

I. M. SINGER.
Sewing Machine.

No. 13,362.

Patented July 31, 1855.

Fig. 1.

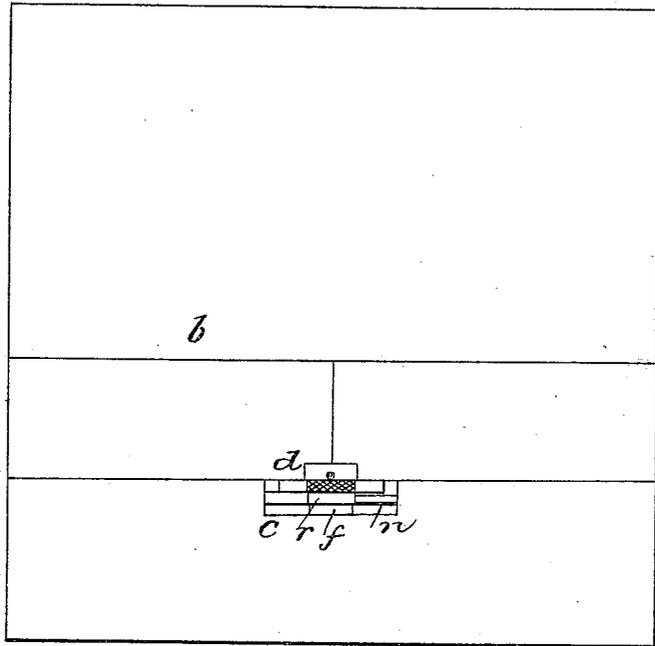
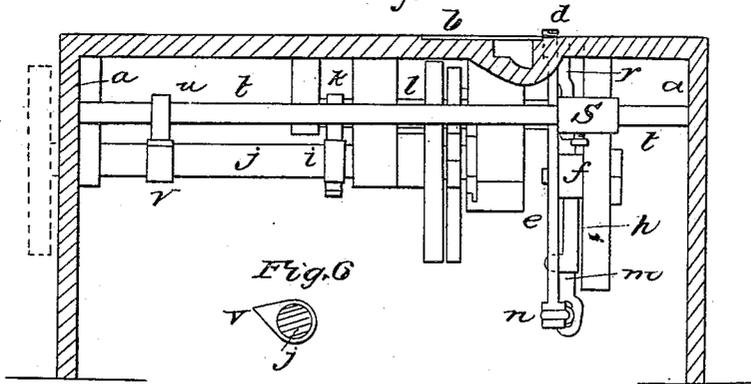


Fig. 3.



Witnesses
Geo. D. Lorgeant
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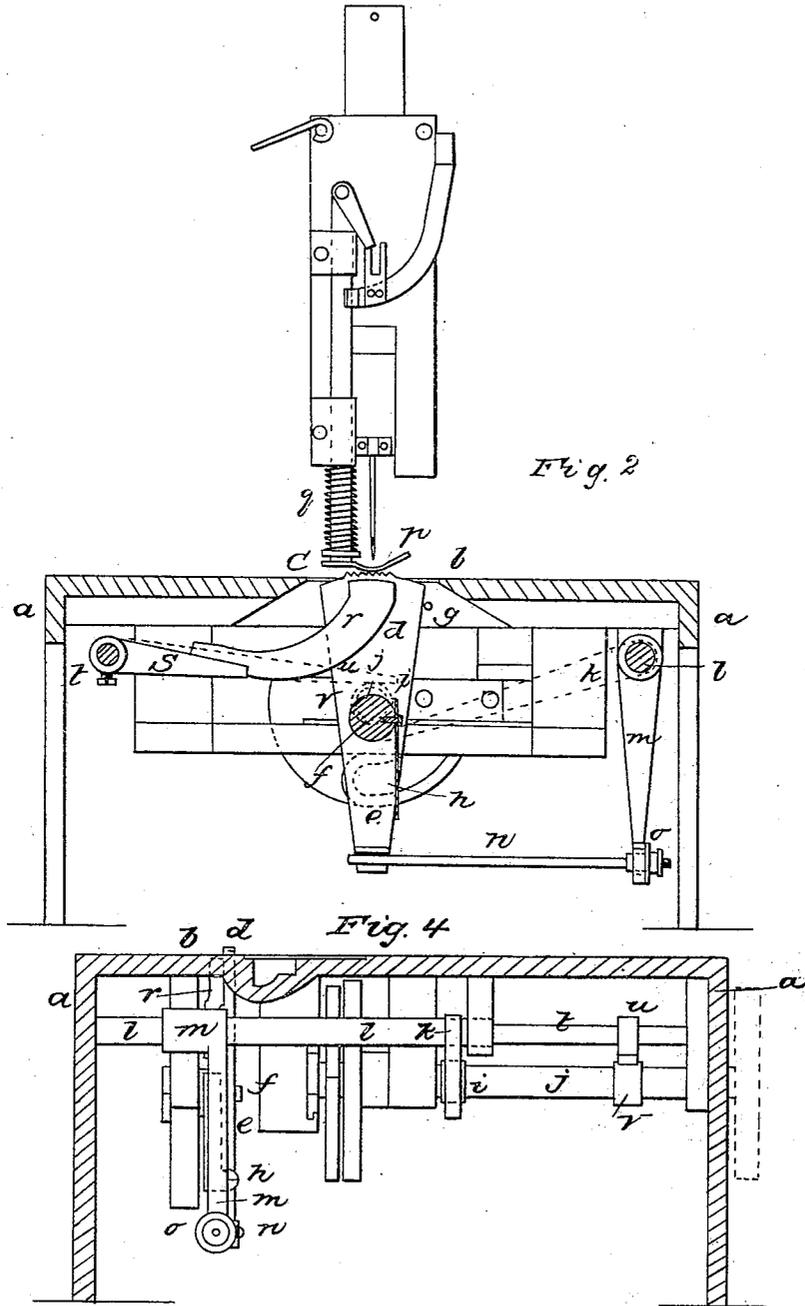
Fig. 5.
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UNITED STATES PATENT OFFICE.

