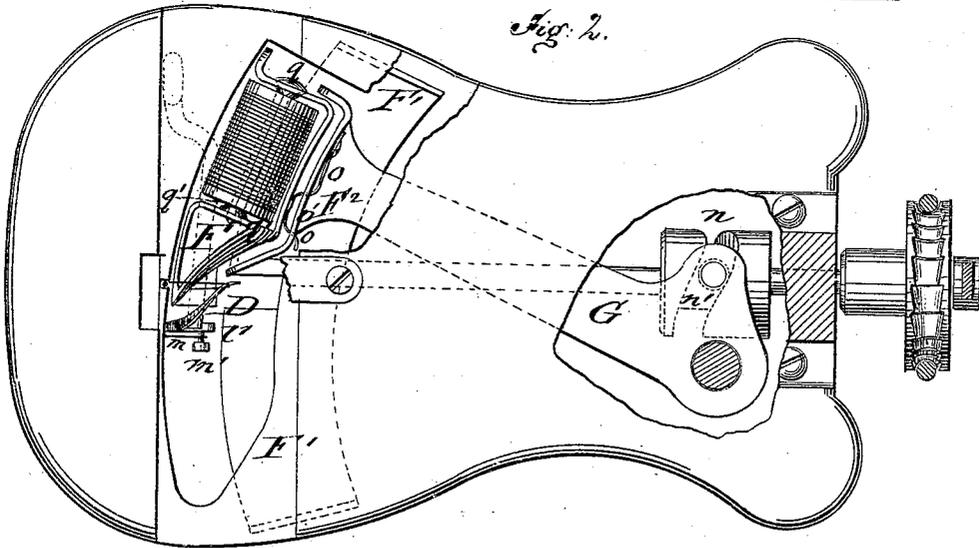
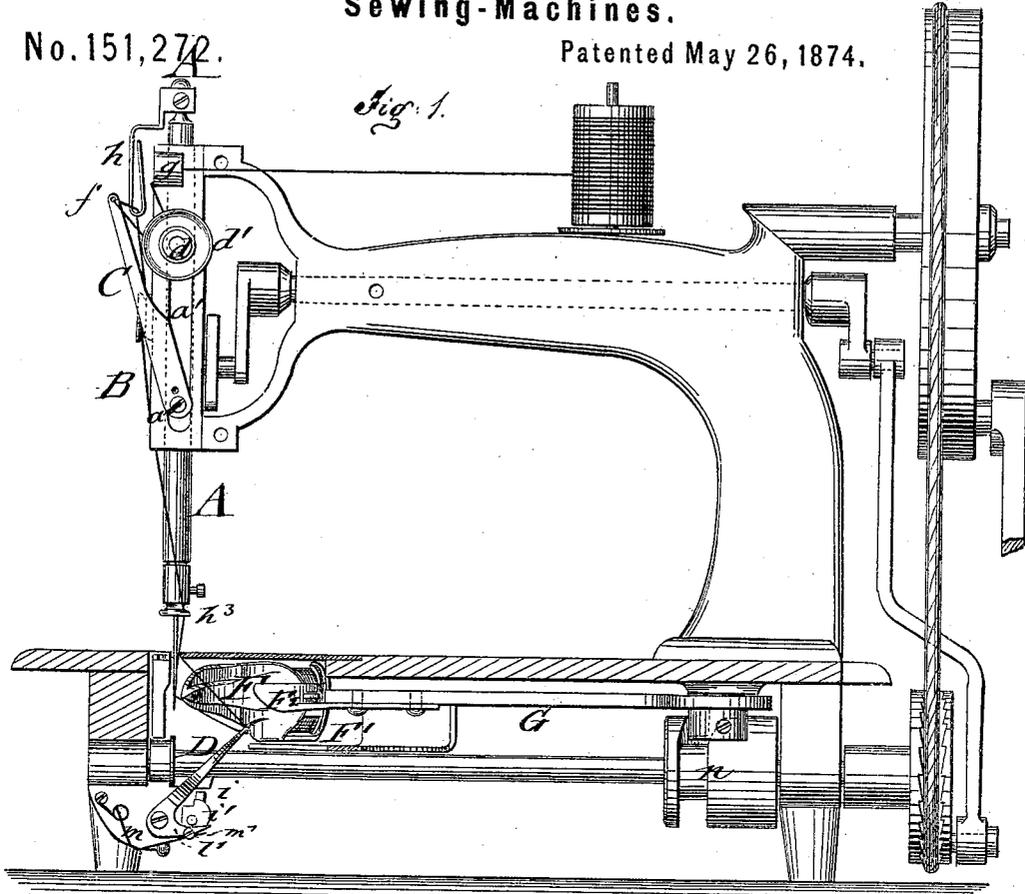


J. BUHR.
Sewing-Machines.

No. 151,272.

