2 Sheets—Sheet 1.

F. M. JOHNSON.

SEWING-MACHINE.

No. 185,033. Patented Dec. 5, 1876.

Fig. 1.

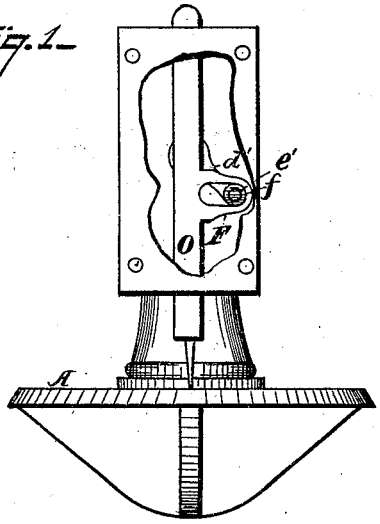


Fig. 2.

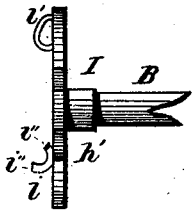


Fig. 3.

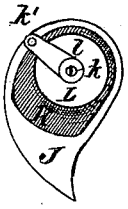
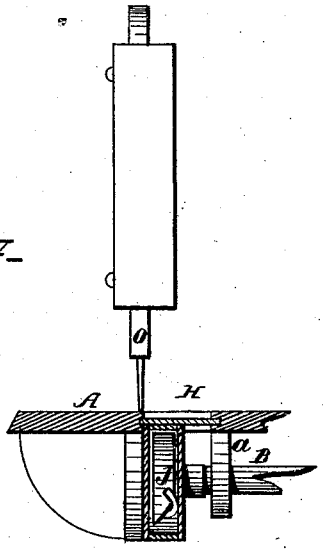


Fig. 4.



WITNESSES

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2 Sheets—Sheet 2.

F. M. JOHNSON.

SEWING-MACHINE.

No. 185,033. Patented Dec. 5, 1876.

Fig. 5.

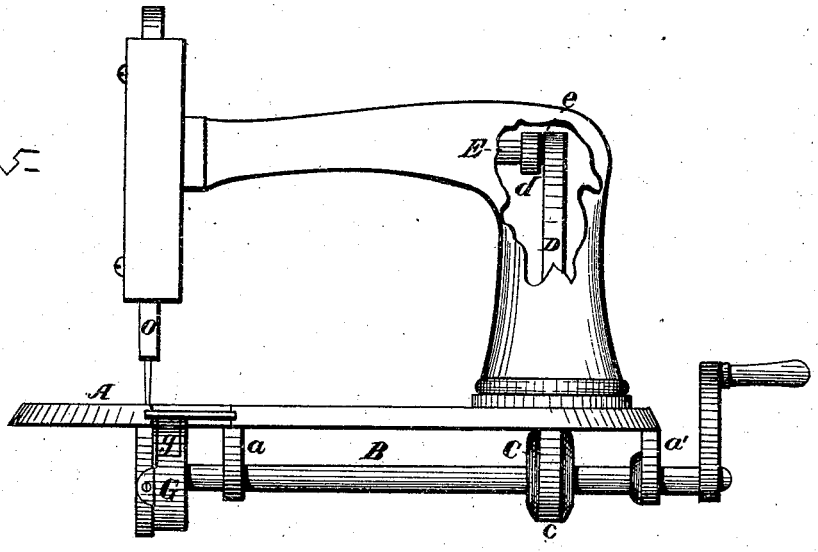


Fig. 6.

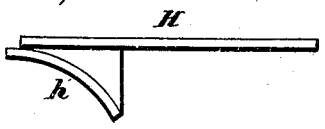
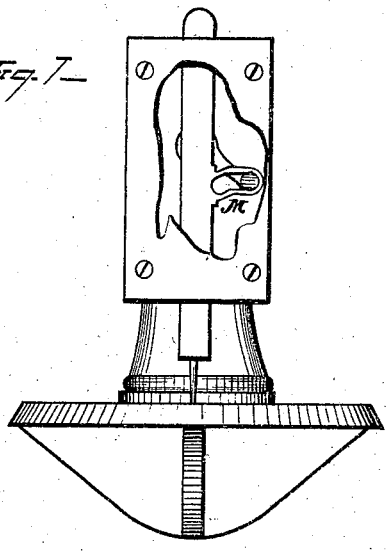


Fig. 7.



