



F. VETTER.

Sole Sewing Machine.

No. 92,912.

Patented July 20, 1869.

Fig. 3.

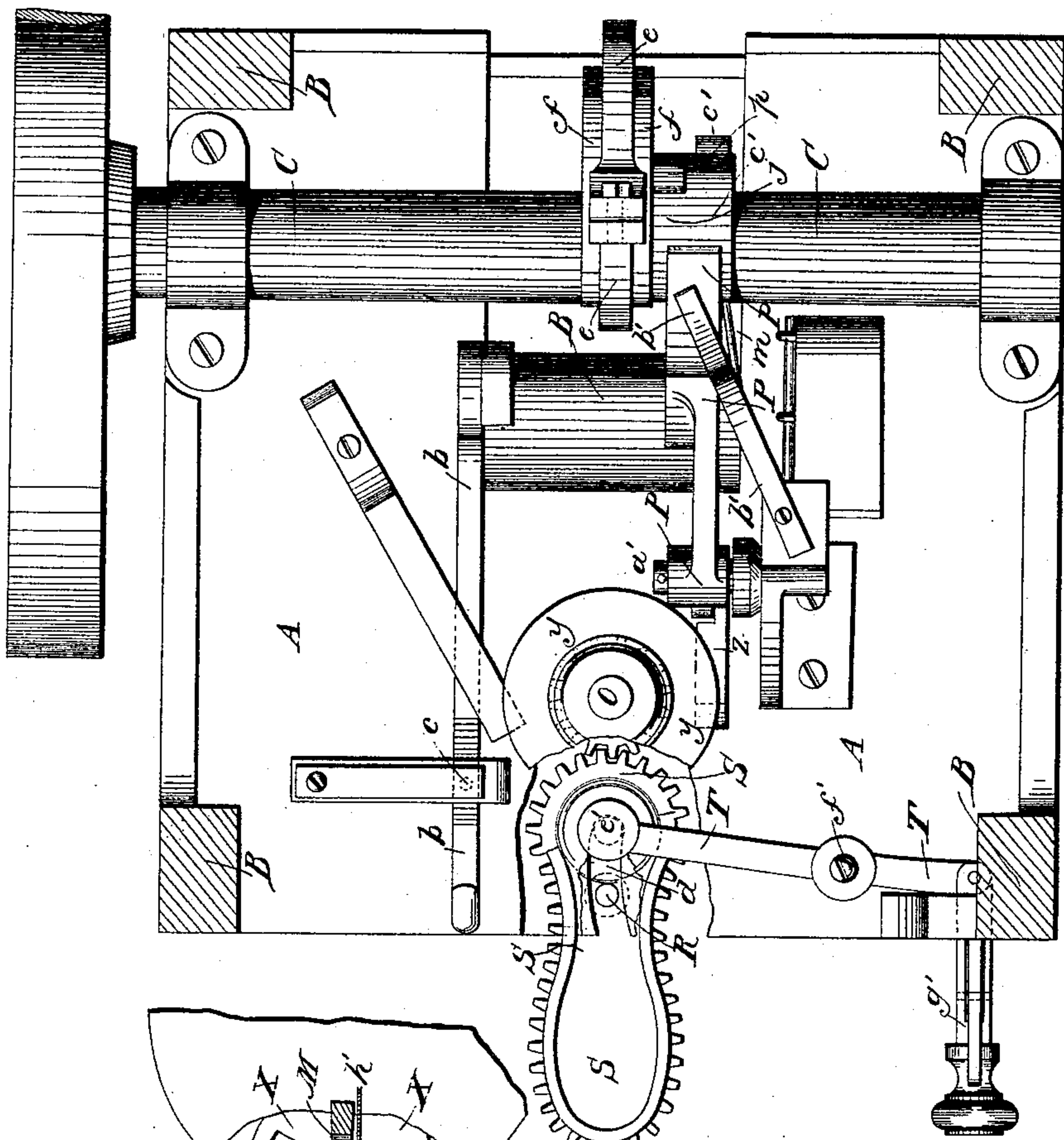
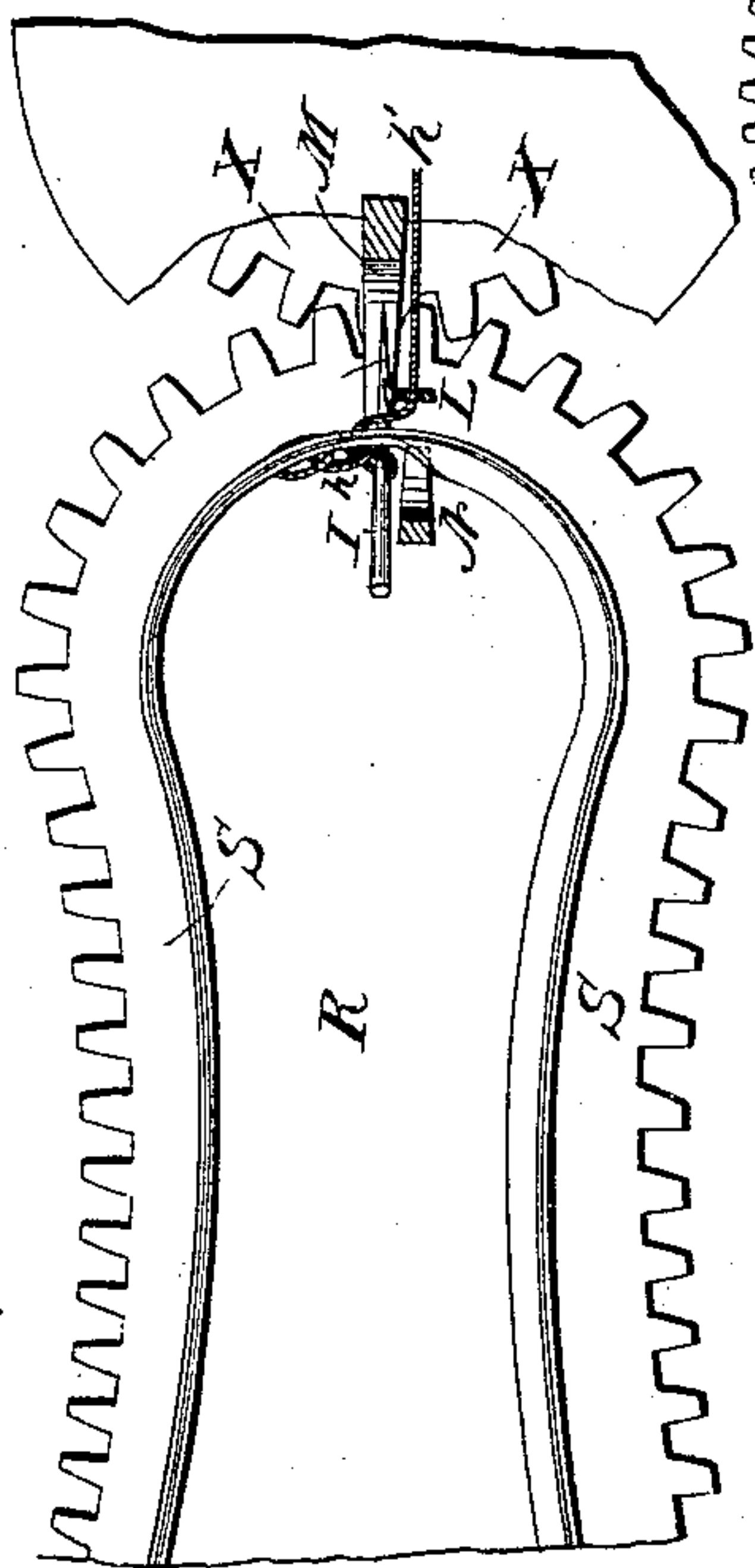


