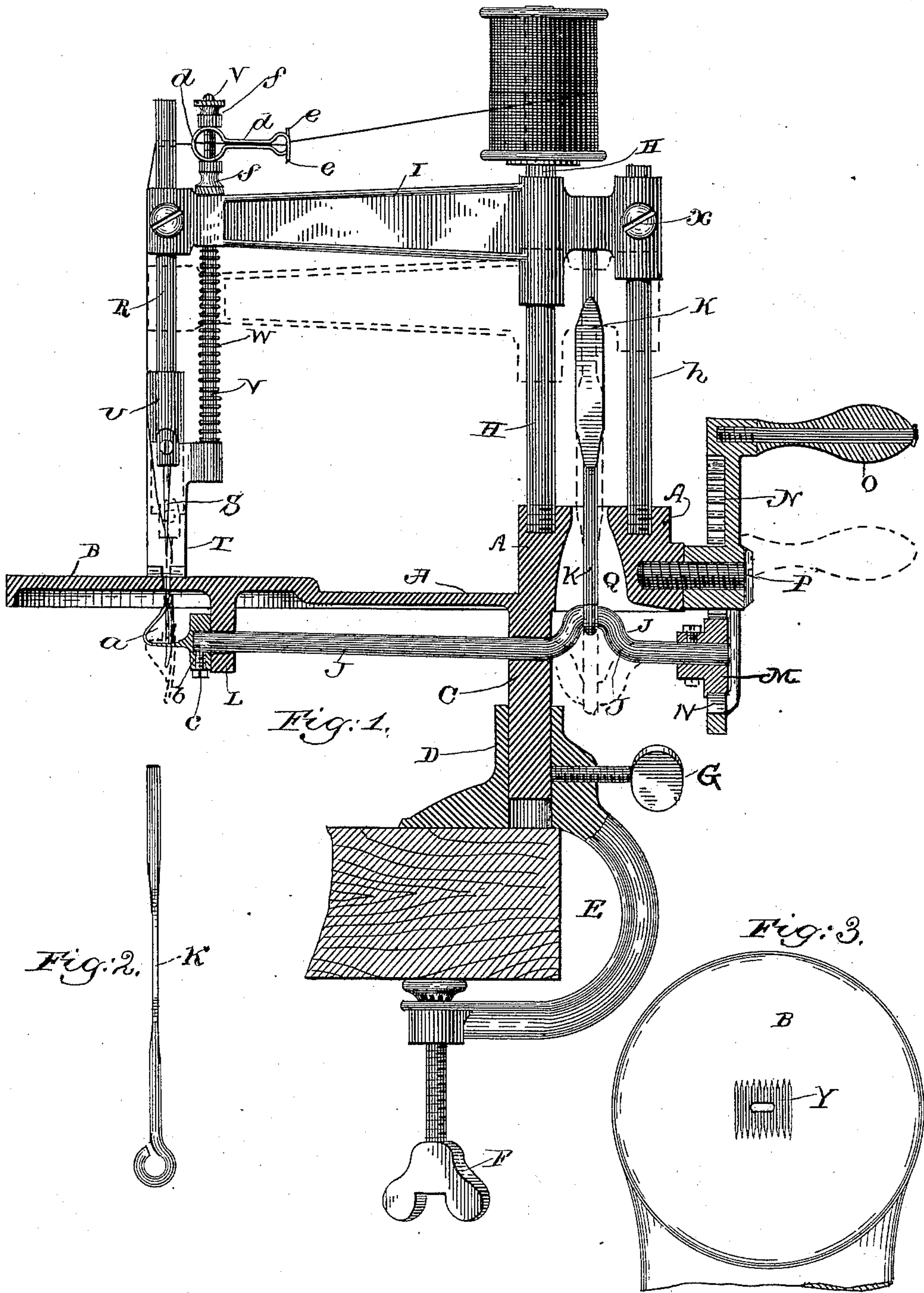


(No Model.)

E. HALL.
SEWING MACHINE.

No. 424,290.

Patented Mar. 25, 1890.



WITNESSES
Thomas Hobday,
Chas. G. Loomis

Inventor
Edgar Hall
by N. C. Hewitt, atty

UNITED STATES PATENT OFFICE.

EDGAR HALL, OF SOMERVILLE, MASSACHUSETTS.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 424,290, dated March 25, 1890.

Application filed April 21, 1887. Renewed December 10, 1889. Serial No. 333,196. (No model.)

To all whom it may concern:

Be it known that I, EDGAR HALL, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of this invention is to provide a simple and cheap but thoroughly effective sewing-machine of the most compact form, and capable of being operated by hand at a rapid rate, or provided with a treadle or a belt for foot or mechanical power.

My improvements are hereinafter fully described, and are specifically referred to in the appended claims.

In the drawings, Figure 1 is a side elevation, partly in section, of my improved machine, dotted lines indicating positions of the parts at the other end of the stroke. Fig. 2 represents the spring-pitman which connects the crank-shaft with the goose-neck. Fig. 3 is a plan of the work-plate showing serrations around the needle-hole.

