A. B. IRVING.

Sewing Machine.

No. 24,216. Patented May 31, 1859.

Fig. 1.

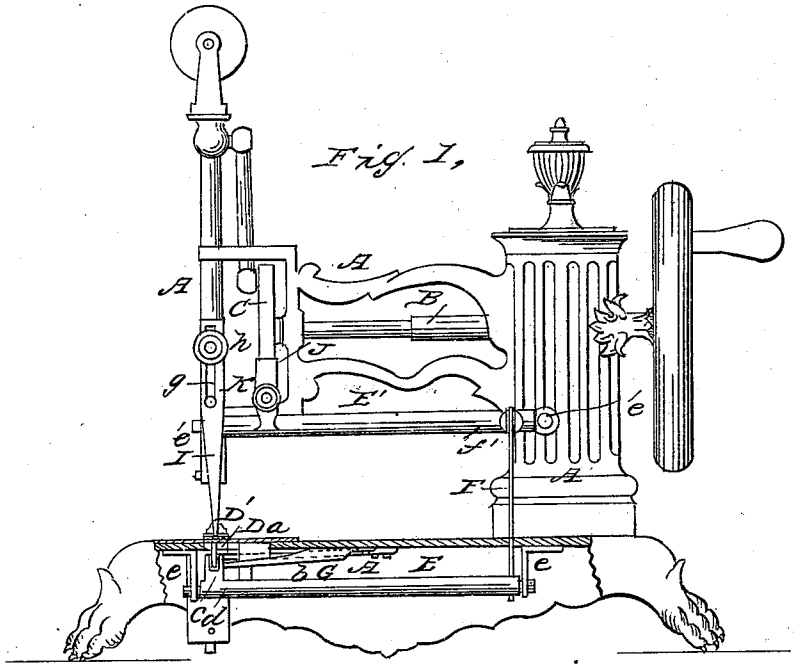

Fig. 2.

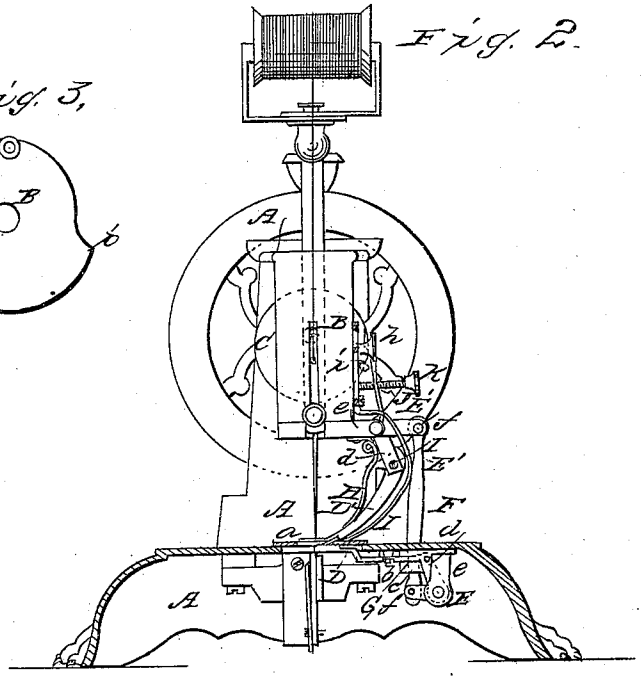

Fig. 3.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

A. B. IRVING, OF TERRE HAUTE, INDIANA.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **24,216**, dated May 31, 1859.

To all whom it may concern:

Be it known that I, A. B. IRVING, of Terre Haute, in the county of Vigo and State of Indiana, have invented a new and useful Improvement 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, forming a part of this specification, in which—

Figure 1 is a side view of a sewing-machine constructed with my improvements, a portion of the framing or table being broken out. Fig. 2 is a vertical transverse section of the same, the line of section being the line *x x* in Fig. 1.

Similar letters of reference in each of the several figures indicate corresponding parts.

