

2 Sheets—Sheet 1.

A. H. WAGNER.  
SEWING-MACHINE.

No. 177,037.

Patented May 2, 1876.

Fig. 1.

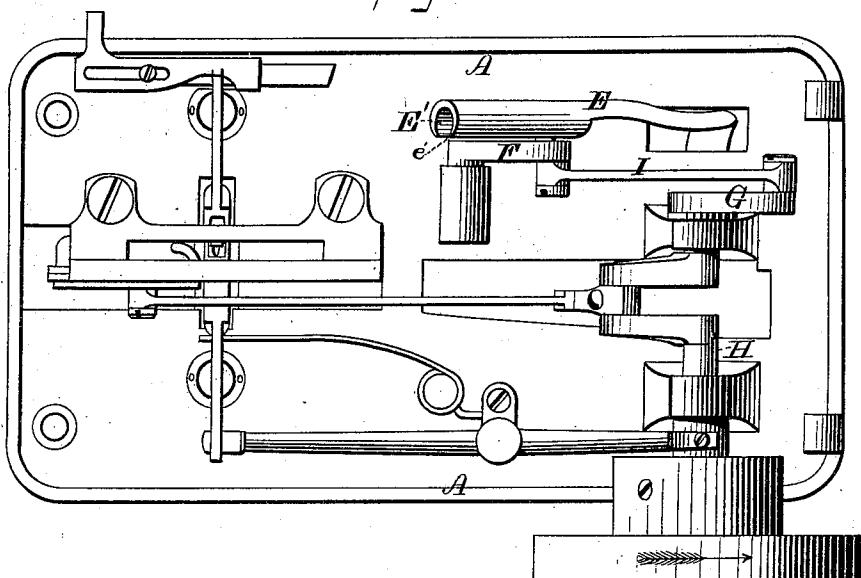
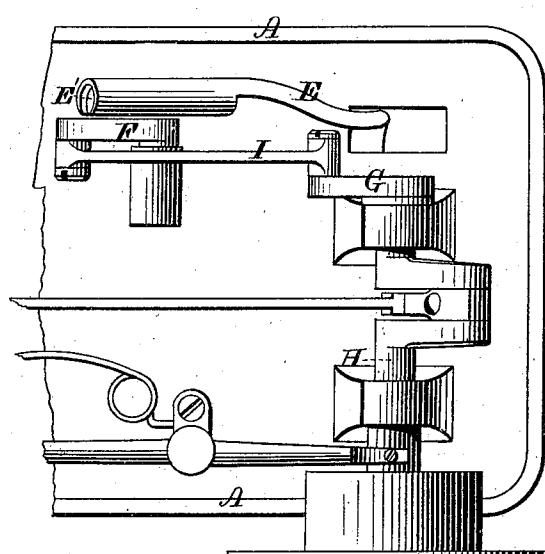


Fig. 2.



WITNESSES—

Jas. E. Hutchinson:

