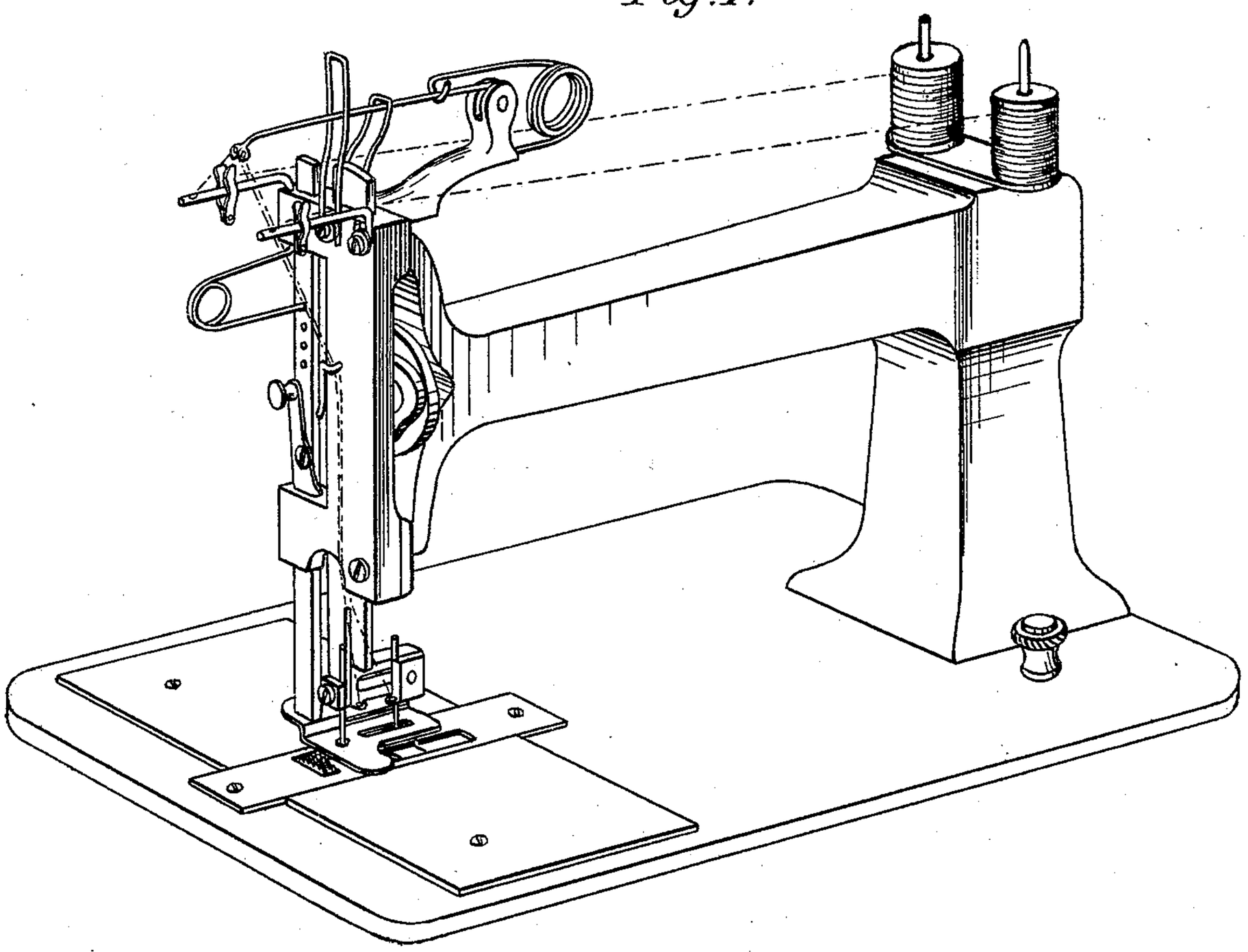
2 Sheets—Sheet 1.

S. W. FRANCIS.

SEWING-MACHINE.

No. 171,007. Patented Dec. 14, 1875.

Fig. 1.



Witnesses:

Ewell Avock

Alonzo Hughes

Inventor:

Samuel Ward Francis

by A. Pollok Rixey

2 Sheets—Sheet 2.

S. W. FRANCIS.

SEWING-MACHINE.