The body A of the machine is cast in one with the work-plate B and with a depending stud or spur C, preferably of cylindrical form, which enters a corresponding socket D, formed in the clamp E, which clamp is provided with a thumb-screw F, by which it may be fixed on the edge of the table. The spur and socket hold the machine in upright position, but permit it to be swung around, as desired, to accommodate the work or for any other purpose. I provide the wall of the socket with a set-screw G, bearing with its point on the spur C to hold it fast when required. The socket and spur may be angular in cross-section, and the position of the machine varied by lifting the stud out of the socket, turning it partially around and replacing it. Two vertical guide-rods H h are fixed firmly by one end in the body A, and on these guides the goose-neck I reciprocates vertically, as denoted by the full and dotted lines in Fig. 1. This reciprocation is effected by means of the crank-shaft J and connecting-rod K with suitable devices for rotating said shaft, which has its bearings in the enlarged upper

part of the stud C and in a lug L, depending from the bed-plate.

The drawings represent the preferred means of driving the machine. The shaft J has fixed at its extremity a pinion M, which meshes with the teeth of a gear-wheel N, to which the crank O is applied, and which revolves on a bearing-stud P, fixed horizontally in the end of the body A. An elongated opening Q in the body enables the connecting-rod to swing back and forth as it reciprocates. The thread-spool revolves on the prolongation of the guide H. The needle-bar R and needle S project vertically downward from the extremity of the goose-neck I, and move with it in its reciprocation. The presser-foot T has a vertical tubular sleeve U, through which the needle-bar runs, and from an offset on this sleeve a straight guide-rod V runs upwardly through a vertical perforation in the goose-neck, a spring W surrounding this rod V, keeping the presser-foot down upon the work with a diminished pressure when the needle is raised. The needle has a very slight lateral movement imparted to it for the purpose of feeding the work forward. To this end the fixed guide-rod h is made slightly less in diameter than the perforation in the goose-neck which reciprocates over it, and a regulating-screw X enables the operator to vary the amount of lateral movement arising from this loose fit. The connecting-rod K is flattened and made thin centrally, as in Fig. 2, so as to be elastic and to impart a slight swinging movement to the goose-neck. The upper end of the connecting-rod K being secured in the goose-neck and its lower end describing a circle in its movement with the crank-shaft, it results that the needle descends through the work on the work-plate while in a position to be moved laterally forward to a slight extent by the elasticity of the rod K and the loose fit of the guide h. The limited lateral movement so produced while the needle is reciprocating through the work carries it forward the length of one stitch, the work-plate being serrated around the needle-hole, as at Y, Fig. 3, to prevent the smooth-bottomed presser-foot from carrying it back again. The hook a is soldered

to a disk or collar *b*, having a central perforation shaped to fit the end of shaft *J* and provided with a set-screw *c*. In this way the hook may be set accurately to correspond in
5 position with the needle and other parts of the machine.

I make no present claim to the rotary hook or looper, certain novel features thereof forming the subject of my application No. 310,432,
10 filed May 11, 1889, for a patent on loopers.

In Fig. 1 a thread-tension device of simple character is shown. A clasp *d* of sheet metal is bent centrally to hoop form, and has its arms prolonged toward the spool to press the
15 thread between them. Each arm terminates in a finger *e*, one turning down and the other up, and the thread passes between the fingers and arms, then through a hole in the central loop, then through and down along the needle-bar to the needle. The clasp *d* is mounted
20 on the upper end of the rod *V* above the goose-neck, said rod passing vertically through two holes formed in the curved body of the clasp. Nuts *f f* below and above the clasp
25 regulate its tension.

I claim as my invention—

1. In a sewing-machine, the frame or body *A*, having the two vertical guide-rods *H h* fixed by one end therein, free at their upper
30 ends, and one of them prolonged to form a stationary cylindrical thread-support whereon the spool is retained by gravity, in com-

bination with the goose-neck *I*, carrying the needle *S* and reciprocating vertically on said rods below the thread-spool, and with the
35 actuating-shaft, its connecting-rod, and a suitable feed apparatus, substantially as set forth.

2. The frame or body *A*, the guide-rods *H h*, fixed therein, and the vertically-reciprocating goose-neck, needle-bar, and needle, in combination with the presser-foot having a sleeve surrounding the needle-bar, and a spring compressed and relaxed by the movement of the goose-neck, and with the actuat-
45 ing-shaft and connecting-rod, substantially as set forth.

3. The frame or body *A*, the guide-rods *H h*, fixed therein, and the goose-neck reciprocating vertically on said rods, the rod *h* being
50 slightly less in diameter than the corresponding perforation in the goose-neck, in combination with the elastic connecting-rod engaging at one end with the crank-shaft and at the other end fixed to the goose-neck, for the
55 purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 11th day of March, A. D. 1887.

EDGAR HALL.

Witnesses:

N. H. SPENCER,
J. C. KENNEDY.