John R. Young

INVENTOR—

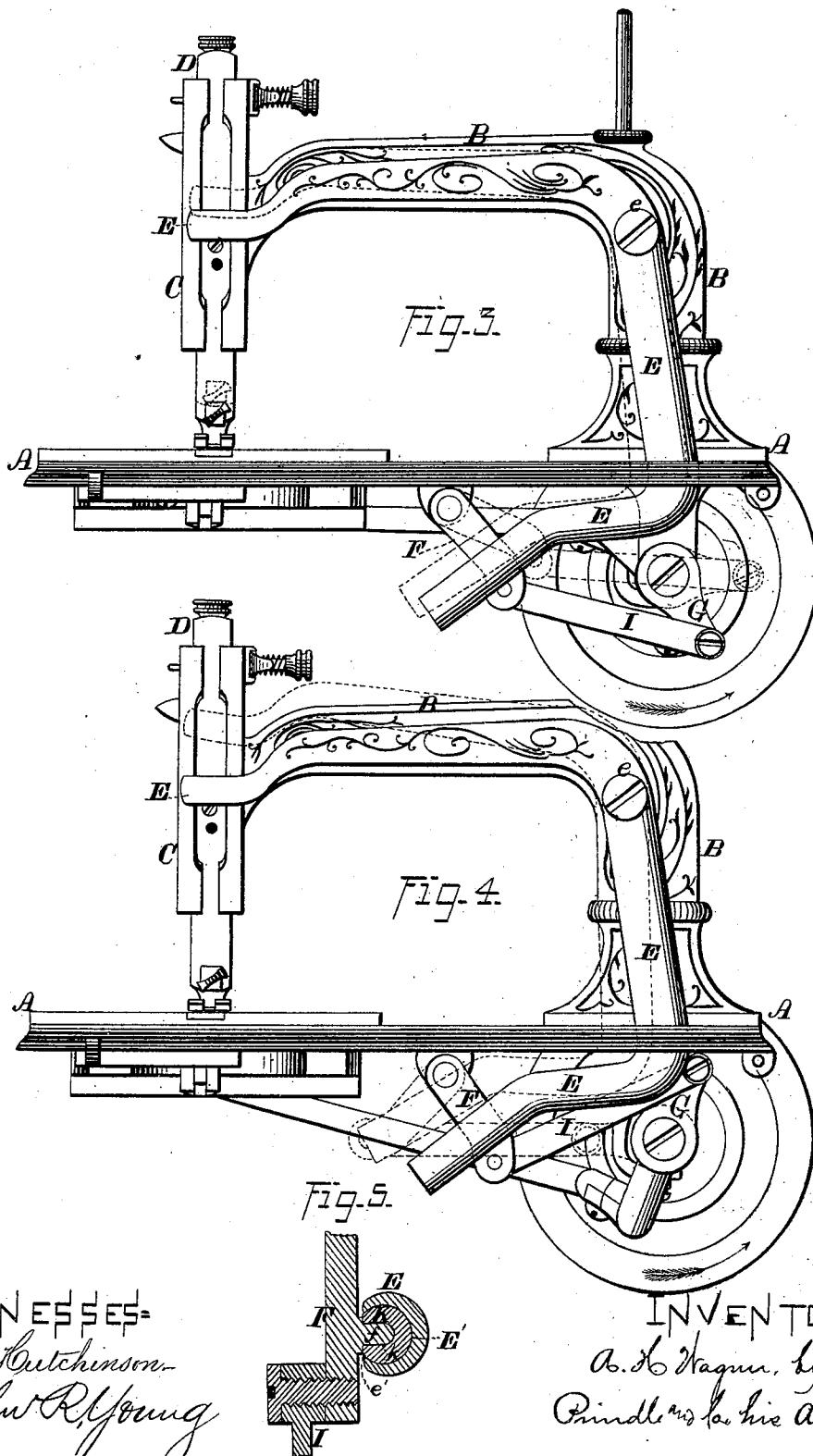
A. H. Wagner, by  
Prindle & Co., his Atty.

2 Sheets—Sheet 2.

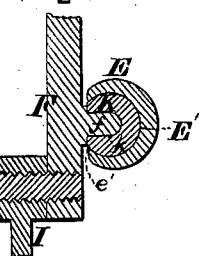
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WITH ESSES—  
Jas. Hutchinson—  
John R. Young



# UNITED STATES PATENT OFFICE.

AUSBERT H. WAGNER, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 177,037, dated May 2, 1876; application filed February 16, 1876.

*To all whom it may concern:*

Be it known that I, AUSBERT H. WAGNER, of Chicago, in the county of Cook, and in the State of Illinois, have invented certain new and useful Improvements in Sewing-Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan view of the lower side of my improved machine, with the operative parts in position to move the needle to its lowest point. Fig. 2 is a like view of the same, showing said parts in position to raise said needle to its highest point. Figs. 3 and 4 are side elevations of said machine, showing the relative positions of said operative parts as arranged in Figs. 1 and 2, respectively; and Fig. 5 is a cross-section of the lower end of the vibrating arm and the sliding block employed for connecting the same with the crank-arm for operating said arm.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to simplify the mechanism employed for imparting the necessary variable motion to the vibrating arm of a sewing-machine, and also to reduce the backlash to a minimum; to which end it consists in combining, with the lower end of the vibrating arm of a sewing-machine, a sliding block, which works within a longitudinal groove provided in said arm, a crank-arm that is pivoted or journaled at one end to or upon the base-plate, that occupies a position substantially at a right angle to the line of the end of said vibrating arm, and has its lower or free end connected with said sliding block, and with suitable mechanism for giving to it a reciprocating motion, substantially as and for the purpose hereinafter specified.