The nature of my invention consists in the arrangement relatively to one another of the following parts, whereby a more simple and better operating machine as a whole is produced, to wit: the upper and lower feeding-arms, upper and lower rock-shafts, actuating-cam, combining and regulating projection, and slotted adjustable spring holding-down bar.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents a frame adapted for having my invention applied to it.

B is the driving-shaft, and C the actuating-cam. It is shaped, as seen in Fig. 3, so as to give such a motion to the parts with which it is combined that the feeding-arms shall take hold of the cloth and feed it forward just before the descent of the needle, and hold it until the needle passes down through it, and then release their hold and move back, ready for feeding the cloth forward the distance of another stitch.

D D′ are the feeding-arms. They are serrated on their operating-surfaces in a manner to take a firm hold upon the cloth in their forward movement, and to loose their hold on their return movement. The lower arm, D, is arranged under a thin plate, *a*, of the table, so that its two serrated prongs project up through slots in said plate level, or nearly so, with the upper surface of the table. It is supported and held with a gentle spring-pressure near the center of its length by means of a long flat spring, *b*. It is also supported by being pivoted at *c* to an arm, *d*, of a rocker-shaft, E, which is arranged below the table in bearings *e e*, as shown. The feeding-arm D′ is also serrated and made forked, like D. It is arranged above the thin plate *a*, so that its prongs come opposite the prongs of D. It likewise is pivoted to an arm, *d′*, of a rocker-shaft, E′, which is arranged above the top of the table in bearings *e′ e′* of the frame, as shown. The two feeding-arms are combined by means of a connecting-rod, F, which is pivoted to the arms *f f′* of the rock-shafts E E′. By this arrangement of the two feeding-plates, and the combination of the same by the rock-shafts and connecting-rod, they have a positive, uniform, and independent back-and-forward motion imparted to them and the cloth is fed with unerring accuracy the same distance at each successive stitch, whether thick or thin.

G is a spring for assisting the rocker-shafts in making their return movement after the cloth has been fed forward.

H is a spring for keeping the upper feeding-plate with a gentle pressure against the cloth.

I is the spring-pressure or spring bar for holding down the cloth to the table. This bar is made elastic itself, so as to answer as a spring-pressure bar, and is curved so as to stand behind the upper feeding-arms and pass under and between the prongs of the end of the same, as shown. It has a passage through its lower end for the needle to work through, and is furnished with an oblong slot, *g*, so that it may be attached by a set-screw, *h*, to the frame A in a manner to be adjusted up and down to suit different thicknesses of cloth to be sewed. By this arrangement of adjustable pressure-bar, in connection with the arrangement of two rocker-shafts, the disadvantage of having the feed ununiform, as is the case in machines which have simply a spring-pressure without a means of holding the bar elevated and still have it act with the same pressure, is overcome.

J is a projection on the upper rock-shaft for forming a loose combination between the cam and said rock-shaft. This projection stands opposite the edge of the cam, and is moved outward by the irregular portion *i* of the cam at the proper time, and returned to its original position by the spring G, which effects the return movement of the feeding-arms.

K is a set-screw passed through the projection, and its end made to come nearer to or farther from the side of the standard *j* of the

frame A, as necessity may demand. When the end of the screw nearly touches the said standard, the movement of the rocker-shaft is very short, and consequently the cloth is fed for a short stitch; but when it is farther off from said standard the movement of the rocker-shaft is longer, and consequently the feed-arms feed the cloth a distance suitable for a long stitch.

I do not claim any of the devices separately considered, nor the independent functions performed by the same; but

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

The arrangement relatively to one another of the following parts, to wit: the upper and lower feeding-arms, D D′, upper and lower rock-shafts, E E′, actuating-cam C, combining and regulating projections J, and slotted adjustable spring holding-down bar I, for the purpose set forth.

The above specification of my improvement in sewing-machines signed by me this 19th day of June, 1858.

A. B. IRVING.

Witnesses:
NEWTON BOOTH,
H. D. SCOTT.