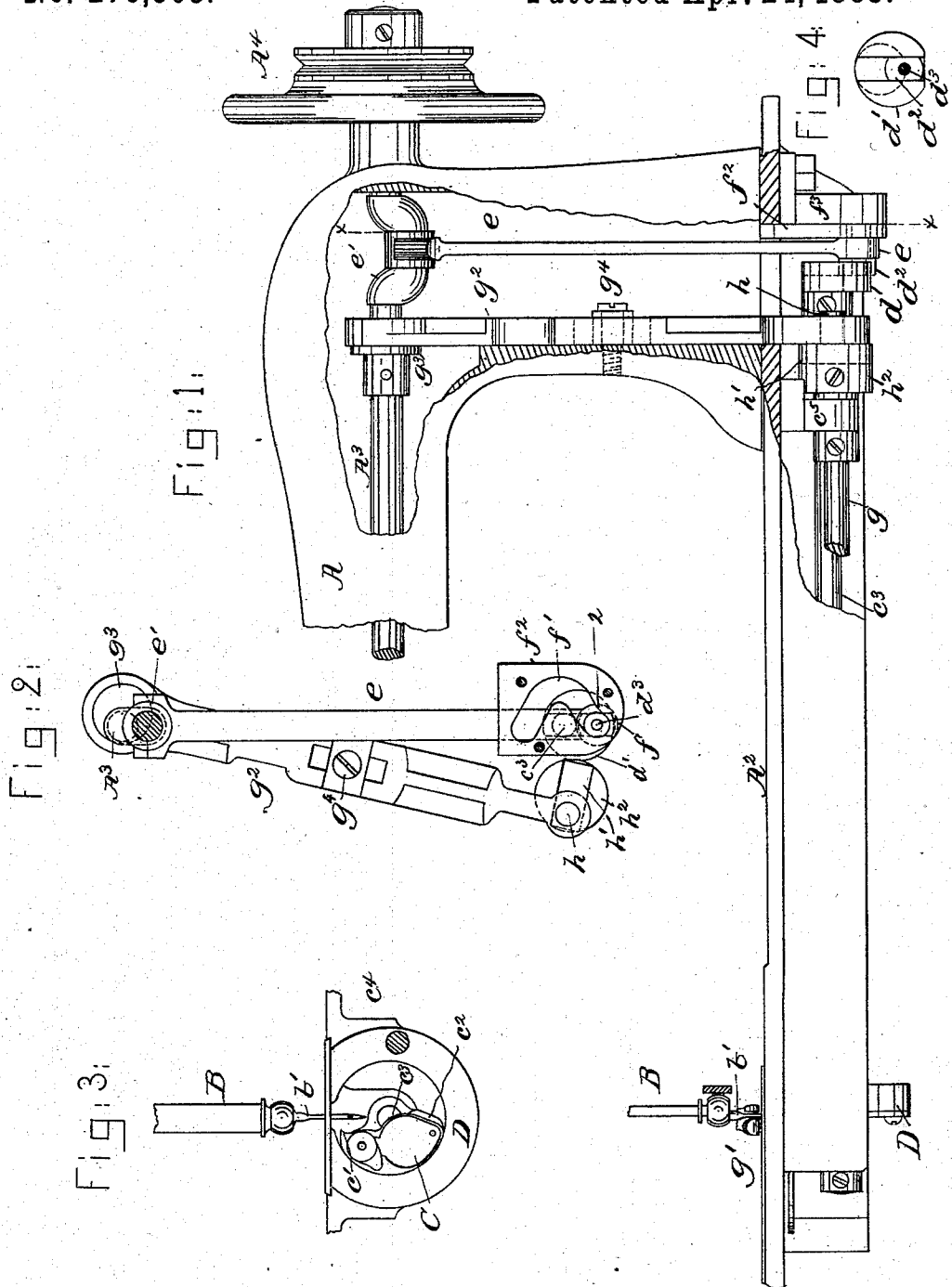


E. T. THOMAS.  
SEWING MACHINE.

No. 276,503.

Patented Apr. 24, 1883.



Witnesses  
B. J. Noyes.  
Fred. A. Powell.

Inventor.  
Eddy T. Thomas.  
by Crosby & Mayory Attys.

