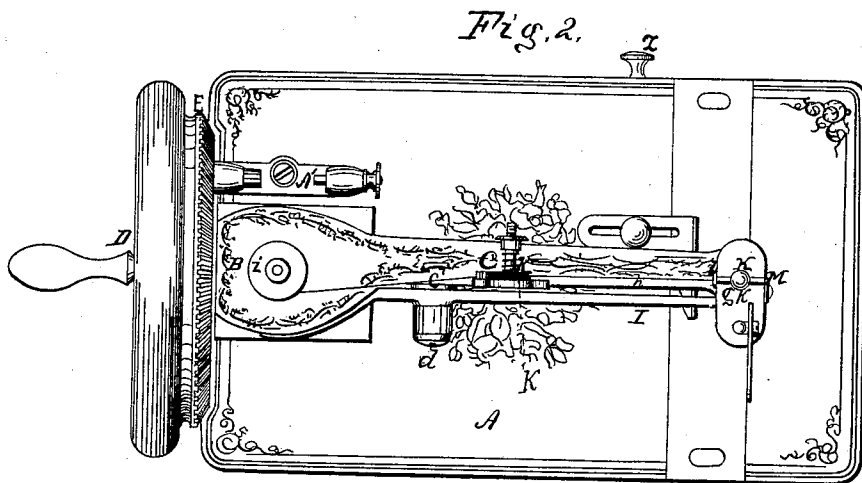
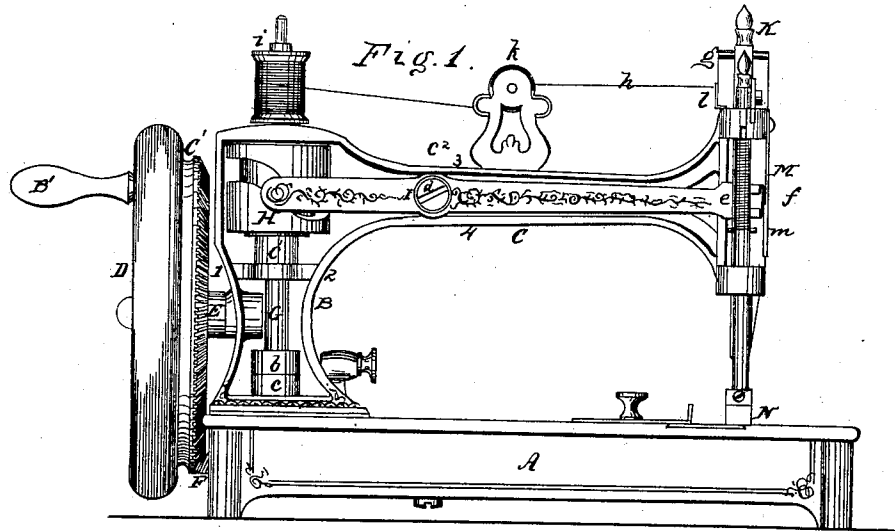


G. F. KENDALL.

Sewing Machine.

No. 101,887.

Patented April 12, 1870.



Witnesses.

