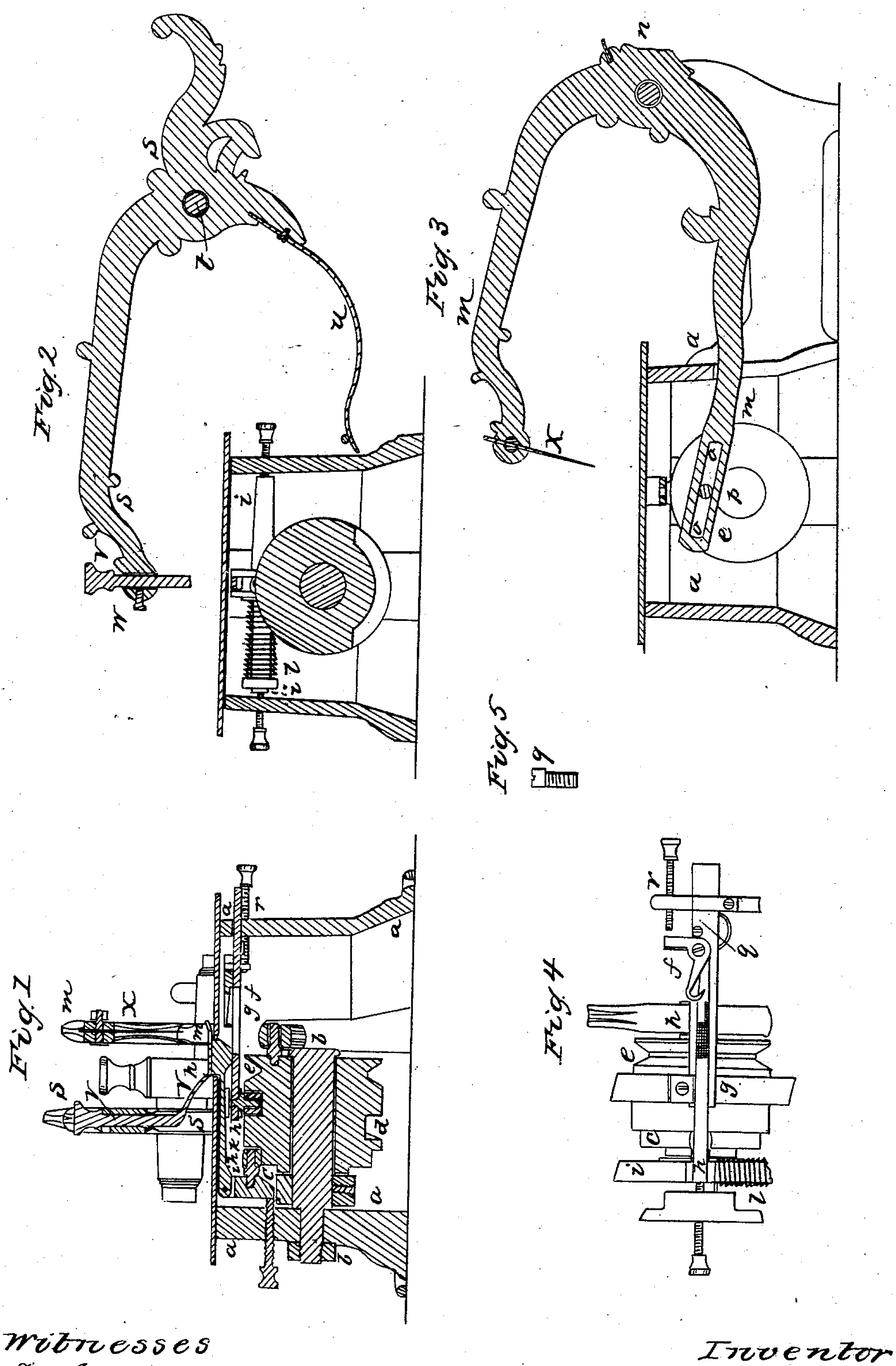
A. F. JOHNSON.

Sewing Machine.

No. 16,387.

Patented Jan. 13, 1857.



Witnesses

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UNITED STATES PATENT OFFICE.

A. F. JOHNSON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **16,387,** dated January 13, 1857.

To all whom it may concern:

Be it known that I, A. F. JOHNSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

The figures of the accompanying plate of drawings represent my improvements.