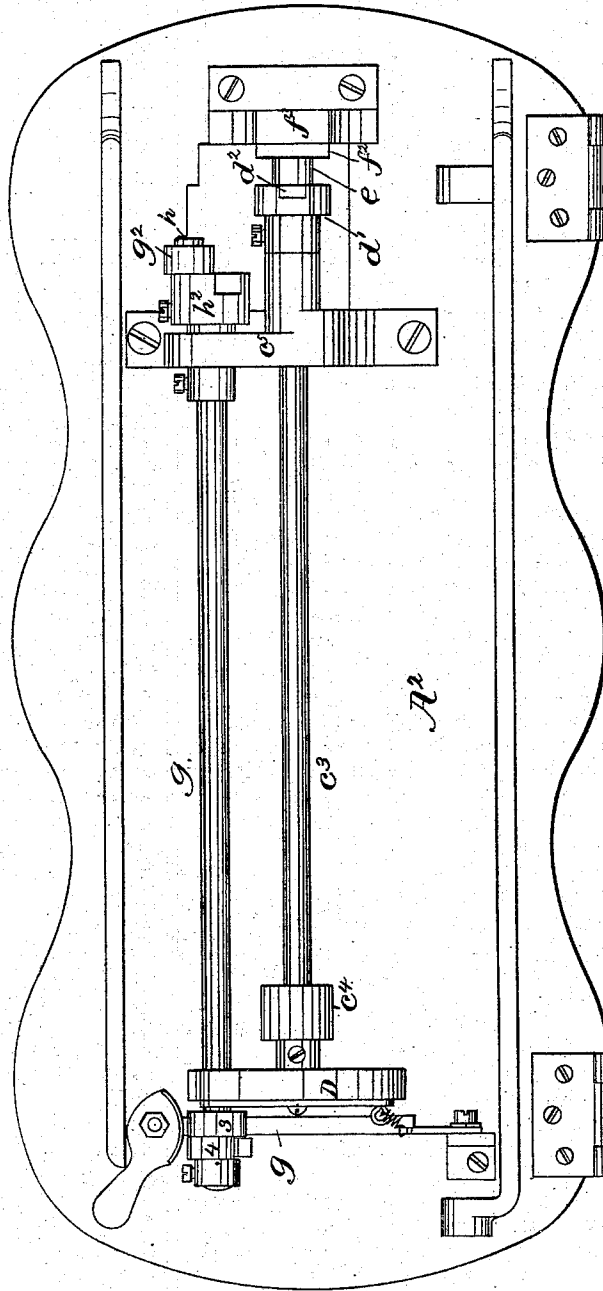
E. T. THOMAS.

SEWING MACHINE.

No. 276,503.

Patented Apr. 24, 1883.

Fig. 5



Witnesses

*B. J. Noyes,  
Frederic A. Powell*

Inventor,  
*Eddy T. Thomas.*  
by *Crosby Gregory Atys.*

# UNITED STATES PATENT OFFICE.

EDDY T. THOMAS, OF NEW YORK, N. Y.

## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 276,503, dated April 24, 1883.

Application filed February 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDDY T. THOMAS, of New York, county of New York, State of New York, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to improvements in the class of sewing-machines having an oscillating shuttle.

In my improved machine, the subject of this application, the shuttle is held in a carrier secured to the front end of a shuttle-carrying rock-shaft placed longitudinally under the bed-plate, and the said shaft, at its rear end, has a slotted disk or crank which receives a loose block or roll or a pin at the lower end of a link or connecting-rod, which latter, at its upper end, is connected directly with a crank or equivalent on the main or needle-bar-operating shaft of the machine. The link or connecting-rod referred to carries a second roller or loose block on preferably the same pin, and the said roller enters a cam-slot in a plate attached to the machine-bed, the center of the said rock-shaft preferably being eccentric to the center of the shuttle-carrying rock-shaft referred to, so that the said rock-shaft may have a throw of over one hundred and sixty degrees.

My invention consists essentially in a longitudinally-placed shuttle-carrying rock-shaft provided with a slotted arm or disk, and a rotating needle-bar-operating shaft parallel therewith, and a link or connecting-rod actuated at one end by the needle-bar-operating shaft and provided at its other end with a block, roll, or pin to enter a groove or slot in an arm or disk attached to the shuttle-carrying rock-shaft, combined with a cam-plate having an irregular cam-slot so placed and shaped with relation to the center of the shuttle-carrying rock-shaft as to enable the shuttle to nearly pause in its forward movement immediately after having been moved far enough to take the loop of needle-thread, permitting the shuttle to almost stop, as described, affording time for the needle-bar and needle to rise, thus avoiding a long point or beak on the shuttle, the employment of a long needle, and the formation of a

long loop in the needle-thread, which loop has subsequently to be drawn up by the take-up.

My invention also relates to other combinations, indicated in the claims at the end of this specification.

Figure 1 represents in side elevation a sufficient portion of a sewing-machine to illustrate my invention; Fig. 2, a section thereof on the dotted line *x x*, Fig. 1; Fig. 3, a partial front view, showing the shuttle, shuttle-race, part of the bed and part of the needle-bar, and an attached needle; Fig. 4, a detail of the disk at the end of the shuttle-carrying rock-shaft, with the swiveling block therein; and Fig. 5, an under side view of the machine.

