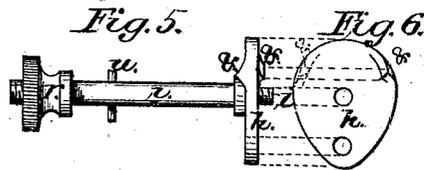
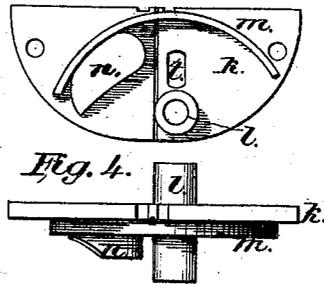
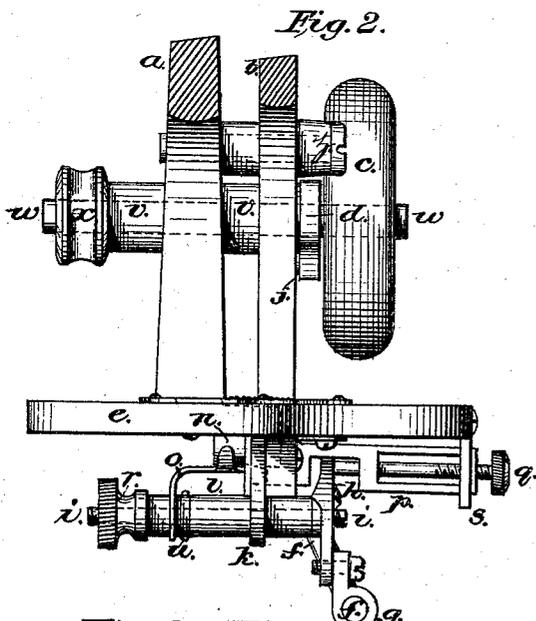
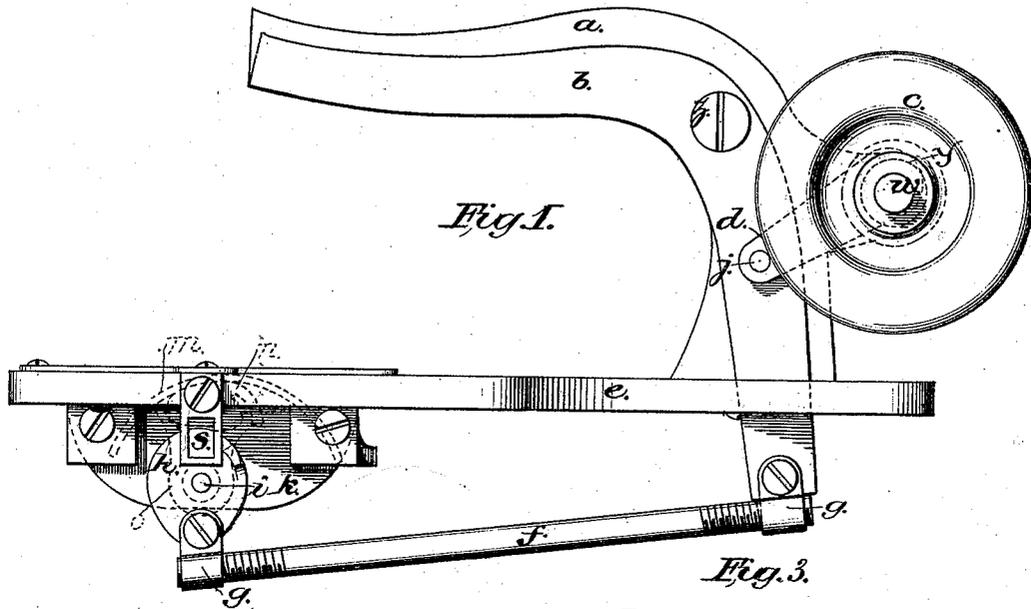


J. S. FLETCHER.
SEWING-MACHINE.

No. 172,107.

Patented Jan. 11, 1876.



Witnesses:

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S. J. Franklin

Inventor:

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UNITED STATES PATENT OFFICE.

JAMES S. FLETCHER, OF APPLETON, WISCONSIN.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **172,107**, dated January 11, 1876; application filed January 30, 1875.

To all whom it may concern:

Be it known that I, JAMES S. FLETCHER, of Appleton, in the county of Outagamie and State of Wisconsin, 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 thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

The nature of my invention consists in the construction and arrangement of a sewing-machine, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, which forms a part of this specification, and in which—

Figure 1 is a front elevation of my invention. Fig. 2 is an end elevation of the same. Fig. 3 is a rear elevation of the shuttle-race. Fig. 4 is a plan view of the same. Fig. 5 is a side view of the feed-disk. Fig. 6 is a front view of the same. Fig. 7 is a side view of the feed-bar. Figs. 8 and 9 show the shuttle-carrier.

e represents the bed-plate of my machine, from the top of which projects the ordinary L-shaped supporting-arm *a*. This arm is provided with an extension or projection on the right side, at the end of which extension are cylindrical projections *v*, at right angles with the arm. Longitudinally through these cylindrical projections is bored a hole, which serves as a journal-box or bearing for the driving-shaft *w*. On this shaft are secured, by means of set-screws, keys, or pins, the driving-pulley *x* and fly-wheel *C*; and just inside the fly-wheel is secured the eccentric *y*, as shown by dotted lines in Fig. 1. This eccentric is connected by means of a rod or bar, *d*, with the needle-arm *b*. By this construction and arrangement of parts straight bearings and journals are secured throughout.

