

G. C. BISHOP.
Sewing-Machines.

No. 148,024.

Patented March 3, 1874.

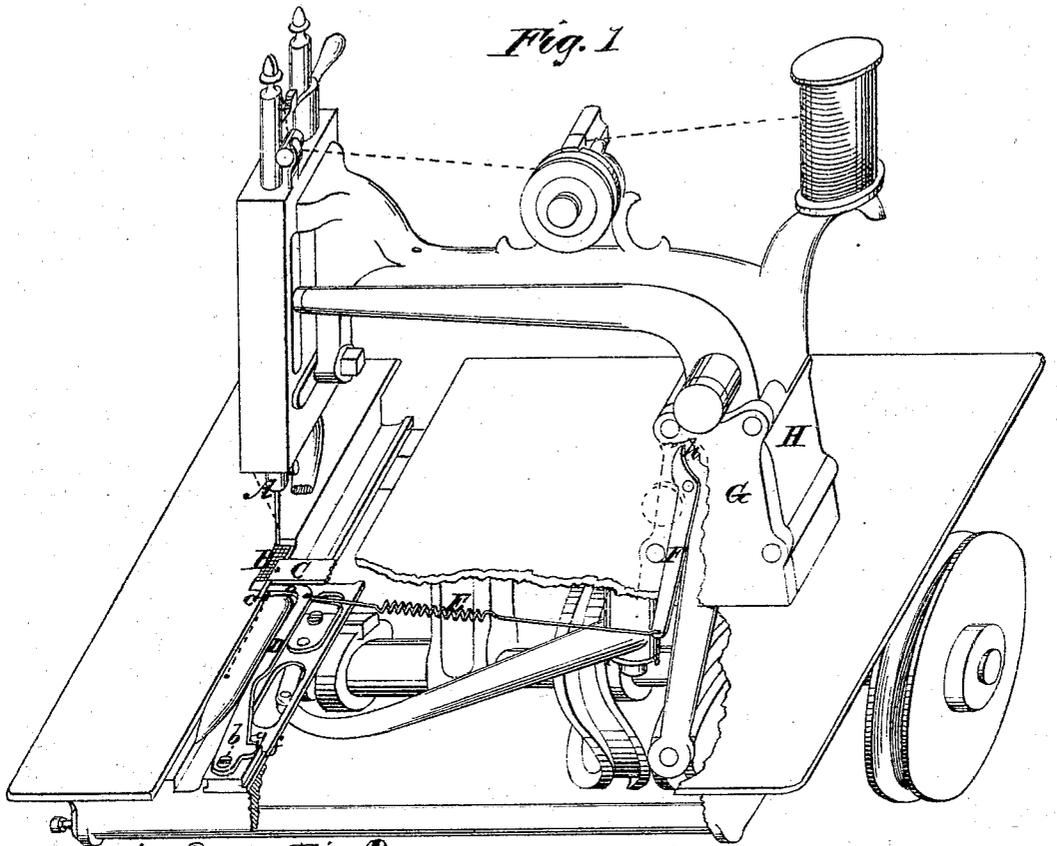


Fig. 2

Fig. 3

Fig. 4

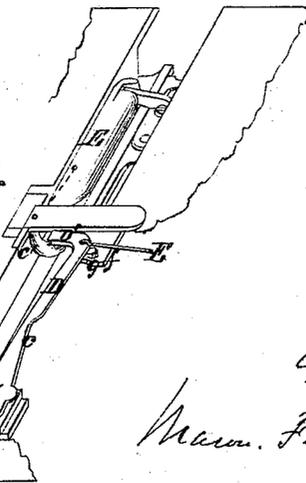
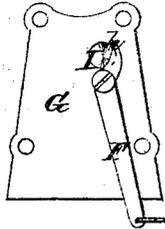
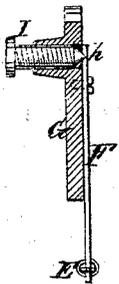
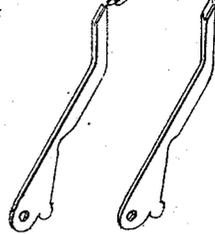


Fig. 5

Fig. 7

Fig. 6



Witnesses:
James Martin Jr.
J. W. Campbell

Inventor:
Geo. C. Bishop
by
Wm. Fenwick & Sonnes.

UNITED STATES PATENT OFFICE.

GEORGE C. BISHOP, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO ALFRED B. BEERS, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **148,024**, dated March 3, 1874; application filed January 21, 1874.

To all whom it may concern:

Be it known that I, GEORGE C. BISHOP, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Shuttle Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a perspective view of an ordinary shuttle-thread or Howe sewing-machine, with my improvement applied to it, a part of the bed-plate and of the capping of the box portion of the standard of the needle-arm being broken away in order to show my improvement more clearly. The adjusting-screw of the shuttle-thread tension device is also removed. Fig. 2 is a vertical section through the capping-plate of the box portion of needle-arm standard, showing the tension adjusting-screw, which was removed in Fig. 1. This view also shows the tension-lever and end of spring. Fig. 3 is a view of the inner side of the capping-plate of the box portion of the needle-arm standard, showing the tension-lever pivoted to it, and the cone end of the adjusting-screw. Fig. 4 is a perspective view of a portion of the machine and improvement, showing the shuttle-thread relieved from tension. Figs. 5 and 6 are views of the device which grips the thread to produce tension upon it. Fig. 7 shows the gripping end of the gripping device, with a lip on its under edge instead of with a V-groove in its end.