H. P. Mott

J. K. Ware

Inventor

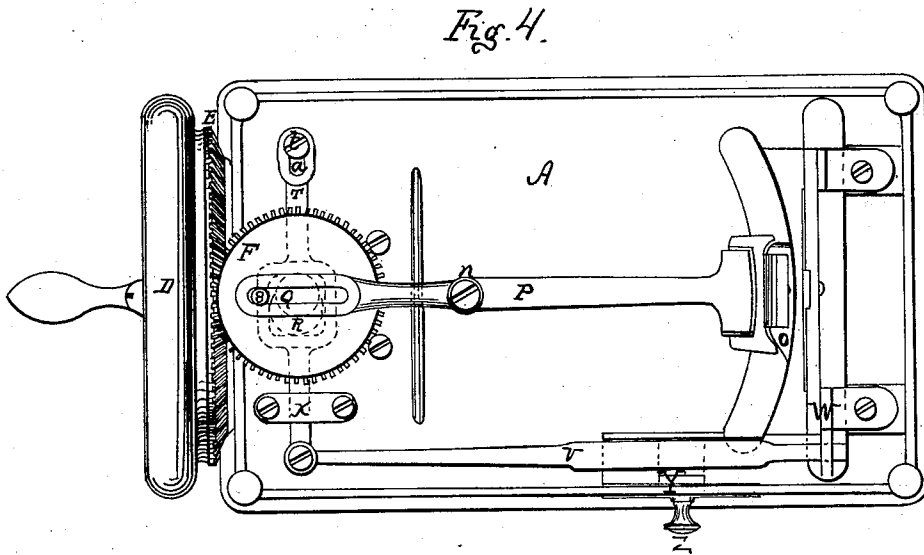
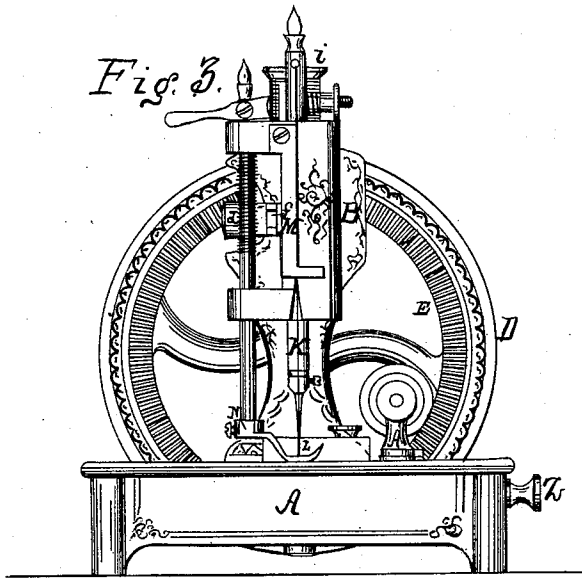
George F. Kendall

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H. P. Minot  
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George F. Kendall

# United States Patent Office.

GEORGE F. KENDALL, OF FITCHBURG, ASSIGNOR TO HIMSELF AND JOHN G. FOLSOM, OF WINCHENDON, MASSACHUSETTS.

Letters Patent No. 101,887, dated April 12, 1870.

## IMPROVEMENT IN SEWING-MACHINE.

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

Know all men by these presents:

That I, GEORGE F. KENDALL, of Fitchburg, in the county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings forming a part of this specification, in which—

Figure 1 represents a side view of my improved sewing-machine, showing the relative position of the operating-lever and cam;

Figure 2 represents a plan view of my improved sewing-machine;

Figure 3 represents a front view; and

Figure 4 represents a bottom view of said machine.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

The nature of my invention consists—

First, in the combination and relative arrangement of two sliding levers with a triangular-shaped cam for operating the feed device, as hereafter set forth; and Second, in the combination and relative arrangement of the mechanism for operating the feed device, and mechanism for operating the shuttle, as shown in the drawings as hereafter described.

In the drawings the part indicated by letter A is the bed or table of the machine, supported at its four corners by standards or feet.

On the top of the bed-piece A is an upright frame, B, on which is cast the arm C that supports the needle-bar, and other parts of the machine above the work.

The upright B and arm C are made hollow, and are left open at one side to allow sufficient space for the operation of the cam and lever attached thereto.

The driving-wheel D is arranged upon a pin or shaft that projects from the rear of the upright B.

The wheel D has a beveled gear, E, cast upon its inner side, which gear E meshes into a gear, F, below the bed-piece A, that is fixed to the lower end of a perpendicular shaft, G, inclosed in the upright frame B, and upon which, at its upper end, is arranged the cam H that operates the needle-bar lever I.

Cam H is held to the shaft G by a set-screw, and a collar, b, is fastened to the shaft, above its lower bearing c, to prevent the shaft from dropping out of place.

The lever I is pivoted to the arm C at d, and its end e is forked to engage the screw f that projects from the rear side of a sliding guide-piece that surrounds the needle-bar K, to which it is firmly attached, thereby causing the needle-bar to be raised and depressed with the motion of the lever I, and thus operating the needle L.

A short tube, g, is arranged in the top of the needle-

bar K for the passage of the thread h, the ends of said tube projecting far enough on either side to prevent the thread h from coming in contact with the needle-bar, which is usually covered with oil.