No. 171,007. Patented Dec. 14, 1875.

Fig. 2.

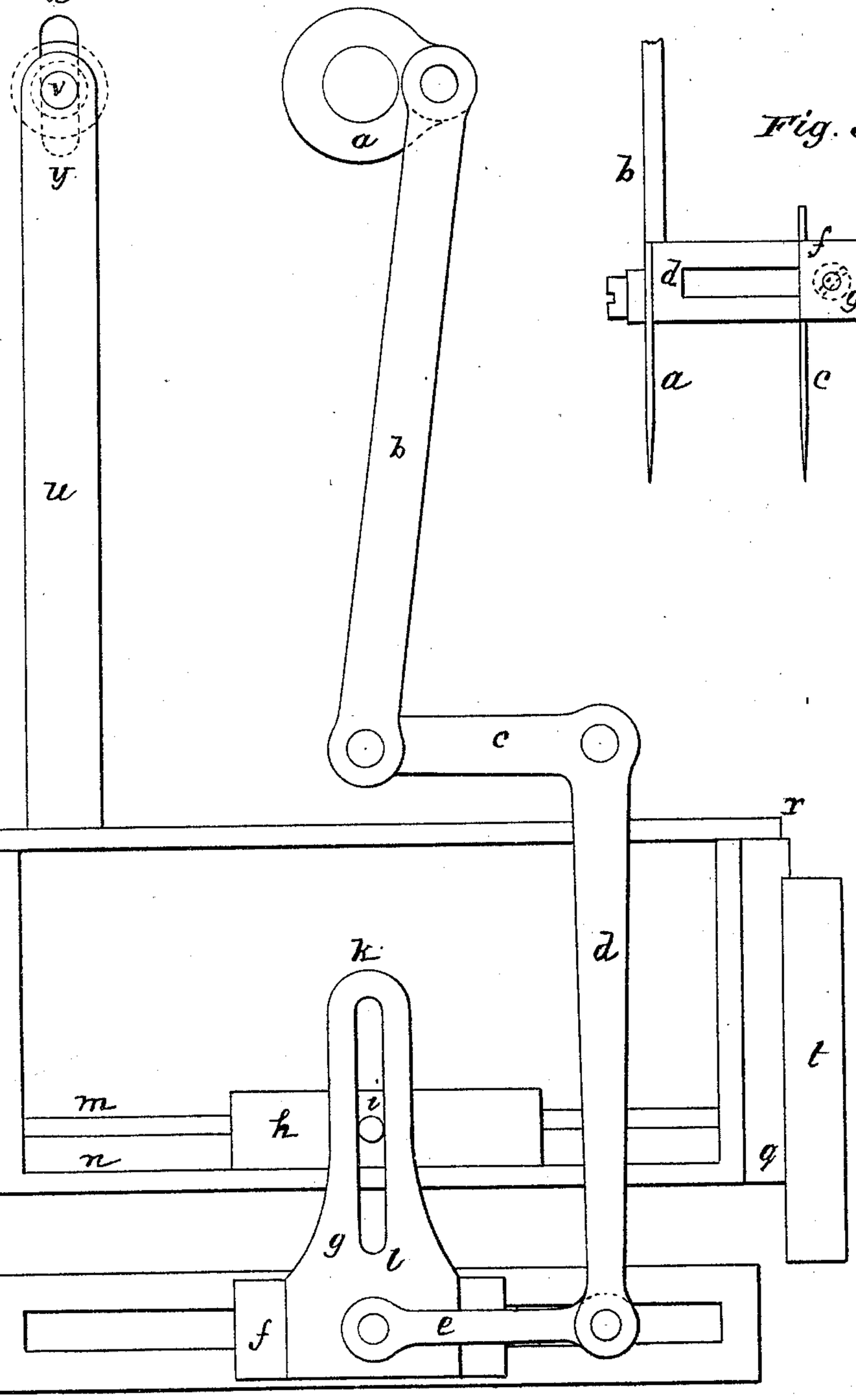


Fig. 3.

Witnesses:

Ewell A. Brick

Alonzo Hughes

Inventor:

Samuel Ward Francis

by Apollok Kratty

UNITED STATES PATENT OFFICE.

