2 Sheets—Sheet 1.

T. J. HARPER.

SEWING MACHINE.

No. 108,020. Patented Oct. 4, 1870.

Fig. 1

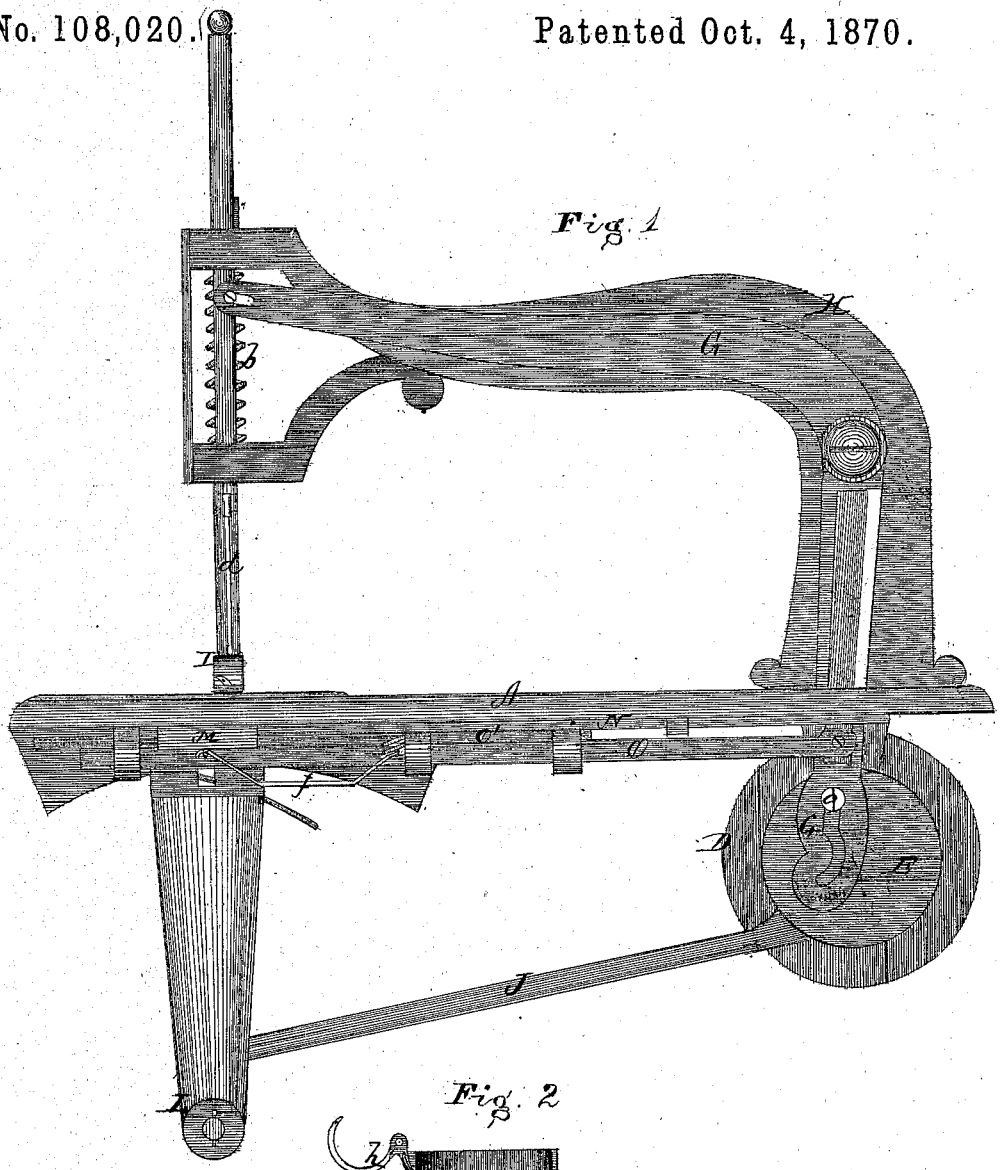
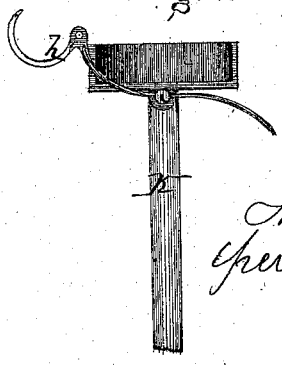


Fig. 2



Witnesses.
F. Lehmann
C. L. Everts

Inventor
Thos. J. Harper
per Alexander Mason
Attys.

2 Sheets—Sheet 2.

T. J. HARPER.

SEWING MACHINE.

No. 108,020. Patented Oct. 4. 1870.

Fig. 3.

