

(No Model.)

C. M. HINE.

FEEDING MECHANISM FOR SEWING MACHINES.

No. 454,044.

Patented June 16, 1891.

Fig. 2.

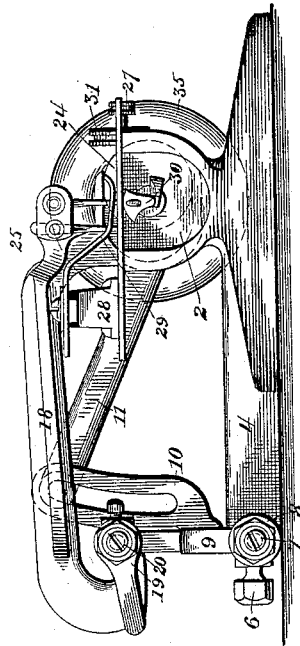


Fig. 1.

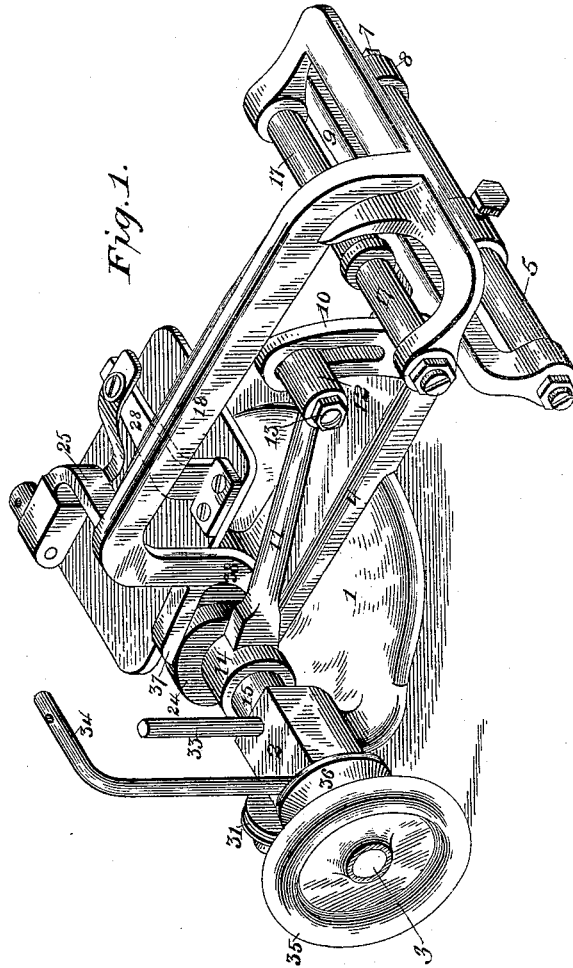
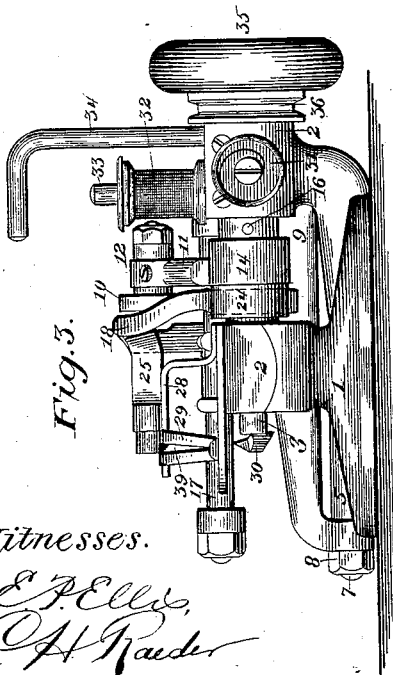


Fig. 3.



Witnesses.

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per
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UNITED STATES PATENT OFFICE.

CHARLES M. HINE, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, OF TWO-THIRDS TO THOMAS L. SHIELDS, OF SAME PLACE.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 454,044, dated June 16, 1891.

Application filed September 18, 1890. Serial No. 365,319. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. HINE, a citizen of the United States, residing in Allegheny, county of Allegheny, and State of Pennsylvania, have invented or discovered a certain new and useful Improved Sewing-Machine, of which the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a perspective of the machine; Fig. 2, an elevation thereof on the side of the needle, and Fig. 3 a front elevation.

This machine is the same as that for which I filed application for Letters Patent of the United States, Serial No. 350,873, on May 7, 1890, except that the construction of the needle-carrying arm and its connection with the main shaft differ in the present application from what were shown in said recited application. I therefore confine my claims in this application to the construction of said needle-carrying arm and its peculiar connection with the main shaft, as the other features of the construction of the machine are covered by said first application.

The general objects of both machines are to obtain enormously high rates of speed with but little cost of maintenance, ready adjustment and simplicity of repair, direct connections with no multiplied motions, and to make the needle-carrying arm carrying a needle feed the goods being operated upon.

The machine is particularly adapted to sew edge seams.

In the several views, 1 is a round base supporting two bearings 2 2 of the main shaft 3 and an extended bearing 4, supporting at its outward end a rigid shaft 5 parallel to said main shaft 3, but in a lower plane. For convenience of construction the shaft 5 is secured to extension 4 by set-screw 6; but said parts may be made in one casting. Pivoted upon said shaft 5 by conical screws 7 7 and jam-nuts 8 8 is a yoke 9, having a slotted upward projection 10, to which is attached an eccentric-rod 11 by means of a stud 12 and nut 13. Said eccentric-rod with its strap 14 embraces a feed-eccentric upon main shaft 3 for the purpose of vibrating backward and forward the feed-yoke 9.

