J. V. D. ELDREDGE.

IMPROVEMENT IN SEWING MACHINE FEEDS

117526

PATENTED AUG 1 1871

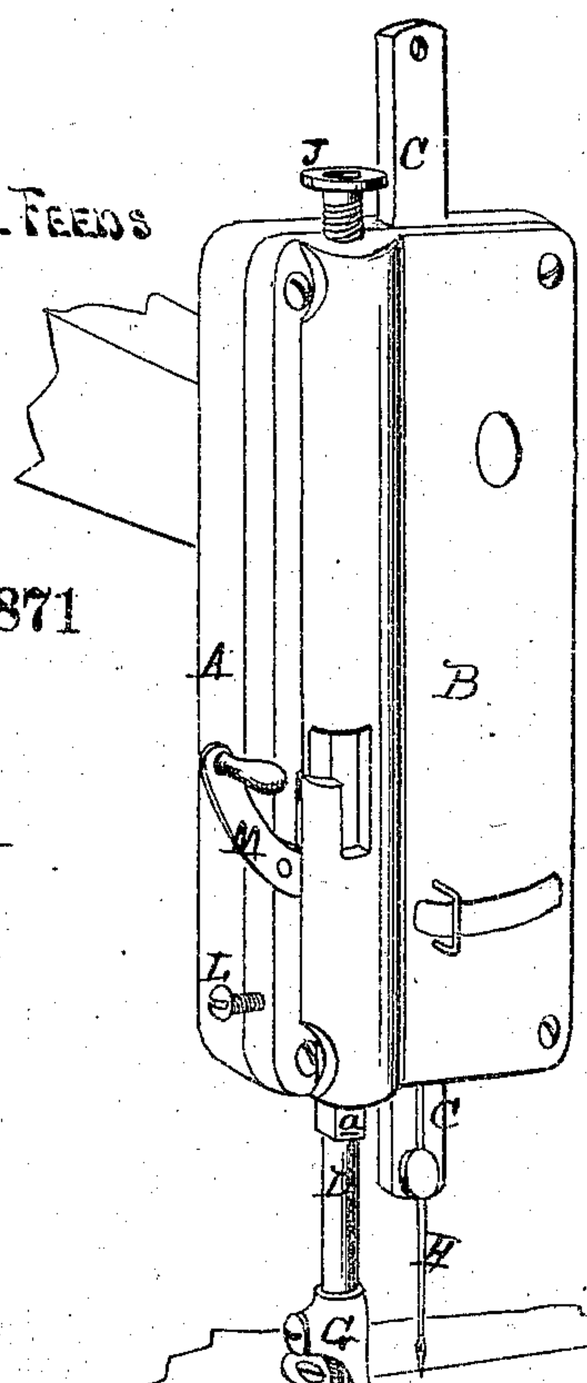

Fig. 6

Fig. 2

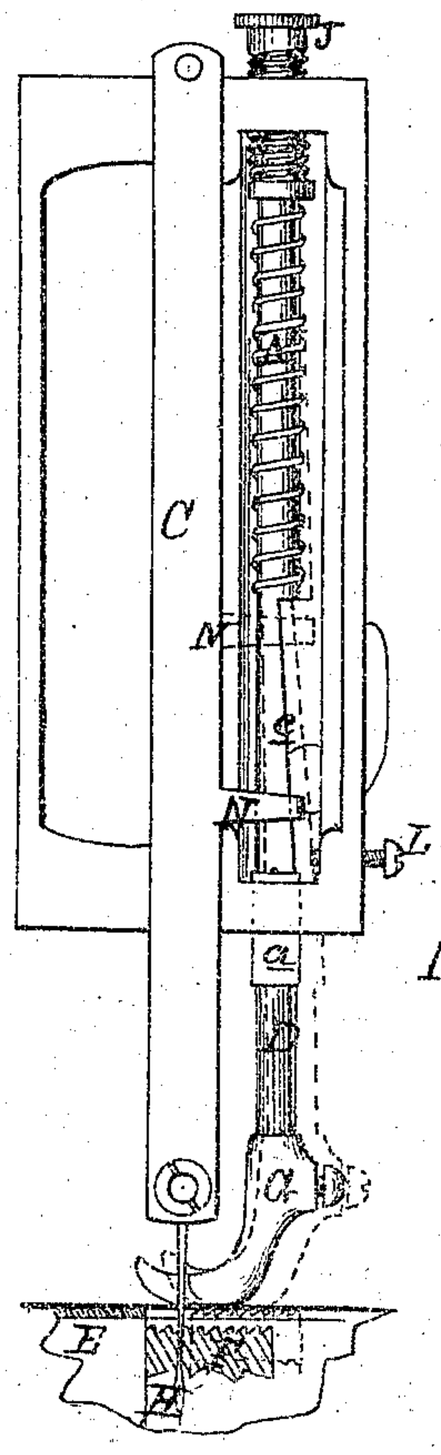

Fig. 3

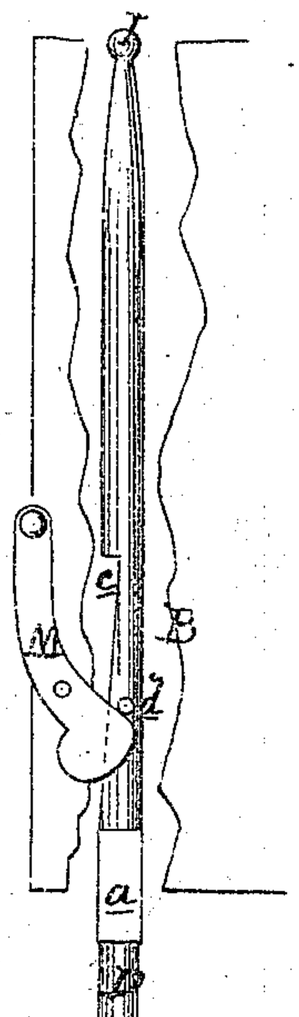

Fig. 4

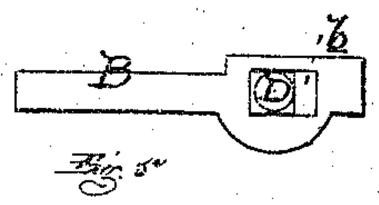

Fig. 5

ATTEST

Myron H. Church.

H. F. Eberts.

INVENTOR

John V. D. Eldredge

per Attorneys

Wm. S. Sprague

UNITED STATES PATENT OFFICE.

JOHN V. D. ELDREDGE, OF DETROIT, MICHIGAN.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 117,526, dated August 1, 1871.

To all whom it may concern:

Be it known that I, JOHN V. D. ELDREDGE, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Sewing-Machines; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is a perspective of a portion of a sewing-machine head with a section of table, showing my device attached. Fig. 2 is a plan view of the above-named parts with the cap removed, showing the internal construction and operation of my device. Fig. 3 is a section, showing a part of the presser-bar with a device for raising the same when required; Fig. 4 is a section of the needle-bar. Fig. 5 is a plan of the bottom of the head, showing the rectangular slot through which the presser-bar has its reciprocating and vibrating motion.

Like letters indicate like parts in each figure.

The nature of this invention relates to an improvement in the construction of the devices employed in sewing-machines for feeding the fabric as required by the operation of the needle.

In the manufacture of sewing-machines what is termed the "four-motion feed," operated by proper mechanism, and working through a slot through the table immediately under the presser-foot, is employed. In the operation of this feed the same in its upward and forward motion presses the fabric being operated upon against the bottom of the presser-foot, thereby creating a friction against said foot. When two pieces of slimsy thin fabric are being sewn together in the machine the under piece will be carried forward to middle of the feed above named, while the upper piece is retarded somewhat by the friction against the presser-foot, so that with that class of fabrics it is necessary that the pieces be basted together to compel them to run through the machine at the same rate of speed together, and so that the upper piece will not be "drawn."

To remedy this evil, and to prevent the necessity of basting, various devices have been invented and brought into use, but they are all attended with difficulties in their operation, which I intend my device shall obviate.