Patented May 26, 1874.



Witnesses:

Chas. Nida
Widquist

Inventor:

Per

J. Buhr
Munnell
Attorneys.

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Fig: 3.

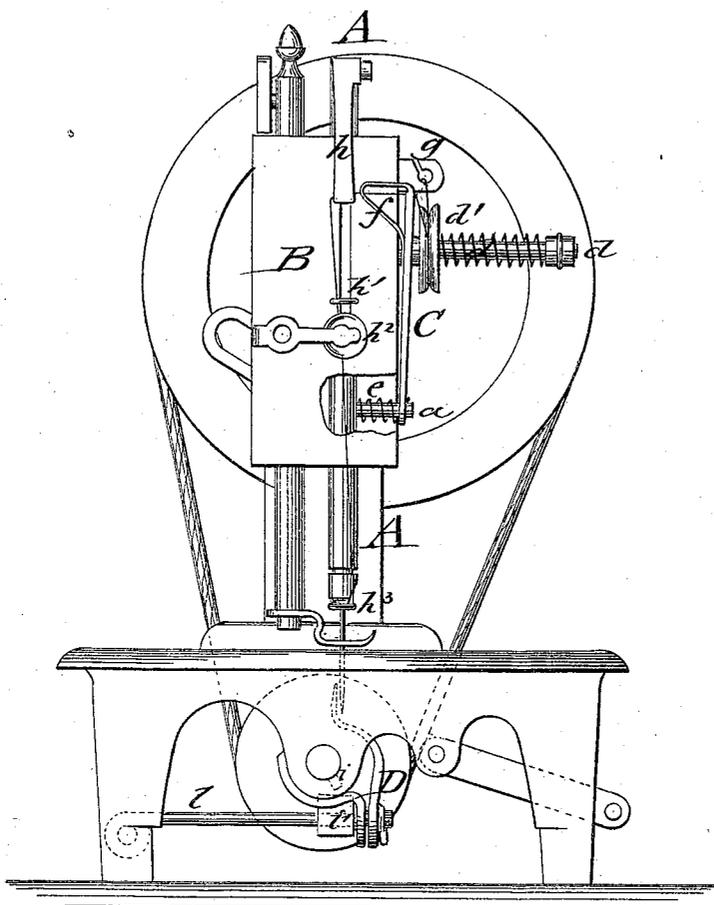
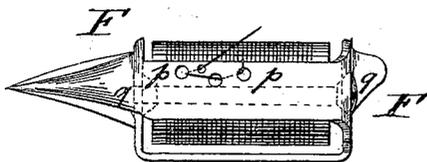


Fig: 4.



Witnesses:

Chas. Nida
Chugnick

Inventor:

J. Buhr
 Per *Munnell*
 Attorneys.

UNITED STATES PATENT OFFICE.

JOHANNES BÜHR, OF HAMBURG, GERMANY.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 151,272, dated May 26, 1874; application filed January 10, 1874.

To all whom it may concern:

Be it known that I, JOHANNES BÜHR, of Hamburg, Germany, have invented a new and Improved Sewing-Machine, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a sectional side elevation of my improved sewing-machine; Fig. 2, a sectional top view with parts cut off to show the shuttle arrangement; Fig. 3, an end view of the same, and Fig. 4 a detail rear elevation of the shuttle.

Similar letters of reference indicate corresponding parts.

The object of my invention is to provide for family and other purposes a sewing-machine which allows the direct use of the common spools without requiring the spooling of the thread on the bobbin, performing the work with equal exactness and dispatch.

My invention consists of the arrangement of a pivoted lever-arm at the needle-bar, which takes up or feeds, in connection with suitable tension devices, a sufficient quantity of thread to the thread-catcher pivoted below the throat-plate, so that the larger shuttle containing a common spool of thread may freely pass through the loop of the needle, and form, with the shuttle-thread, the stitch.