Figure 1 is a transverse vertical section of my improved sewing-machine. Fig. 2 is a longitudinal vertical section of the same, taken through the pressure-bar. Fig. 3 is a similar section taken through the needle-arm. Figs. 4 and 5 are detail views to be hereinafter referred to.

My improvement consists in adjusting the position of the hook with regard to that of the needle, so that it shall take the loop properly from the needle by means of an eccentric headed screw, the hook being also actuated by an adjustable set-screw for the needle to take the loop from the hook; also, in a pivoted pressure-bar, by which the pressure upon the cloth can be adjusted for the different thickness and quality of goods.

a a a a in the drawings represent the supporting frame-work of the machine.

b b is a fixed shaft having but one bearing, upon which are arranged loosely the cams *c d* and driving-pulley *e*. The loop-hook *f* is attached to a sliding bar, *g*, actuated by a stud, *h*, traveling in the grooved cam *d*. The feeding-bar *h h* is attached by a pivot-joint to the rocker-shaft *i i*, actuated by a roller or stud, *k*, traveling on the periphery of the cam *c*. A spiral spring, *l*, retracts the rocker-shaft *i i*, so as to give the downward motion to the feeding-bar.

m m, Fig. 3, is a U-shaped needle-arm turning on a pivot, *n*, at its bend. The lower bar of this needle-arm has a long slotted groove, *o o*, formed in it, in which works a stud, *p*, placed eccentrically in the end face of the main driving-pulley *e*.

From the foregoing description it will be seen that by arranging the cams and driving-pulley loosely upon a fixed shaft having but one bearing I am enabled to drive the needle-arm by the eccentric stud in the driving-pulley working in the slot of the said needle-arm, which could not be effected by the ordinary arrangement of the main shaft and driving machinery in sewing-machines, as in other machines the main shaft has rotated with the operating-cams and driving-pulley, and has required two end bearings, which would render it impossible to impart the necessary motions to the needle-arm by the means employed in my machine. The advantage of driving the needle-arm by the eccentric stud working in the slotted end of the needle-arm will readily be apparent, as a quicker motion is obtained thereby, while the needle is operated faster at the desired time, which is when the stud is nearest the pivot of the needle-arm and when the needle is descending. The loop-hook *f* is adjusted so as to take the loop properly from the needle by means of the eccentric headed screw *q*, Figs. 4 and 5, whereby the hook can be set and retained in any position with regard to the needle, whereas without this means of setting up the hook it would not, when out of adjustment, take the loop properly from the needle. The needle is made to take the loop properly from the hook by means of an adjustable screw, *r*, against which the hook abuts during the backward motion of its sliding bar *g*, thereby setting the hook in the right position for the needle to take its loop.

s s, Figs. 1 and 2, represent the pressure-bar turning on a pivot at *t* and acted upon by a bent spring, *u*. Through the end of the pressure-bar is inserted a bent arm, *v v*, Fig. 1, against which the cloth-feeding bar *h h* abuts. The bent arm *v v* is held in the pressure-bar by means of a set-screw, *w*, in such a manner as to be raised or lowered at pleasure, which adjustment can be readily effected, from the fact that the pressure-bar *s s* turns on a pivot. By this arrangement of the adjustable bent arm *v v* and pivoted pressure-bar, an easy adjustment can be made for every thickness of goods, while it will also be observed that more or less pressure can be obtained for different qualities of goods, according as the bent arm *v v* is raised or lowered in the pressure-bar.

The needle *x* is inserted in the end of the needle-arm *m m*, which is split for the purpose, the two sides being held together by a screw

and nut. The advantage of this mode of holding the needle consists in keeping it always in its true center line, as both sides of the split needle-arm will grip the needle equally and keep it in its proper position.

Having thus described my improvements, I do not claim the peculiar construction and arrangement of the mechanism herein described for driving and operating the machine, as I intend to make it subject-matter of another application for patent, and I wish to be understood that I claim neither the set-screw nor a circular plate or cylindrical body rotating upon eccentric pivots as new means for adjustment; but

What I claim as my invention, and desire to secure by Letters Patent, is—

Combining the hook, when furnished with a lever or arm, as described, with the eccentric headed screw *q* and the adjustable projection or screw *r*, for the double purpose of taking, first, the loop properly from the needle, and, secondly, for actuating the hook at the proper time for the needle to take the loop from the hook.

A. F. JOHNSON.

Witnesses:
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