C. F. HARLOW.

Sewing Machine.

No. 107,041. Patented Sept. 6, 1870.

Fig. 1

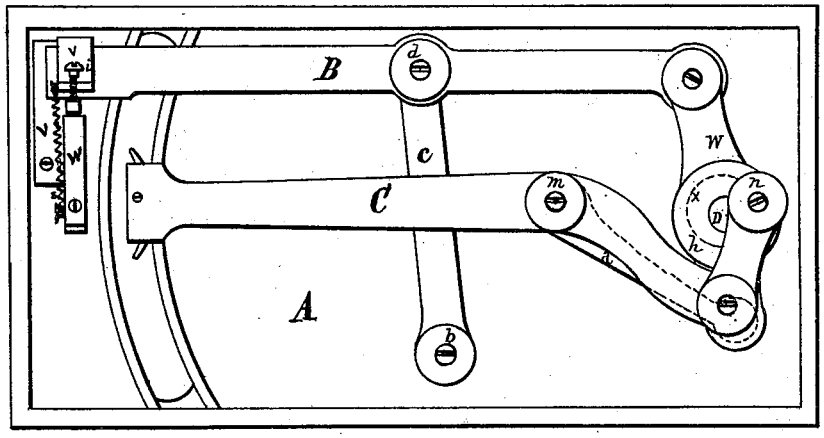



Fig. 2.

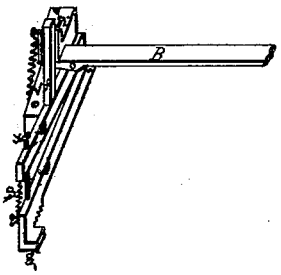
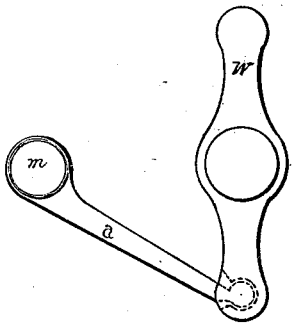



Fig. 3.




Witnesses:

Eugene Humphrey

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# UNITED STATES PATENT OFFICE.

CHARLES F. HARLOW, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN SEWING-MACHINE.

Specification forming part of Letters Patent No. **107,041**, dated September 6, 1870; antedated August 27, 1870.

I, CHARLES F. HARLOW, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented certain Improvements in Sewing-Machines, of which the following is a specification:

My invention consists in a new device for operating the feed-bar of what is known as the "four-motion feed," and is applied to the under side of the table of a sewing-machine.

Figure 1 of the accompanying drawing represents an inverted table with my device attached and the plan of such device.

A is the table of the machine; B, a feed-lever; C, a shuttle-carrier, and D a vertical driving-shaft.

The shuttle-carrier, which rocks upon the hub *m*, is driven by the crank-pin *n* in the hub *h*, which is fixed on the driving-shaft.

The hub *h* has an eccentric projection on the opposite side, indicated by the dotted line *x*, which eccentric actuates the bar W. This bar W is connected with the swinging lever *a*, hung to the hub *m*, and attached to said bar by being let into a recess in the same, in the form and manner indicated by the dotted lines in Fig. 3. This swinging lever *a* aids the eccentric *x* in imparting to said bar W its peculiar reciprocating lateral and elliptical motion. The bar W, being also attached at one end to the end of the feed-lever B, gives to said lever a rocking movement upon the hub *d* of the bar *c*, as well as forward-and-backward movement upon the hub *b*.

V V W are parts of the feeding mechanism, which are more fully and clearly represented in Fig. 2, which represents, in an inverted position, that portion of the feeding device, with its immediate connections, that comes in contact with the material to be fed along and sewed.

When the machine is put in practical operation and the various motions are imparted to the several bars and levers, as already described, the bar B, Fig. 2, is driven forward, forcing its wedge-shaped end *o* between the fixed block V V and the upper side of the jointed feed-bar W W, and, overcoming the spiral spring *s* attached to said fixed block and feed-bar, depresses said feed-bar (or, when the machine is right side up, raises said bar) through a slot in the table, and brings the roughened surface *g* of said feed-bar in contact with the material to be fed along and stitched; then said feed-lever B receives a lateral rocking motion on its hub *d*, which brings its end against the post *f* on the bar W W, and, continuing to move in that direction, it carries said post and feed-bar with it, thus causing the material against which said roughened surface *g* bears to be fed along as desired.

The reverse motions, which now follow, of the feed-lever release the bar W W from the downward and forward pressure and allow the spring *s* to bring it back to its first position, when the post *f* rests against the end of the screw *i*, which screw is adjustable against said post for the purpose of regulating the backward vibration of said feed-bar, thus measuring the length of the stitches in the material sewed.

The screw *y* is used to regulate the extent of the projection of the surface *g* through the slot in the table, to adapt it more perfectly to the varying materials sewed.

I claim as my invention—

The combination of the feed-lever B, bar W, hub *h*, swinging lever *a*, and bar C, when constructed, arranged, and operated substantially as and for the purpose described.

CHARLES F. HARLOW.

Witnesses:

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