Fig. 4.



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN SEWING-MACHINE FOR SEWING TURNED SHOES.

Specification forming part of Letters Patent No. 92,912, dated July 20, 1869.

*To all whom it may concern:*

Be it known that I, FRIEDRICH VETTER, of New York, in the county of New York and State of New York, have invented a new and Improved Sole-Sewing Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, Sheet I, represents a vertical longitudinal section of my improved sole-sewing machine, the plane of section being indicated by the line *x x*, Fig. 2. Fig. 2, Sheet I, is a front elevation, partly in section, of the same. Fig. 3, Sheet II, is an inverted plan view, partly in section, of the same. Fig. 4, Sheet I I, is a detail horizontal section on an enlarged scale of the needle portion of the same, the plane of section being indicated by the line *y y*, Fig. 2.

Similar letters of reference indicate corresponding parts.

This invention relates to a new machine for attaching soles to the uppers of boots and shoes; and consists in the general arrangement of parts for operating the needle, and for adjusting the shoe-holder to the same; also, in the means for adjusting all parts to sewing shoes of different size.

A in the drawing represents the bed-plate of my improved sewing-machine. It is supported on suitable legs or standards B B. On its under side is hung, in suitable bearings, a transverse horizontal shaft, C, which receives rotary motion by suitable mechanism. D is an elbow-shaped frame, for supporting the sewing mechanism. It is fitted upon the bed between rails or guides *a a*, formed on the same, as shown in Fig. 2, said guides being beveled downward on their inner edges to allow longitudinal, but not up-and-down nor lateral, motion to the frame D. The frame is connected with a bar, *b*, or with a screw or other equivalent device, by means of which it can be moved longitudinally, said device, when a bar, having a toothed portion, into which a spring-pawl, *c*, fits to lock the frame D in any desired position, as indicated in Fig. 3. The object of having the frame D thus movable is to allow its needle apparatus

to be brought nearer to or farther from the center of the shoe-carrier, as hereinafter more fully described.

