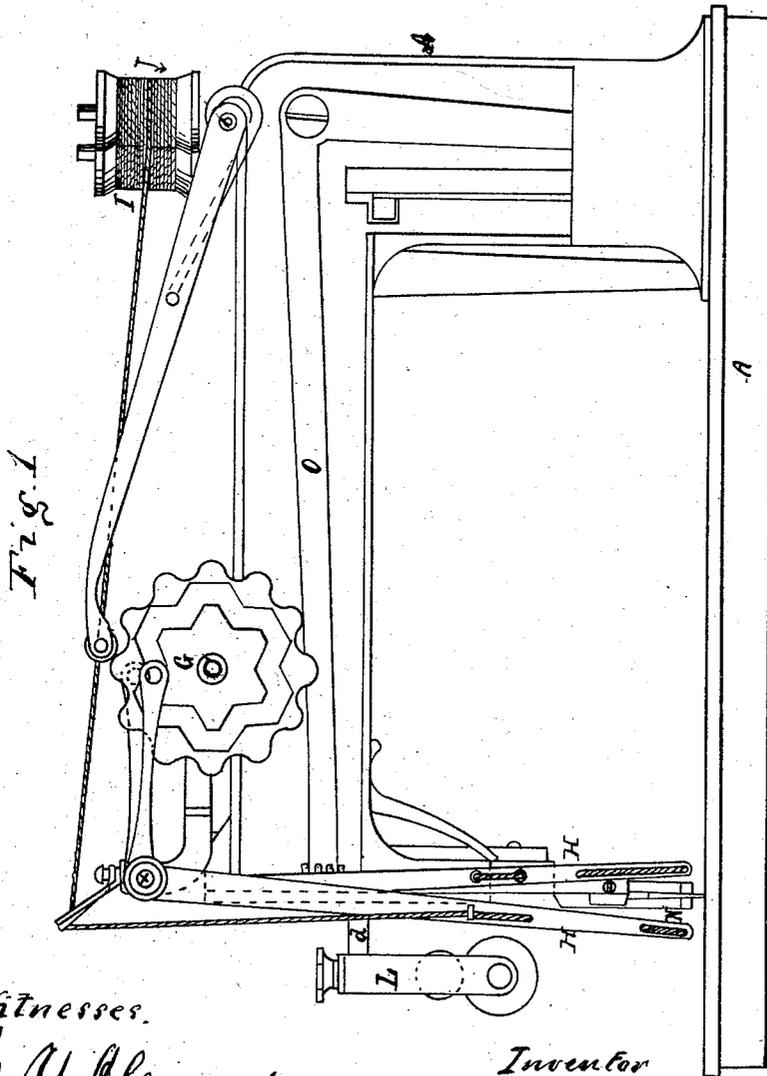


A. H. BOYD.
SEWING MACHINE.

No. 31,864.

Patented Apr. 2, 1861.



Witnesses.
C. M. Alexander
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Inventor
A. H. Boyd