The needle-arm *b* is made either of steel or malleable cast-iron, and is curved near the middle, so that, while the end connected with the needle-bar is horizontal, the other end is vertical, and extends through a slot in the

bed sufficiently far to admit of a free connection with the rod *f*, which drives the feed-disk. The needle-arm is pierced in the curve for the purpose of securing it to the supporting-arm *a* by means of the screw *z*. At a sufficient distance below this screw, to secure the necessary motion, is inserted a screw or pin, *j*, which serves as a bearing for the connecting-rod *d*. The needle-bar, presser-foot, and presser-foot bar may be constructed in in any of the known and usual ways, and need no description in this application. To the lower end of the needle-arm is pivoted one end of the connecting-rod *f*.

It will readily be seen that, as all the machinery to the left of the connecting-rod *d* is driven by the needle-arm *b*, and as the motion of said arm is not changed by reversing the eccentric, the machine will run equally well in whatever direction the fly-wheel moves. The needle-arm is directly connected with the feed-disk *h* by the connecting-rod *f*, which communicates to the feed-disk the reciprocating motion of the needle-arm. The connecting-rod *f* is provided at both ends with exterior screw-threads to receive screw-collars *g g*, which are fastened, respectively, to the needle-arm and feed-disk, so that the rod can be easily adjusted to vary the throw of the shuttle; or such adjustment may be at one end of the rod only, the other end of the rod having simply a hole through it, or both ends of the rod may have such holes to fit over the bearings on the arm and disk.

The feed-disk *h* is made in the form shown in Fig. 6 of bar steel. When its upper edge is to the right the feed will be elevated, and when turned to the left the feed will be depressed. The feed-disk is provided with wedge-shaped projections *h'*, one on each side. These projections are so placed that their inclined surfaces are in opposite directions. The one on the rear face of the disk, by impact against the opposing surface of the feed-bar, carries the feed forward immediately after it has been elevated. The other, in like manner, moves the feed back immediately on its being depressed. The feed-disk is secured by means of a screw, key, or pin to the shaft *i*, which serves as a bearing for the feed-disk, and also for the shuttle-carrier, as hereinafter described.

p represents the feed-bar, which is formed from bar-steel, with a recess on its under face, in which the feed-disk moves, and it has a thumb-screw, *q*, extending from the front end to the recess, for the purpose of regulating the stitch. The other end of the feed-bar is provided with a projection, which enters a slot, *t*, in the shuttle-race and serves as a guide. The front end of the feed-bar passes through a guide, *s*, which is adjustably secured to the bed, as seen in Fig. 1. By elevating this guide it is evident that the feed-points will be depressed, and vice versa, the feed-disk acting as a fulcrum. *k* represents the shuttle-race made from a flat piece of steel pierced at each end for securing it to the bed by means of screws, and having a hole near the middle of the lower edge for the insertion of the tube *l*. A little to the right of this tube is a narrow groove forming the needle-race, and above the tube is the vertical slot *t* as a feed-guide. Taking the center of the tube *l* as a center, at the distance of the upper edge of the shuttle-race, is fixed the shuttle-guard *m* in the form of an arc of a circle, its length being equal to the stroke of the shuttle. This guard is made of sheet-steel bent in the desired form, and fixed by bracing, soldering, or by projecting pins passing through the shuttle-race; or the shuttle-race may be made of steel of sufficient thickness to admit of being milled or turned down, leaving the guard in relief. The object of this guard is to prevent the shuttle from striking against the cloth-plate and from falling out.

o is the shuttle-carrier, which is provided with a tube, through which passes the shaft

i, after having passed from the feed-disk *h* through the tube *l* in the shuttle-race. On this shaft *i* the shuttle-carrier is secured between a pin, *u*, and a thumb-screw, *r*, its adjustment being secured by means of a groove across the end of the tube, which spans the pin *u*. In this arrangement the shuttle-carrier moves in time with all other parts of the machine and without friction.

The shuttle *n* is made from cast-steel, and so formed that its upper face accurately fits the concave surface of the shuttle-guard.

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

1. The combination of the adjustable rod *f*, with the needle-arm *b* and the feed-disk *h*, for adjusting the throw of the shuttle, as and for the purposes set forth.

2. The combination of the feed-bar *p*, constructed as described, and provided with set-screw *q*, with the adjustable guide *s* and the feed-disk *h*, all as and for the purposes herein set forth.

3. The shuttle-race *k*, provided with the curved guard *m*, slot *t*, and tube *l*, in combination with the shaft *i*, with pin *u*, shuttle-carrier *o*, and thumb-screw *r*, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 23d day of January, A. D. 1875.

JAMES S. FLETCHER. [L. s.]

In presence of—

HERMANN ERB,
T. J. FRANKLIN.