In the annexed drawings, A represents the base-plate, B the fixed arm, C the housing or head, D the needle-bar, and E the vibrating arm, of a sewing-machine, all constructed, in the usual manner, above said base-plate. Journaled upon the lower side of the base-plate A, midway between the pivotal bearing e and the forward end of the vibrating arm E, is a crank-arm, F, which is arranged to

oscillate in a vertical plane having the same line as said vibrating arm, and at its lower end is connected to or with a crank, G, upon one end of the driving-shaft H by means of a bar or rod, I, that at its ends is pivoted or journaled upon said parts, the arrangement of said parts being such as to cause said crank-arm F to have an oscillating movement as said shaft revolves. The lower end of the vibrating arm D extends forward and downward, as seen in Figs. 3 and 4, and is provided with a cylindrical opening, E', which extends longitudinally inward from its end. Upon the side adjacent to the crank-arm F the wall of the cylindrical opening E' is removed, so as to form a slot, e', and within said opening is loosely fitted a correspondingly-shaped block, K, which at its longitudinal center is provided with a cylindrical recess, k, that receives and contains a pin, f, which is secured within the face of said crank-arm, and from the same projects through said slot e' into said recess k, the arrangement enabling said block, by sliding longitudinally within said opening, to conform to the relative positions of said vibrating arm and said crank-arm as the latter is caused to reciprocate by the rotation of the driving-shaft.

The operation of the mechanism described is as follows: When the crank G occupies the position shown by the full lines of Fig. 3, the crank-arm F has substantially a right angle to the cylindrical opening E' of the vibrating arm E, and the needle-bar D is at its lowest point. As the said crank G continues its motion, said crank-arm F is moved upward and rearward, and carries the engaging end of said vibrating arm upward, so as to slightly raise said needle-bar and the needle, and slacken the thread which the latter has carried through the cloth, the relative positions of said parts being shown by the dotted lines of Figs. 1 and 3. Upon continuing the motion of the crank G, the needle-bar D again descends, and reaches its lowest point as said crank attains the position shown by the full lines of Figs. 2 and 4, after which the further rotation of said crank to the position shown by the dotted lines of said figures causes said needle-bar to rise to its highest point and the needle to be withdrawn from the cloth. It

will be seen that at the time when the needle is entering the cloth, and the greatest strain is thrown upon the operative mechanism, the crank G has a right angle to the line of the bar I, and exercises its greatest power while the sliding block K is near the lower end of the vibrating arm, so that the crank-arm F exercises its greatest force upon said arm, the power being thus caused to correspond to the requirements of the machine.

In consequence of the means employed for operating the vibrating arm, the only backlash possible is such as may be due to the play in the sliding block and in the journal of the crank-arm, and no amount of wear in the connecting-bar or in the driving-shaft can increase the backlash of said vibrating arm.

The cylindrical form of the sliding block and its opening insures the greatest amount of bearing-surface with the least quantity of metal. It enables said block to adjust itself peripherally in case the crank-pin f is not exactly in a line at a right angle to the plane of motion of the crank-arm. It prevents lateral movement of said block within its opening, and it renders necessary but little weight of metal in the lower portion of the vibrating arm.

If desired, the cylindrical opening may be omitted, and a square opening and a correspondingly-shaped block substituted therefor.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

In a sewing-machine, the combination of a sliding block, which works longitudinally within a corresponding groove in the lower end of the vibrating arm, a crank-arm that is pivoted or journaled at one end to or upon the base plate, that occupies a position substantially at a right angle to the line of said vibrating arm, and has its lower end connected with said sliding block, and suitable mechanism for giving to said crank-arm a reciprocating motion, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of February, 1876.

AUSBERT H. WAGNER.

Witnesses:

GEO. S. PRINDLE,  
WILLIAM FITCH.