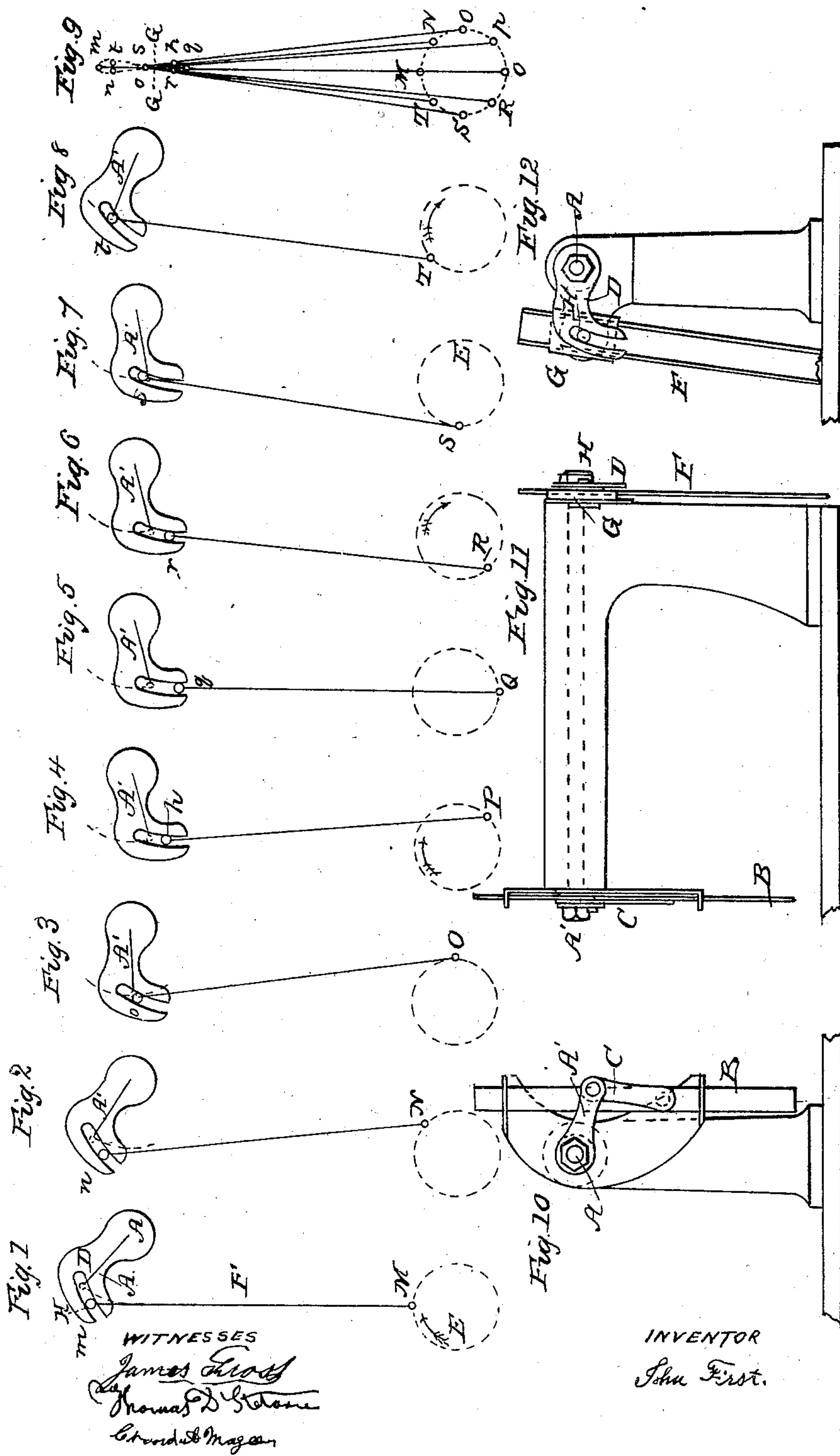


J. FIRST.
Sewing Machine.

No. 22,264.