My invention has reference to the shuttle-thread sewing-machine, in contradistinction to those machines which are constructed with revolving or turning hooks, or revolving thread-carriers. The nature of my invention consists, first, in a tension gripping-lever, having its fulcrum in the shuttle-race, and made to bite against the side wall of the raceway upon the shuttle-thread, and operated directly by the shuttle-driver. Second, in a shuttle sewing-machine, the combination of the spring tension-lever, constructed and arranged as described, the shuttle-driver constructed as described, and the intermediate releasing-spring connecting-rod. Third, the gripping-jaw formed on the

tension-lever, with a groove or ledge, to prevent the thread getting loose while the machine is in operation. Fourth, in the combination of the vibrating tension regulating-lever, the side-impinging conical tension-screw, the spring connecting-rod, and the gripping tension-lever, whereby the very nicest adjustment may be obtained. Fifth, in the combination of a regulated spring-gripping tension-lever, having its fulcrum in the shuttle-race, with a shuttle carrier or driver, which actuates the said lever directly. This invention produces the most perfect tension at the time required, and yet leaves the cloth free to be moved when the tension is not required, the thread being kept tight while the stitch is being completed and immediately slackened on the completion of the same, or the moment the shuttle begins its return or back movement.

A is the needle-bar of the machine; B, the feed-plate. On that side of the raceway next to the feed-plate, the stitching-plate C is extended at right angles forward and downward, as at C'. This extension forms a stationary gripping-jaw. In rear of this jaw another gripping-jaw, D', of an angular lever, D, is located so as to stand just a little higher than the top of the shuttle E, and a little lower than the plate C, as shown. The gripping-jaw D is grooved or ledged, as at *a*, so as to prevent the thread descending after it has taken hold of it. The lever of the jaw is depressed and narrowed so as to be slightly yielding along a portion of its length, and is pivoted near the edge of the table, as at *b*. The depressed portion of the lever has a wedging form on its rear edge, as at *c*, and beyond this wedge-shaped portion a stop, *d*, is provided on the lever. On the shuttle-carrier an extension, *f*, is made, and from the top of this extension a friction-pin, *g*, projects so as to strike the wedge-shaped portion of the lever after the shuttle has been carried forward the proper distance. The contact of this pin with the lever causes the jaw D' to approach the jaw C', and, as the thread between the shuttle and the cloth is in the path of the movement of the jaw D', this thread is carried along by the jaw D', and finally gripped firmly between jaws D' and C', and held so until the needle

has tightened the stitch upon the cloth. The back movement of the shuttle-carrier releases the lever by withdrawing the pin off the wedge. To effect the retreat of the jaw D' from the jaw C' from the position shown in Fig. 1 to the position shown in Fig. 4, a spring connecting-rod, E, is fastened to the lever at its angle, and to place the lever D and its jaw, D', under control, so that the degree of tension may be regulated, this spring-rod is fastened to a vibrating lever, F, which is pivoted to the capping-plate G of the box portion of the needle-arm standard H, as shown. The upper end of this lever, F, is slightly deflected from a vertical plane, and this deflected portion is curved or concave, as at *h*. For producing or regulating the tension, a conic pointed screw-pin, I, is passed through a box-nut, J, of the plate G, so that its cone point passes by the concave part of the lever, and the conic surface back of the point impinges upon the said concave end of the lever, as shown in Figs. 2 and 3 of the drawings. By means of the screw the spiral or helically-wound portion of the spring-rod E can be extended so as to increase the tension, or allowed to shorten so as to decrease the tension upon the thread.

The operation is as follows: As the shuttle advances through the loop of the needle, the shuttle-carrier pin comes in contact with the spring tension-lever and forces it against the extension of the stitching plate. As the lever moves toward the plate, its grooved or lipped jaw carries the lower or shuttle thread to the jaw C and grips it fast between itself and the said jaw, and thereby prevents its further passage at the moment the needle is being drawn up. The stitch being fastened, the

shuttle and the gripping-jaw are drawn back by the spring tension-rod, and thereby release their hold upon the thread, allowing the shuttle-thread to run free.

I do not claim an independent tension outside of the shuttle of a shuttle sewing-machine, broadly; but

What I do claim is—

1. In a shuttle sewing-machine, the tension gripping-lever D D', constructed substantially as described, and having its fulcrum in the shuttle-race and made to bite against the side wall of the raceway upon the shuttle-thread, and operated directly by the shuttle-driver, substantially as described.

2. The spring gripping tension-lever D D', constructed and arranged as described, the shuttle-driver with its pin *g*, and the releasing spring connecting-rod E, substantially as and for the purpose described.

3. The spring gripping tension-lever D D', with the groove or ledge *a* in its jaw, D', as and for the purpose described.

4. The side-impinging regulating cone-screw, in combination with the laterally-deflected vibrating lever F *h*, spring connecting-rod E, and the spring gripping tension-lever D D', substantially as and for the purpose described.

5. The gripping-lever, arranged in the shuttle-race and operated by the shuttle-driver to gripe the shuttle-thread against the race, in combination with mechanism, substantially as described, for regulating the pressure of the lever, as set forth.

GEORGE C. BISHOP.

Witnesses:

H. H. BISHOP,
A. B. BEERS.