The invention consists in combining, with a presser-bar having a globular head, a hollow thumb-screw having a corresponding socket, so that the presser-bar will be hinged at its upper end and be capable of vibration back and forth in combining, with the hinged presser-bar having one of its surfaces inclined, a needle-bar, having attached to it a hook which embraces said presser-bar in such a manner that the presser-foot is moved in one direction at each descent of said needle-bar; and in the combination of needle-bar, presser-bar, and presser-foot with an ordinary feed in such a manner that the impact of the feed impels the presser-foot away from the needle, while the action of the needle-bar brings the foot back toward the needle, as more fully hereinafter described and shown.

In the accompanying drawing, A represents a section of a sewing-machine head, provided with a cap, B, which incloses the needle and presser-bars, the former of which is marked C and the latter is designated by D. E is a section of the table upon which the head rests. F is the ordinary feed-plate, which works through a slot or opening in the table. G is a presser-foot, of any desired form, secured to the lower end of the presser-bar. H is the needle, secured to the lower end of the needle-bar. I is a portion of the globe or universal joint, by means of which the upper end of the presser-bar is suspended in a proper socket in the hollow thumb-screw J. K is a spiral spring surrounding the upper part of the presser-bar, by means of which the latter is forced down upon the fabric interposed between the foot and the under feed. L is a thumb-screw, by means of which the presser-bar, when desired, is prevented from any vibrating movement. M is a lever, by means of which the presser-bar is raised, when desired, by engagement with the rigid pin *d*, secured to the presser-bar. N is a hook, secured to the needle-bar, to engage with the inclined surface *c* on the side of the presser-bar. The presser-bar is squared at *a*, where it passes through the rectangular slot *b* in the lower end of the cap B, the squared portion of the bar fitting accurately the width of the slot *b* to steady it and make it true in its motions, while the slot is elongated to enable the lower end of the bar to have a vibrating movement. When the needle, in its reciprocation is at its highest point, the under feed comes up against the fabric and grasps it firmly between said feed and the presser-

foot, which then stands in a vertical position, as shown in Fig. 1, and carries the fabric forward, or draws it the length of the stitch required, the presser-bar and foot assuming the position shown in dotted lines in the same figure. When the needle is in this position the hook N has passed upward to the point also shown in dotted lines, and the presser-bar being suspended or hinged, substantially as hereinbefore mentioned, is readily carried forward by the pressure of the under feed against its foot. Before the needle commences its downward motion the feed has done its work, when the under feed drops away from the fabric leaving it smooth and flat upon the upper face of the table. In the downward stroke of the needle-bar, after the needle has pierced the fabric, the hook N engages with the inclined surface *c* of the presser-bar and compels it to resume its original vertical position, the needle holding the cloth while the presser-foot advances. When what is termed the wheel-feed is employed as an under feed this device will be found to work equally well, and all corrugations upon the face of either feed may be dispensed with, thereby preventing any impression of said corrugations upon the article being operated upon.

I do not confine myself, therefore, to the employment of my improvement with the four-motion feed, as it is usually termed, but intend to use it with all under feeds of every manner and style of construction.

I am aware that sewing-machines have been made wherein the presser-foot is moved in one direction by the impact of the feed, and machines where the presser-foot is moved in one direction by the action of the needle-bar, and I do not pretend that I am the original inventor of mechanism to produce either of these movements, but I believe the means employed by me to produce these movements are novel in construction, in combination, and in arrangement; and, therefore,

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

1. The combination of the presser-bar D provided with globular head I, and the hollow thumb-screw J provided with a corresponding socket, when each part is constructed and arranged substantially as described and shown, for the purpose of permitting movement of the presser-foot away from the needle.

2. The combination of the hinged presser-bar D provided with inclined surface *c*, and the needle-bar C provided with hook N, when each part is constructed, arranged, and operated as described and shown, for the purpose of bringing the presser-foot back to the needle.

3. The combination of the presser-bar D provided with foot G and inclined face *c*, the needle-bar C and its hook N, and the feed F, when each part is constructed and arranged as described and shown, for the purpose of moving the material being sewn to said presser-foot, as set forth.

JOHN V. D. ELDREDGE.

Witnesses:
THOS. S. SPRAGUE,
H. F. EBERTS.