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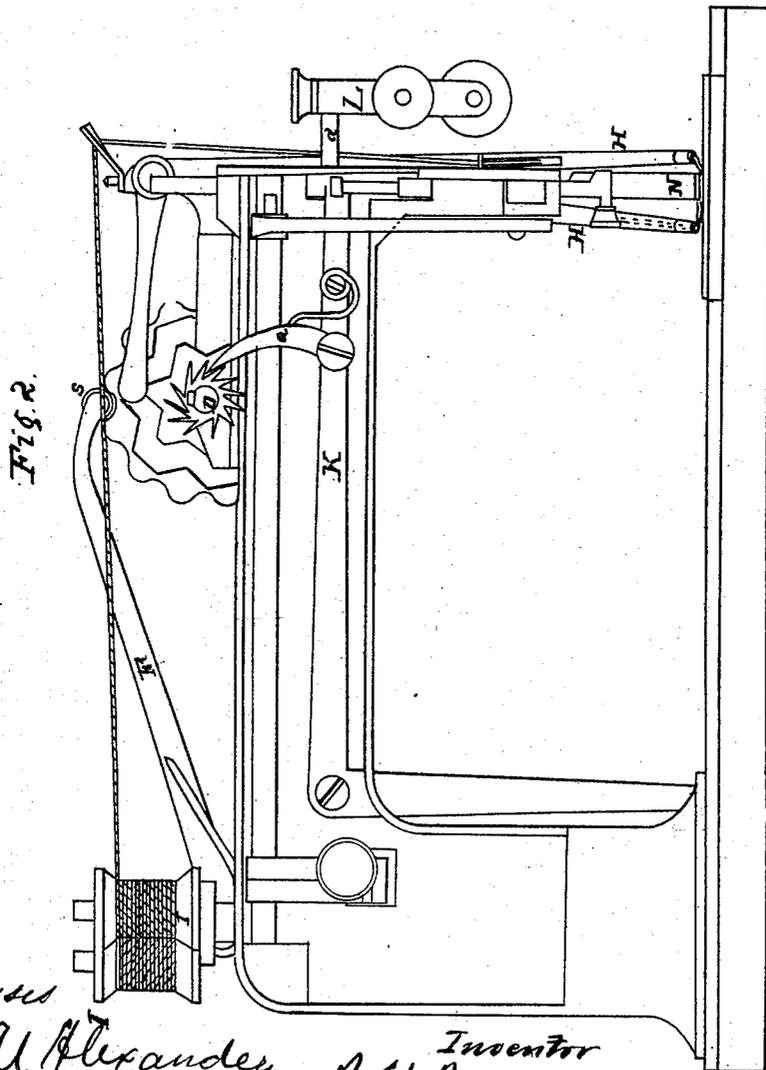


Fig. 2.

Witnesses

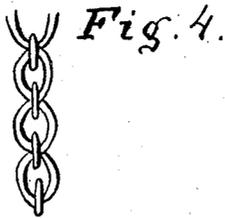
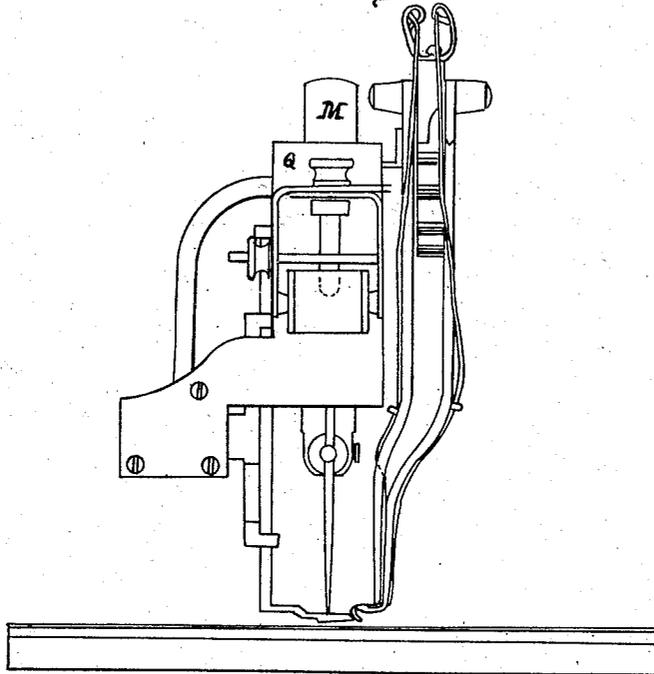
L. M. Alexander *Inventor*
Thomas H. Thompson *A. H. Boyd*

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Fig. 3.



Witnesses.

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Thomas H. Thompson

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UNITED STATES PATENT OFFICE.

AMOS H. BOYD, OF ROCKVILLE, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 31,864, dated April 2, 1861.