Patented Dec. 7, 1858.



UNITED STATES PATENT OFFICE.

JOHN FIRST, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND JAMES FROST, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 22,264, dated December 7, 1858.

To all whom it may concern:

Be it known that I, JOHN FIRST, of the city and county of New York, in the State of New York, have invented a certain new and useful Improvement in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figures 1 to 9, inclusive, are diagrams showing the motions of the parts. Fig. 10 is a view of the novel portion of the back end of the machine. Fig. 11 is a side view of the same; and Fig. 12 is a view of the front of the machine, or the end opposite to that shown in Fig. 10.

Similar letters of reference refer to like parts in all the drawings.

My invention relates to the means of imparting a proper motion to the needle-bar in those machines in which a shuttle is used.

The nature of my invention consists in the use of a slotted arm, driven, in the manner fully explained below, by a rod connected to a crank-pin and sliding in a swivel-guide, the whole combined and serving in the relations to each other explained below, for the purpose of giving the requisite irregular motion to the needle-bar.

The peculiarity in the motion of the needle lies in its pausing after it has ascended sufficiently to bend the thread for the passage of the shuttle. The means heretofore used for effecting this are more or less objectionable on account of their side pressure and friction, and of the noise produced by their operation.

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

A is the rocking shaft which gives motion to the needle-bar, and A' is an arm fixed thereon. B is the needle-bar, and C is a link connecting A' to B. D is another arm fixed on A. It is slotted, as represented. The motion is received from a crank, the path of which is shown by the dotted line E in the diagrams, Figs. 1 to 9, inclusive. F is a bar attached to the crank E and sliding through

a swivel-guide, G, near its upper extremity. The swivel-guide G is attached to the frame of the machine, and the only motion of which it is susceptible is a simple oscillation or rocking as the bar F changes its inclination by the rotation of the crank.

H is a pin or projection fixed on the side of the bar F and traveling loosely in the slot in D, as represented. The working of the bar F by the action of the crank E, modified by the effect of the guide G, causes the pin H to move in a peculiarly-curved line, analogous in form to the Arabic numeral 8. This motion of H is shown very clearly by Fig. 9. The slot is of such width as to allow H to travel freely therein. It follows that while the curve and the position of the slot coincides with the motion of H no motion is communicated thereto by the rotation of the crank E; but whenever the slot is in any other position motion is communicated. I curve the lower portion of the slot to correspond with the motion of H from *q* to *s*, (see Fig. 9,) and arrange the parts relatively to each other in the manner represented. By turning the crank E the needle-bar is caused to rise and fall with precisely the motion desired, the arm D descending while the crank E revolves from M to P, then ascending while it moves from P to Q, which is just sufficiently to slacken and bend the thread, then standing still while the crank travels from Q to S, and then rising while it completes the circuit. By so curving the slot that the position of the slot does not exactly coincide with the travel of H during its motion from *q* to *s* the needle-bar can be caused to descend slightly, instead of remaining quiet while the shuttle is passing; or by varying the curve of the slot a little in the opposite direction the needle will continue to ascend, though very slowly. Within certain limits either of these motions will serve the purpose. The drawings represent the curve as an arc of a circle which is not exactly the correct curve, and which allows the needle to rise slowly, instead of standing quiet during the interval it should rest; but it is sufficiently near the truth to illustrate the operation of my invention. This motion is by these means produced in a manner almost noiseless and with very little friction.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

The employment of the slotted arm D, the rod and pin F H, and the swiveling guide G, or their respective equivalents, in combination with each other and with the crank E, substantially as within described, for the purpose

of communicating the requisite irregular motion to the needle-bar of a sewing-machine, as above set forth.

JOHN FIRST.

Witnesses:

JAMES FROST,
THOMAS D. STETSON,
EDWARD A. MAGEE.