The overhanging arm A, bed A<sup>2</sup>, and main or needle-bar-operating shaft A<sup>3</sup>, and wheel A<sup>4</sup> are as usual, and the shaft c<sup>3</sup>, at its front end, by any usual connecting mechanism, may be made to reciprocate the needle-bar B and its short eye-pointed needle b', I preferring a link and crank-pin to move the needle up and down without a dip motion after commencing to rise.

The shuttle C, of usual shape, and having a short point or beak, c', is placed in a carrier, c<sup>2</sup>, attached to the forward end of the shuttle-carrying rock-shaft c<sup>3</sup>, held in suitable bearings, c<sup>4</sup> c<sup>5</sup>. The carrier c<sup>2</sup> moves the said shuttle in the curved race D, the outer face of which is made detachable, in order to remove and replace a shuttle. The rear end of the shaft c<sup>3</sup> is provided with a slotted disk, d', (see Fig. 4,) or it might be a slotted arm, which receives in it a swiveling block, d<sup>2</sup>; or it might be a roll on the pin d<sup>3</sup>, attached to the link or connecting-rod e, joined at its upper end to the crank e', or it might be an eccentric on the main shaft A<sup>3</sup>. The pin d<sup>3</sup> projects through to the opposite side of the link e, where it is provided preferably with a roll, f, which enters and travels in the cam-slot f, in the cam-plate f<sup>2</sup>, attached to the bed of the machine or a hanger, f<sup>3</sup>. The cam-slot f' is shaped substantially as shown in Fig. 2, so that the pin d<sup>3</sup>, as it is being moved through the portion 2 of the said cam-slot, will cause the rocking shaft c<sup>3</sup> to nearly pause in its movement just after the point or beak c' of the shuttle enters the loop of the thread held in the eye of the short needle.

dle, which could not be done if the said rock-shaft were operated by a crank, or if the slot in the plate *f* were a regular curve. This partial pause of the shuttle enables the short needle to rise far enough to lift, or nearly so, its eye from the material being sewed before the shuttle draws down the loop of needle-thread and enlarges it sufficiently for the shuttle to pass through the same. Causing the shuttle

to nearly pause, as described, enables the employment of a very short needle, obviates the formation of a long loop and wearing and scraping of the thread, and also enables the shuttle to have a short point or beak. The cam-slot *f'*, beyond the point 2, which causes the rock-shaft to nearly pause after the shuttle-point has caught the loop of needle-thread, is so shaped as to insure for the pin *d*<sup>3</sup> such a movement as will cause that part of the said pin or the swiveling block or roll thereon in the slot of the disk *d* to move the rock-shaft with an increasing velocity while the shuttle is passing through the loop of needle-thread, and after having passed through the said loop and while the stitch is being set the said rock-shaft will be moved more slowly.

The feed-actuating shaft *g*, provided with usual cams, 3 4, to move the feed-bar *g'*, is rotated by the connecting-rod *g*<sup>2</sup>, actuated by the eccentric *g*<sup>3</sup> on the main shaft. The rod *g*<sup>2</sup> is slotted, and has its fulcrum on the stud *g*<sup>4</sup> or a swiveling block thereon, and at its lower end is connected with a pin, *h*, on a sliding block, *h'*, fitted into a groove in the disk *h*<sup>2</sup>; or it might be a slotted arm attached to the rear end of the said feed-actuating shaft. The rotating main shaft, by its crank and eccentric and through the connecting-rods *e* and *g*<sup>2</sup>, imparts to the shaft *e*<sup>3</sup> a rocking movement and to the shaft *g* a rotary movement.

I claim—

1. The shuttle-carrying rock-shaft placed longitudinally under the bed-plate and provided with a slotted disk or arm, and the plate having the irregular cam-slot, and the rotating needle-bar-actuating shaft parallel therewith, combined with the connecting-rod *e*, actuated thereby, as described, and provided with suitable pins to co-operate with the slot in the said disk and also with the slot in the said cam-slotted plate, substantially as set forth.

2. The shuttle-carrying rock-shaft placed longitudinally under the bed-plate and provided with a slotted disk or arm, the cam-slotted plate, the rotated needle-bar-actuating shaft, and the connecting-rod *e*, provided with a suitable pin to co-operate with the slots in the said disk and the said cam-plate, combined with the feed-bar, the feed-actuating shaft, its attached slotted disk or arm, the eccentric on the main shaft, and the pivoted connecting-rod actuated thereby, and provided with a pin to effect the rotation of the said feed-actuating shaft, substantially as described.

3. The shuttle provided with a short point, the shuttle-carrying rock-shaft and its slotted disk or arm, and the main or needle-bar-actuating shaft and the connecting-rod *e*, actuated thereby, and provided with a pin, *d*<sup>3</sup>, combined with the cam-plate having the irregular cam-slot, shaped substantially as described, to cause the rock-shaft to nearly pause just after the point of the shuttle has entered the loop of needle-thread.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDDY T. THOMAS.

Witnesses:

G. W. GREGORY,  
BERNICE J. NOYES.