To all whom it may concern:

Be it known that I, AMOS H. BOYD, of Rockville, in the county of Norfolk and State 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, and to the letters of reference marked thereon.

The nature of my invention consists in constructing and arranging the several parts of this machine in the manner hereinafter particularly described.

In the annexed drawings, Figures 1 and 2 represent side views of the machine. Fig. 3 is a front elevation, and Fig. 4 is a view of the stitch.

In the figures, A represents the body and frame-work of the machine, which are constructed in any convenient manner and of any desired size or material. Upon top of the frame-work of the machine is secured a cam-wheel, G, as represented in the figures, the wheel G being secured to a shaft which lies across the frame.

H H represent two arms, which are made in the form represented, and which are pivoted at *x* to the front portion of the frame, as shown. These arms have holes through them, through which thread may pass, and they are also eye-pointed. To one end of these arms are secured friction rollers or pins which play or work in the cam-grooves on the wheel G. When the wheel G revolves the arms are caused to move, their lower ends crossing from one side of the needle to the other. One of these arms is a little shorter than the other, and both have their lower ends turned, forming a foot, as seen in Fig. 3.

K represents the bar which serves to communicate motion to the foot-piece N. *a* represents a long ratchet-tooth, which is secured to the bar K, and which serves to work the ratchet-wheel D.

D is a ratchet-wheel, which is secured to one end of the shaft of cam-wheel G. When the bar K moves up and down, giving motion to the foot-piece N, it also, through ratchet-tooth *a* and ratchet-wheel D, communicates motion to wheel G, which in turn moves the arms H H.

I I represent the spools which furnish thread for the eye-pointed arms H H.

F represents a bar, which is provided with a friction-roller, *s*, which bears upon the cam-wheel G and regulates the said wheel as to steadiness of motion. This bar is borne down by means of a spring, the tension of which may be increased or diminished at pleasure.

L is a spool-case, which is connected to the needle-bar M in front of the machine by means of a rod, *d*, which rod plays through a slot in the plate Q, as shown in Fig. 3. When the needle-bar vibrates the spool case or frame moves with it, the rod which attaches it turning or moving to adjust the case to the requirements of the needle.

I use a looping apparatus with this machine for forming the stitch on the under side of the cloth, though I do not confine myself to any particular mode of taking the stitch, as it may be done in various ways.

In using my improvements the arms H H are threaded, as shown, and so is the needle. The machine being set in motion in the usual way, the needle descends into the cloth, and while there the foot-piece N rises, by means of mechanism employed for that purpose, sufficiently high to allow the arms H H to cross or change sides under it. The loop is taken on the under side of the cloth after the arms H H have crossed each other, and the needle, rising, descends again, passing its thread over the two threads from the arms H at the point where they cross. The needle again remains in the cloth while the foot-piece rises and the arms again cross or change sides. The foot-piece then descends, while the needle again ascends and descends over the cross-threads from the arms H. Thus the operation continues.

The spool-case rises and falls with the needle-bar, of course, and draws the thread up tight at each stitch. By this arrangement of the spool-case I am enabled to place it close to its work, and thus use a very short thread. When a short thread is used, as in this case, there is less liability of the threads breaking, and it cannot be worn and rubbed by the friction of tensions or of surfaces over which it passes when the thread is necessarily long or placed at a distance from its work.

I claim—

1. The employment of the cam-wheel G, the eye-pointed crossing-arms H H, the foot-piece N, and a needle, arranged and operating in the manner set forth for the purpose of making the embroidery-stitch represented.

2. The employment of the bar K, the ratchet-tooth a, the ratchet-wheel D, the cam-wheel G, and the arms H H, arranged in the manner

represented, whereby the arms are made to cross under the foot-piece as often as it rises, substantially as set forth.

AMOS H. BOYD.

Witnesses:

GEORGE E. BOYD,
WILLIAM B. BOYD.