In the drawing, A represents the needle-bar of a sewing-machine, to which motion is imparted in the usual approved manner. The needle-bar A is provided with a horizontal sidewise-projecting arm, *a*, which moves in a slot, *a'*, at the side of the face-plate B of the machine. A lever-arm, C, is pivoted to the end of arm *a*, and forced up against the stationary tension-spindle *d* by a spiral or other spring, *e*, applied to arm *a* and the lower part of arm C. Lever-arm C is intended to take up or feed, at each upward motion of the needle-bar, such a quantity of thread that on the descent of the needle-bar a piece of sufficient length is furnished to the needle to admit the passage of the shuttle. Lever-arm C is constructed at its upper end with a sidewise-projecting triangular loop, *f*, which is perforated for the passage of the needle-thread, as shown in Fig. 3. The thread is conducted in the usual manner from the upper spool through side guide-staple *g*, around tension *d'* of spin-

dle *d*, and thence through the loop end of feed-lever C. The thread then passes through a spring-hook, *h*, attached to the top end of the needle-bar, and through a staple, *h'*, spring-tension *h''* of the face-plate, and guide-staple *h'''* at the lower end of the needle-bar, to the needle. The upward motion of the needle-bar carries feed-lever C along the tension-spindle *d*, so that the lever swings into forward position and feeds the required length of thread from the spool to the needle, producing at the same time the stretching of the needle-thread after it has passed around the shuttle, and thus the formation of the stitch. The needle-thread is taken up immediately on the descent of the needle-bar by the pivoted thread-catcher D, which is made in the shape of a curved hook, as shown in Figs. 2 and 3, and caused to swing in the direction of the longitudinal axis of the machine toward the main standard. Its intermittent reciprocating motion is produced by a cam, *i*, on a laterally-pivoted arm, *l*, the free outer end of which engages a hook-shaped extension, *l'*, of the thread-catcher D, and carries the same in downward direction immediately after the descent of the needle. The thread-catcher forms a loop of sufficient size from the needle-thread to admit the passage of the shuttle. The return motion of the thread-catcher D is caused by a spring, *m*, which acts on a lug, *m'*, of the extension *l'*, as soon as the downward pressure, by the cam, of the lower main shaft is discontinued. The shuttle F slides in an arc-shaped shuttle-race, F¹, and is placed loosely in the shuttle-carrier F² at the end of arm G, which is pivoted to the lower part of the machine-frame, having circular reciprocating motion with variable speed imparted to it by the grooved wave or cam wheel *n* of the lower shaft, and pin *n'* of arm G, as shown in Figs. 1 and 2. The shuttle-carrier F² corresponds in shape with the shuttle F, and is provided with a tension-spring, *o*, which passes through a groove, *o'*, and presses against the shuttle-thread after the same is passed through several guide perforations, *p*, of the rear part of the shuttle. The pointed front part of the shuttle F is raised above the central axis of the shuttle, and is thereby brought higher up toward the needle, and is more readily thrown through the loop

formed by the needle-thread. The shape of the shuttle F is fully shown in Figs. 1 and 2, and in detail in Fig. 4, and consists of a pointed head, a rear plate with bent shoulder, a longitudinally-connecting base slide-piece, and a rear plate with perforations *p*. A spool of any of the common grades is placed on a spindle, *q*, which is passed centrally through the rear plate to the head-plate provided with a conical head, and screwed, with its end, into a conical projection, *q'*, of the head-plate, by which the spool-spindle is firmly retained, while the spool turns freely without moving in a longitudinal direction.

The needle-thread glides along the pointed part of the shuttle to the larger part, and between the same and the shuttle-carrier, past the tension-spring *o*, to the rear of the shuttle, taking up the shuttle-thread, and forming, on the contraction of the needle-thread by the feed-lever, the stitch on the under side of the cloth. The twofold action of the feed-lever gives full play to the passage of the shuttle, and contracts the needle-thread for forming the stitch, so that the spools may be inserted directly in the shuttle, and used immediately for sewing, without losing time for spooling

the bobbin, working with the same efficiency and dispatch as the shuttle-machines hitherto in use.

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

1. The combination of the pivoted spring-lever, connected to the lever-bar, with the stationary tension-spindle and tension device for throwing the lever forward, thereby furnishing the necessary length of thread for the passage of the shuttle, and taking up the slack needle-thread for the stitch, substantially as set forth.

2. The pivoted loop-spreading hook *D'* and spring *m*, arranged in co-operative relation with the needle and shuttle, in combination with the pivoted arm *l i'* and cam-shaft *D i*, for imparting an intermittent movement to the loop-spreader, as and for the purpose set forth.

The above specification of my invention signed by me this 5th day of December, 1873.
JOHANNES BÜHR.

Witnesses:

J. NAUMANN,
PAUL MÖLLER.