ISAAC M. SINGER, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 13,362, dated July 31, 1855.

To all whom it may concern:

Be it known that I, ISAAC M. SINGER, of the city, county, and State of New York, have invented a new and useful Improvement in the Mode of Controlling the Cloth or other Substance to be Sewed in Sewing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of the table on which the substance to be sewed is placed; Fig. 2, a front elevation of the machine, with a part of the table and frame removed to exhibit the mechanism for controlling the substance to be sewed; Figs. 3 and 4, elevations of the two ends of the machine, with the frame-work removed to exhibit the mechanism; and Figs. 5 and 6, separate views of the two cams.

The same letters indicate like parts in all the figures.

In my said invention the cloth or other substance to be sewed is placed on a table or bench having an aperture in which a plate vibrates back and forth to give the feed motion to determine the distance between the stitches, the surface of the said plate being roughened or otherwise adapted to take sufficient hold of the cloth to move it forward at the required time, and the cloth or other substance is pressed down onto the surface of the vibrating plate by a spring-pad above it.

The nature of my invention consists in combining with the vibrating feed-plate and spring or pressure pad a lifter below the cloth, which, at the appropriate time, is moved up to lift the cloth from the feed-plate and against the downward pressure of the pad, that the feed-plate may make its back motion without carrying back the cloth with it, the said lifter being then depressed to permit the cloth to descend onto the feed-plate, preparatory to the feed motion.

In the accompanying drawings, *a* represents the frame of a sewing-machine, such as is extensively used with the needle, and all the other necessary appendages not necessary here to be described, as they make no part of my present invention.

In the table *b*, and just below the needle-bar, there is an aperture, *c*, in which is placed what I denominate the "feed-plate" *d*, whose

upper surface is roughened, as represented, that it may take sufficient hold of the cloth to move it forward. The upper surface of this plate is a segment of a circle projecting slightly above the upper surface of the table, and this plate is either attached to or constitutes the upper end of a vibrating lever, *e*, that vibrates on a fulcrum-pin at *f*. The limit of its back movement is governed by striking against a pin, *g*, and its motion in that direction is imparted by a spring, *h*, and the feed motion in the opposite direction is imparted by a cam, *i*, on the main shaft *j*, which acts on the arm *k* of a rock-shaft, *l*, which is provided with another arm, *m*, connected by a rod, *n*, with the lower arm of the lever *e*. The form of the cam *i* is represented in the separate Fig. 5. As the cam always imparts the same range of motion to the rock-shaft and its arms, and as it is desirable to vary the range of the feed-motion, the connecting-rod *n* embraces the lower arm of the lever *e* and passes through a hole in the arm *m* of the rock-shaft, and is tapped to receive an adjusting-nut, *o*, by the turning of which any portion of the range of vibration of the arm *m* can be imparted to the lever of the feed-plate.

Above the feed-plate there is the usual pressure-pad, *p*, provided with a helical spring, *q*, by which the cloth is forced down onto the surface of the pad-plate.

From the foregoing it will be seen that the vibration back and forth of this feed-plate would impart a like motion to the cloth. To prevent the cloth from being carried back it is lifted up from the surface of the feed-plate before its back movement by the lifter *r*, placed by the side of the feed-plate. This lifter is on an arm, *s*, of a rock-shaft, *t*, which shaft is provided with another arm, *u*, acted upon by a cam, *v*, on the main shaft. This cam is represented in the separate Fig. 6, and its position on the shaft relatively to the other cam is such that before the cam permits the feed-plate to be carried back by the tension of the spring *h* on the lever *e*, the lifter is carried up above the surface of the feed-plate to lift up the cloth and hold it clear while the feed-plate moves back, and then the cam *v* passes and permits the lifter to be depressed by the pressure-pad above, that the cloth may be in contact with the feed-plate preparatory

to the next feed motion. The upper surface of the lifter is smooth and slightly rounded, so that while the cloth is held between this lifter and the pressure-pad and lifted from the toothed surface of the feeding-plate it can be turned freely for changing the direction of the seam; but when the vibrating feed-plate is made to descend below the surface of the table to move back clear of the cloth, as in the Grover & Baker and other machines, the pressure-pad forces the cloth onto the table, and partly into the cavity in which the feed-plate vibrates, thus restraining the cloth, so that it cannot be turned freely to change the direction of the seam.

It will be obvious from the foregoing that the feed-pad may be made to vibrate in a rectilinear direction instead of a curve, and that

the extent of its surface may be varied at pleasure, and made to extend on both sides of instead of being only on one side of the needle, and that like variations may be made in the lifter, and as to the mechanism for imparting the required motion to the feed-plate and lifter, any mechanical equivalent may be substituted therefor.

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

The combination of the lifter, substantially as specified, with the vibrating feed-plate and pressure-pad, substantially as and for the purpose specified.

ISAAC M. SINGER.

Witnesses:

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