SAMUEL W. FRANCIS, OF NEWPORT, RHODE ISLAND.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **171,007**, dated December 14, 1875; application filed October 7, 1875.

To all whom it may concern:

Be it known that I, SAMUEL WARD FRANCIS, of Newport, Rhode Island, have invented certain new and useful Improvements in Sewing-Machine Attachments, of which the following is a specification, reference being had to the accomponying drawing, of which—

Figure 1 is a perspective view of a Singer sewing-machine embodying my improvement; Fig. 2, a detail view, exhibiting the under side of the machine, where the principal part of the improvement lies. Fig. 3 represents separately the attachment to the needle-bar of a Singer sewing-machine, by means of which two or more needles may be employed.

This invention relates to sewing-machine attachments, applicable particularly to sewing-machines of which the so called Singer machine is the type—*i. e.*, machines sewing with two threads, to make what is termed the "lock-stitch," by means of a reciprocating needle and shuttle attachment, whereby two or more parallel rows of stitches may be sewed at one and the same time. It has heretofore been attempted to accomplish this result, but so far as I am informed the means employed were inadequate, or of such complex nature as to render its application and practical operation impossible.

The object I have in view is not only to preserve the original character of the machine—*i. e.*, its capacity of stitching single rows—but to render it convertible into a machine making double or multiple rows of stitches, by means of simple attachments, readily detachable and adjustable, and admitting of their being readily thrown in and out of gear for joint operation of the two or several stitching mechanisms or independent operation of the one.

I have thus accomplished a desideratum long since felt of performing parallel stitching mechanically, in less time and with greater perfection than this could possibly be done by the independent stitching of single rows in parallel lines.

The attachment subject of this patent consists of two parts, namely:

First, a sliding and adjustable shuttle-race. This part of the invention consists of mechanism by which two or more shuttles may be worked at one and the same time, as shown in the drawing, Fig. 2. Motion is given by the crank *a*, through the levers *b*, *c*, *d*, and *e*, to the main or primary shuttle-carrier *f*. Attached to said shuttle-carrier *f* is a slotted arm, *g*, which drives the second shuttle-carrier *h* by means of the pin *i*, which is capable of moving freely in the slot *k l*. Slotted arm *g* may be lengthened indefinitely for the purpose of driving as many shuttle-carriers as the limits of the machine will allow. Shuttle-carrier *h* works upon the bars *m* and *n* of the shuttle-race *o p q r*, which is made to slide between the guides *s* and *t*. The shuttle-race is adjusted by means of a set-screw, *v*, attached to the bar *u* of the shuttle-race, which may be moved along the slot *x y*, and set at any position, thus regulating the distance between the shuttle-carriers *f* and *h*. It will be observed that a series of sliding and adjustable shuttle-races may be employed.

Second, the adjustable needle-clamp. The primary or main needle *a* is attached to the needle-bar *b* by the usual method. The second needle *c* is clamped to the needle-bar at any point of the horizontal slotted arm *d e* by the clamp *f* and the set-screw *g*.

It will be observed that the slotted arm *d e* may be extended indefinitely, and that any number of adjustable needles may be employed.

In Fig. 1 I have shown the feed-dog and presser-foot extended to admit of additional feeding-surface for additional rows of stitches. They are extended to reach that part of the material through which the needle farthest removed will pass.

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

1. The combination, with the main shuttle-carrier, of the slotted arm, forming adjustable connection with the auxiliary shuttles, as described, so that the movement of the primary or main shuttle shall be directly transmitted to and partaken of by the auxiliary shuttles, as shown and described.

2. The combination, with the needle-bar, of the primary or main needle, of a slotted arm

and adjustable auxiliary needle-clamps, as described, so that the auxiliary needle or needles shall be adjustable on said slotted arm, and the movement of the main needles shall be directly transmitted to and partaken of by the auxiliary needles, substantially as herein shown and described.

3. In combination with the adjustable auxiliary shuttles and needles, arranged and operated as described, the elongated feed and presser foot, substantially as herein shown and described.

In testimony whereof I have hereto set my hand and affixed my seal in the presence of the subscribing witnesses.

SAMUEL W. FRANCIS. [L. S.]

Witnesses:
HENRY BULL, Jr.,
JOHN B. C. LAMLEY.