The feed-eccentric in the present instance

is fastened to main shaft 3 by an extended collar 15 and screw 16; but numerous modifications of such attachment will readily occur to a skilled mechanic. Said yoke 9 carries another shaft 17 parallel to and above shaft 5. Spanning said shaft 17 is the needle-carrying arm 18, pivoted by conical screws 19 19 and jam-nuts 20 20 to said shaft 17. Said needle carrying arm extends forward nearly to the line of the main shaft 3, when it takes a downward turn and terminates in two forks 37 and 38, which partially embrace an eccentric 24 on said main shaft, placed side by side with the feed-eccentric above described. These two eccentrics may be made either separately or in one piece. At a point on said needle-carrying arm 18 slightly back of the main shaft 3 is an outwardly-projecting L-shaped piece 25, to which the needle 26 is fastened in any proper manner.

39 is a spur or false needle back of the sewing-needle secured in any suitable way to the needle-carrying arm. This false needle, entering the cloth, takes the strain off the needle by helping to advance the cloth.

27 is the cloth-plate fastened to the forward bearing of the main shaft 3. Attached to said cloth-plate is a bracket 28, supporting a flat-leaved pressure-spring 29.

The loop-forming mechanism can be either such as shown in my Letters Patent of the United States Nos. 256,215 and 240,414 or the Willcox & Gibbs' looper illustrated in the drawings at 30, which is too well known to need description, and with which my invention is not concerned.

31 is the tension, which may be of any desired construction, but which does not constitute any part of my invention. The spool 32 may be set on a spindle 33 on the rear bearing 2 of the main shaft 3, and to avoid snapping the thread it is led up through the perforated L-standard 34 on the same bearing. After passing the tension 31 the thread passes to the needle 26 through a perforation in the stud 21 and the needle-fastening.

The constructions just set forth may be extensively varied and are simply shown as adjacent parts to my invention, but with no claim thereto.

At the rear end of the main shaft 3 is a

balance-wheel 35, with groove 36 to receive a driving-belt. By merely sliding the stud 12 up and down in the slotted projection 10 the length of the stitch may be regulated at will. The slot may be omitted, but then only one length of stitch would be possible.

The needle-carrying arm can be laterally adjusted in several ways. By loosening the screw 6 the shaft 5 can be moved laterally in its socket, carrying with it the needle-carrying-arm yoke and the needle-carrying arm; or the yoke itself can be laterally adjusted on the rod 5 by means of the screws 7, as will be readily understood; or the outer end of the needle-carrying arm can be laterally adjusted on the rod 17 by means of the screws 20 and in each instance effect the lateral adjustment of the needle-carrying arm and the needle attached thereto in relation to the end of the driving-shaft.

In operation the eccentric 24, transmitting motion to the needle-carrying arm, raises and lowers the needle. The feed-eccentric transmits motion to slotted projection on yoke by means of eccentric-rod, to which yoke said needle-arm is conically pivoted. Since the feed-eccentric is set diametrically opposite to the eccentric 24, the following order of actions takes place: The action of the large eccentric 24 draws the needle down through the cloth, and while the needle is still in the cloth the action of the small eccentric draws the cloth forward. The action of the large eccentric now raises the needle, and while raised the action of the small eccentric moves the needle back into position for the next stitch.

The machine is almost indestructible, but if injured is quickly repaired in an ordinary machine-shop without special tools. It is compact, cheap, with direct action and extraordinary speed. Moreover, all bearings needing oil can be easily protected by oil-guards, so that the operator will not injure his fabric. Since the feed operates while the needle is thrust through both pieces of cloth, both upper and lower pieces will be advanced evenly and together.

I claim—

1. In a sewing-machine, a shaft having an eccentric, a needle-carrying arm which extends at an angle to the shaft, the inner end of the arm having a slot in which the eccentric revolves, a feeding mechanism connected with the opposite end of the arm for moving it horizontally, and a needle, substantially as described.

2. In a sewing-machine, the combination of the base having driving-shaft bearings, a support extending therefrom at right angles to the said bearings, a needle-carrying arm pivotally connected at its outer end to the said support, the driving-shaft, a needle-arm, reciprocating mechanism connecting the shaft and the inner end of the said arm, a feeding mechanism connecting the shaft and the outer end of the said arm, and a needle, substantially as described.

3. In an organized sewing-machine, the combination of a driving-shaft, a feed-eccentric upon said shaft, an eccentric-rod, one end of which embraces said eccentric, the other end being secured to a vibrating yoke suitably pivoted, a shaft suitably mounted upon said yoke, a needle-carrying arm spanning and pivoted upon said last shaft, the forward end of said needle-carrying arm having a slot which partially embraces an eccentric upon the driving-shaft, and a needle, substantially as set forth.

4. In an organized sewing-machine, the combination of a driving-shaft, an eccentric upon said shaft, a needle-carrying arm having a slot in its forward end to partially embrace said eccentric and at its rear end spanning and being pivoted to a rigid shaft, a vibrating yoke carrying said rigid shaft, suitable feed mechanism connected with the above-described stitching mechanism, and a needle, substantially as set forth.

In testimony whereof I have hereunto set my hand.

CHARLES M. HINE.

Witnesses:

CHAS. M. JOHNSTON,
WM. L. PIERCE.