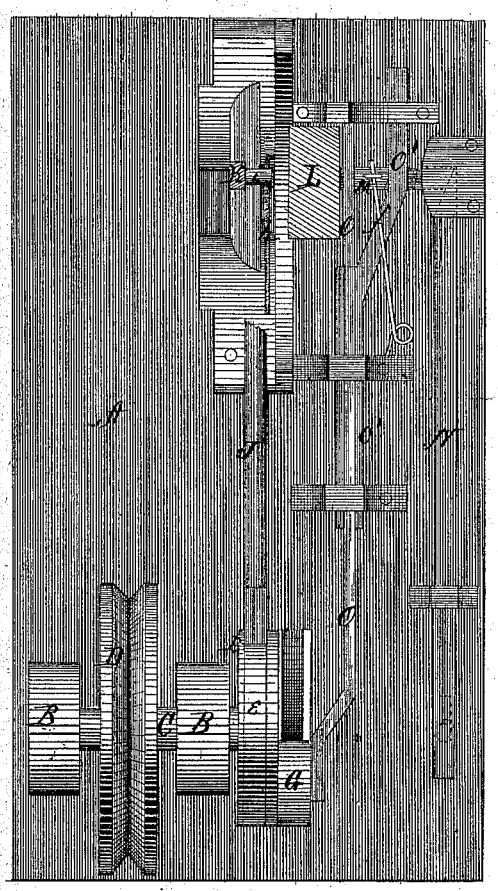


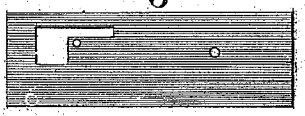
Fig. 8.

Fig. 7.

Fig. 4.

Fig. 5.

Fig. 6.



Witnesses
F. Schmann
C. L. Ewert

Inventor
Thos. J. Harper
per Alexander Mason
Attys.

United States Patent Office.

THOMAS J. HARPER, OF ATLANTA, GEORGIA.

Letters Patent No. 108,020, dated October 4, 1870.

IMPROVEMENT IN SEWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, THOMAS J. HARPER, of Atlanta, in the county of Fulton and in the State of Georgia, have invented certain new and useful Improvements in Sewing-Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a "sewing-machine," with a "button-hole attachment," as will be hereinafter 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, in which—

Figure 1 is a front elevation of my sewing-machine;

Figure 2 is a side view of the shuttle-arm, with a circular needle attached;

Figure 3 is a view of the under side of the sewing-machine table;

Figure 4 is a side view of the feed-bar.

Figures 5 and 8 are views of portions of the bars that operate the feed-bar.

Figures 6 and 7 are plan views of the needle-plates.

A represents the table of a sewing-machine, on the under side of which, near one end, are two ears or projections B B, forming bearings for the driving-shaft C.

The shaft C is provided with a wheel, D, to be connected by a belt, or otherwise, with a treadle, which I have not deemed it necessary to represent in the drawing, as it may be constructed in any manner desired.

The shaft C is also provided with an eccentric, E, which has a wrist or crank-pin, *a*, inserted, in an irregular slot in the lower end of the needle-arm G, for moving the same.

The needle arm G is pivoted to the curved standard H, on top of the table A, and carries the needle *d*, the standard H having the presser-foot I operated by means of the spiral spring *b*.

The eccentric E is also provided with a strap, *e*, and connecting-rod J, that connects to and works the shuttle-lever and driver K, which, being pivoted to and supported by means of a bracket, L, gives the shuttle a vertical circular motion in its movement back and forth.

The feed-bar M, which is held outward from the needle and shuttle by means of a spring, *f*, and regulated by means of the sliding bar N, is operated by means of the two sliding bars O and O′.

The bar O is pivoted to the lower end of the needle-arm G, and is, at its front end on the upper side, beveled, as shown in fig. 8, so that, by the forward motion of said bar, the feed-bar M will be raised up on the upper side of the table, for the purpose of catching the cloth to carry it forward.

The bar O′, which moves in suitable guides, is slotted at its rear end, and connected with the bar O by means of a pin or bolt passing through said slot into the bar O.

The front end of the bar O′ is bent, as shown in fig. 3.

When the bar O moves forward, and has raised the feed-bar M, as above described, the bolt connecting it with the bar O′ strikes the forward end of the slot in the same, carrying it forward, enabling its bent end to move the feed-bar inward.

As soon as the sliding bars O and O′ move backward again, the spring *f* will carry the feed-bar back as far as the regulating-bar N will allow.

The button-hole attachment consists of a circular needle, *h*, with lever attached or combined in such a way, when screwed to its place on the machine, which is in the shuttle-race, and just in front of the needle-hole, that while the short end is a circular needle to be threaded through the eye-hole in the point, the long end is a lever, and passes through the head of a small bolt, *i*, in the upper end of the shuttle-lever.

The bolt *i* revolves freely in the lever, so when the shuttle-lever moves back and forth it drives the circular needle.

When the shuttle-lever moves forward, the point of the circular needle draws back past the upper needle *d*. As it moves back, the circular point passes through the loop across the upper needle, around and above the edge of the cloth, and stands so until the point of the upper needle comes down and passes through its loop. Then it draws down and back, ready to again pass through the loop of the upper needle, below the cloth, thus making the button-hole stitch.

This attachment or circular needle is supplied with thread from a spool, fastened to a convenient place under the machine.

Fig. 6 shows the needle-plate used when plain sewing is desired, and fig. 7, the plate used when the button-hole stitch is desired. The only difference is that the latter plate has a grooved projection on its upper side, through which the circular needle passes.

When the button-hole stitch is desired, the shuttle must be removed, and the needle-plates changed.

Having thus fully described my invention,

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

1. The arrangement, upon the shaft C, of the

driving-wheel D and eccentric E with wrist-pin *a*, operating the needle-arm G, connecting-rod J, pivoted shuttlecarrying-arm K, and bars O O′, all constructed and operating substantially as set forth.

2. The combination of the shuttle-lever K, pivoted eye-bolt *i*, and circular needle *h*, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing, I have hereunto set my hand this 15th day of November, 1869.

T. J. HARPER.

Witnesses:

JNO. L. HOPKINS,

CHARLES K. MADDOX.