The spool i that contains the thread is placed upon a rod that is fastened in the top of the upright frame B, and the thread passes from thence to between the friction-plates k, where it is given the required amount of tension, then through the loop l and tube g, and down to the needle L, passing on its way beneath the check-spring M, as fully indicated in the drawing.

The check-spring M is for the purpose of holding the thread taut while the needle L descends and enters the cloth, thereby preventing the thread from kinking and looping around the point of the needle L before it enters the cloth.

Check-spring M is provided with a flange, m, at its rear edge, against which the sliding guide-piece of the needle-bar strikes after the needle has entered the cloth, thereby pressing the spring M outward, and freeing the thread from strain during the latter half of the needle's descent.

A pressing device, N, for holding the work in position, is arranged at the back of the needle-bar K. Said pressing device is constructed, arranged, and operated in the usual manner, and, therefore, needs no further description.

The shuttle O is of the usual form and arrangement, and is operated by means of a lever, P, at the under side of the bed A. Said lever P is pivoted at n, and has a slot, Q, at its end, in which works a pin, S, that projects from the lower side of the gear F, and which, acting as a crank as the gear moves around, causes the lever P to oscillate.

As the pin S moves around it gives an accelerated motion to the shuttle during its passage through the loop—a slower motion being imparted to the shuttle at each end of its sweep.

It will thus be seen that the motion of the shuttle is such as to greatly facilitate the proper formation of the stitch, by giving sufficient and ample time, before and after the shuttle has passed the loop, for the necessary tightening of the stitch and the formation of a new loop by the action of the needle, which is propelled by the lever I.

The barrel-cam H, on the upright shaft G, is so made as to give or impart a quick upward motion to the bar K and needle L, which tends to draw the thread into the cloth, while, at the same time, the tube g in the upper part of the needle-bar K takes up the slack of the thread without the use of complicated or additional mechanism therefor.

The cam H is also made so as to give a slight dwell to the needle after it has been raised sufficiently far to form a loop for the passage of the shuttle.

To the lower end of the upright shaft G, between

the gear F and table A, is secured a triangular-shaped cam, R, shown in dotted lines, fig. 4, which works in a rectangular opening in lever T, which lever is pivoted to the under side of the bed or table A by the screw *t* that passes through a slot, *u*, in the end of said lever T.

The opposite end of the lever T is fastened to the rear end of the lever V that operates the feeding device W. The feeding device W may be made in the usual manner.

Lever T is arranged to work between the gear F and the table A, its outer end being supported by the guide-piece X.

By reason of the slot *u* lever T can move longitudinally, whereby a compound motion is imparted to lever V by the revolution of the cam R in the rectangular opening.

It may be remarked that lever V is provided with a longitudinal slot on its top side that fits over a fulcrum-pin in the lower side of the slide Y, said pin acting as a pivot for the lever V, as well as a guide for its longitudinal motion.

The position of the slide Y may be changed to vary the length of stitch taken by the machine, it being held in any desired position by a set-screw, Z. The machine is provided with a thread-winding device, A'.

Instead of a crank, B', the machine may be driven by a band running in the groove C' around the driving-wheel D.

The upper bearing-piece *c'*, through which the shaft

G passes, and upon which the hub of cam H rests and turns, is cast so as to connect the front and rear flanges 1 and 2 of the upright part B, as indicated in fig. 1 of the drawings, while the projection *c''*, which receives the fulcrum-screw *d*, is cast so as to unite the upper and lower flanges 3 and 4 of the arm C.

By this mode of constructing or forming the parts marked B C and *c' c''* the expense of separate bearing-pieces is obviated, while, at the same time, the parts B and C are rendered stronger and less liable to spring or break.

The projection *c''* extends out past the flanges 3 and 4, so as to support the front part of arm I beyond and clear of the flanges of arm C.

Having described my improved sewing-machine,

What I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination and relative arrangement of the sliding levers T V with the triangular-shaped cam R upon the lower end of the upright shaft C, as and for the purposes set forth.

2. The combination and relative arrangement of the mechanism for operating the feed-device W with the mechanism for operating the shuttle, substantially as described and as shown.

GEORGE F. KENDALL.

Witnesses:

H. P. MINOT,  
T. K. WARE.