feed-spring. *n* is a feed-dog. P is a tension-wheel. *p′* is a tension-spring. *q* is a regulating-nut. R is the needle-bar. S is the presser-foot bar. T is a crank-disk. W is a slotted cross-head secured to the needle-bar. *a b c* are thread-guides. *d* and *e* are connecting-pins. *f* is a take-up spring.

Motion being given to the main driving-shaft D, the needle-bar R is reciprocated in the usual way by a crank-pin in the disk T working in a slotted cross-head, W, secured to the said needle-bar.

The spiral screw-gear F is fixed to the main shaft D, and meshes into another spiral screw-gear, G, on the vertical shaft E, and gives to said shaft E a rotary motion.

On an extension of the vertical shaft E is secured a take-up wheel, H, by the rotation of which the thread is controlled.

The crank I is fixed to the vertical shaft E. Its rotary motion reciprocates the shuttle-carrier L in the usual way.

The feed-dog *n* receives its up and down, forward and back motions in the ordinary way by the cam N, lever M, and spring *o*, the length of stitch being regulated by a stop-screw, as in similarly-constructed sewing-machines.

The tension is applied to the needle-thread by the tension-wheel P, spring *p′*, and regulating-nut *q*.

I have applied my invention to a shuttle sewing-machine of otherwise ordinary construction; but it is applicable to a rotary hook, a rotary shuttle, or oscillating lever carrying a shuttle, as may be desirable.

A shaft may be mounted in bearings on the under side of the bed-plate, carrying a rotary hook or a rotary shuttle, and connected to the vertical shaft E by spiral or other gears; or an oscillating shuttle mechanism, such as described in the patent granted to L. Miller and P. Diehl, October 8, 1878, may be used.

The take-up wheel used by me may be of other construction than that shown. Such a take-up wheel may be used as that described by patent to C. H. Willcox and J. E. A. Gibbs, dated April 12, 1881.

I do not broadly claim the screw-gears.

I claim—

1. The combination of the driving-shaft D, having the spiral gears F, with the shaft E, having the spiral gear G, and take-up wheel H, substantially as described.

2. The combination of the main shaft D, having the spiral gear F, with the shaft E, having the spiral gear G, take-up wheel H, crank I, pitman K, and shuttle-carrier L, or their equivalents, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THOS. A. MACAULAY.

Witnesses:

J. S. BROWN,

AUG. A. NICHOLSON.