WITNESSES

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Albert F. Bright

INVENTOR

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UNITED STATES PATENT OFFICE.

FRANK M. JOHNSON, OF BRISTOL, CONNECTICUT, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO LESTER GOODENOUGH, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **185,033**, dated December 5, 1876; application filed March 15, 1876.

To all whom it may concern:

Be it known that I, FRANK M. JOHNSON, of Bristol, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to certain improvements in rotary-shuttle sewing-machines; and it consists in certain details of construction, which will more fully appear from the following description and claims.

In the accompanying drawings, wherein like letters designate like parts, Figure 1 represents a front elevation of the machine with the face-plate cut away to show the means employed for actuating the needle-bar. Fig. 2 shows the shuttle-carrier detached from the race. Fig. 3 represents the shuttle detached from the carrier. Fig. 4 shows the shuttle in position for operation. Fig. 5 is a side elevation of the machine. Fig. 6 represents the slide. Fig. 7 shows a modified form of cam to actuate the needle-bar.

A is the bed or base of the machine, to which bearings *a a'* are secured or formed as a part thereof. The shuttle-carrying shaft B is journaled in bearings *a a'*, and is provided with a collar, *b*, to receive the end thrust of the shaft. To eccentric C of shaft B is secured the eccentric strap *c*, which connects with the lower end of the connecting-rod D. Within the neck of the machine the oscillating shaft E has its bearings, and to the opposite ends of the shaft E the cranks *d d'* are secured. The connecting-rod D is attached to the wrist-pin *e* of crank *d*, whereby an oscillating movement is imparted to shaft E through the connecting-rod and the eccentric of the revolving shaft B. Upon the wrist-pin *e'* of crank *d'* is placed an anti-friction roller, *f*, which engages in the slotted guides F of the needle-bar O. Crank *d'* travels through nearly one-quarter of a circle, and, as the crank is on the down-stroke, the anti-friction roller *f* works against the lower track of the guide, and thereby forces the needle-bar through its downward stroke, while the needle-bar is forced upwardly by the anti-friction roller working in contact with the upper track or edge of the guide F. This arrangement of devices for actuating the needle-bar is simple in construction, and requires but little space for its free operation.

The race G has a section of its periphery cut away at *g* for the reception of the shuttle. To the lower surface and inner end of slide H is secured a curved plate, *h*, which is of the requisite shape and size to accurately fit within the opening *g* in the race, so that the latter has a continuous circular guide for the shuttle when the slide is in position. The shuttle-carrier I has a hub, *h'*, secured to its outer surface, within which the end of the revolving shaft B is secured. Upon the inner surface of the shuttle-carrier is attached the shuttle-frame *i i'*, the portion *i* being curved to receive the heel of the shuttle, while the point of the shuttle rests between, and is retained by, the prongs *i''*. The shuttle J is formed with a recess, K, in the center of which the bobbin-journal *k* is secured. Upon the outer end of bobbin L there is formed a hub, *l*, on which the thread-carrier *k'* freely turns.

As the shuttle revolves, the point of the shuttle passes through the loop of the needle-thread, while the shuttle-thread passes from the bobbin out and against the side of the shuttle, and as the bobbin rotates in the same direction with the travel of the shuttle, the shuttle-thread is not twisted, as it is not restricted in any manner by the shuttle, the thread always drawing direct from the bobbin, and having free movement against the outer edge or side of the shuttle.

Instead of using a straight slotted guide, F, a cam-guide, *m*, may be substituted therefor, the latter operating to impart an intermittent movement to the needle-bar, to allow of the passage of the shuttle through the loop while the needle-bar is at rest.

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

1. The combination, with the circular shut-

tle-race G, of the sliding cloth-plate H, provided with a depending flange formed as a segment of a circle, and adapted to fit a corresponding opening in the shuttle-race, substantially as and for the purpose set forth.

2. The combination, with the shuttle J, of the bobbin L and thread-carrier *k'*, loosely secured to the hub of the bobbin, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of March, 1876.

FRANK M. JOHNSON.

Witnesses:
F. O. McCLEARY,
A. W. BRIGHT.