In the upper part of the frame D, at the junction of the two arms of the same, is, by a horizontal transverse pin, *d*, pivoted a bell-crank, E, which is by means of a rod, *e*, connected with a cam or crank, *f*, that is mounted or formed on the shaft C, as is clearly shown in Fig. 1.

F is another bell-crank, pivoted by a horizontal transverse pin, *g*, to an up-and-down adjustable frame or jacket, G, which is arranged on the front end of the horizontal arm of the frame D. It is suspended from a lever, H, which is pivoted to lugs *h h*, projecting from G, and which rests with its cam edge on the upper plate of the frame D, as in Fig. 1.

When the sewing process is to be carried on, the jacket G is let down more or less, according to the height of the shoe, as in Fig. 1, and when to be stopped the jacket is elevated by turning the lever forward. The upright arms of the two bell-cranks E and F are connected by a rod, *i*, which causes the oscillating motion which is imparted to E by the rod *e* to be transmitted to the crank F. The needle I is secured to the outer end of the crank F. It is curved on a circle described from the axis of the pivot *g* as a center, so that the needle, when forced through leather or fabric, will, during its motion, make a hole no larger than its body. A hook is formed near the point of the needle, as is clearly shown in Fig. 4.

*j* is another cam or eccentric, mounted on the shaft C. It acts on a lever, *k*, which is by a pin, *l*, pivoted to the vertical arm of the frame D, and which is with its lower end held against the cam *j* by a spring, *m*, as indicated in Fig. 1. The upper end of the lever *k* is, by a rod, *n*, connected with the vertical arm of a bell-crank, J, which is by a pin, *o*, pivoted to the lower part of the jacket G, somewhat in rear of the bell-crank F, as shown. The crank J thus also receives oscillating motion by the shaft C, but this motion differs from that of the bell-crank F in being more sudden, while that of the latter is gradual. This difference of motion is produced by the different shape of the cams *f* and *j*, the former carrying the lower end of the rod *e* in a per-



fect circle, which is eccentric to the shaft C, while the latter oval-shaped cam, provided with a projecting portion, *p*, imparts irregular motion to the lever *k*.

L is a hook-shaped plate, pivoted to the front of the jacket G by a pin, *r*. It projects from two sides of the pivot *r*, one of its arms being straight and slotted, while the other is hook-shaped, and perforated at the end, as shown in Fig. 2. The slotted straight arm is by a pin, *s*, connected with a bar, *t*, which is suspended from the front end of the bell-crank J, the pin *s* being fitted through and guided in a vertically-slotted extension, *u*, of jacket G. The hook L will, by these connections, receive oscillating motion on the pivot *r*.

M is a hook-shaped bar pivoted to the jacket G, in rear of the front plate of the same, and held by a spring, *v*, with its upper end against the pivot or axial portion of the bell-crank F. A small projection, *w*, formed on this pivot or axial part, serves to oscillate the hook M, whose lower horizontal arm projects forward, as shown.

A fixed hook, N, projecting from the front plate of the jacket G, is arranged with its end pointing backward, as shown.

O is a vertical arbor, having its bearings in the front part of the bed-plate A. It carries a pinion, *x*, above and a ratchet-wheel, *y*, below the bed-plate. Intermittent rotary motion is imparted to it by a pawl, *z*, which is pivoted to a bell-crank, P, as shown in Fig. 1. The said bell-crank is by pin *a'* pivoted to lugs projecting from the under side of a bed-plate, and has its horizontal arm held by a spring, *b'*, against the edge of a cam, *c'*, which is mounted on the shaft C, as shown. The motion of the shaft C will thus cause the oscillation of the crank P, and thereby the desired intermittent rotary motion of the arbor O and its pinion *x*.

The shoe to be soled is fitted upon block R, which is supported on a plate, S, the edge of which is toothed, and of a form corresponding more or less with that of the sole, as is fully shown in Figs. 3 and 4. The plate S is hollow, so that it can be fitted over and upon a roller, *d'*, which is arranged on a vertical pin, *e'*, projecting from a lever, T, said lever being by a vertical pin, *f'*, pivoted to the under side of the bed-plate A, as in Fig. 3. The pin *e'* fits through a slot in the bed-plate, to enable the lever T to be swung on its pivot, a handle, *g'*, being arranged on the lever, whereby it may be moved. This handle may be moved at will to carry the pin *e'* either close to or farther away from the pinion. In the former case the teeth of the plate S are brought in gear with the pinion *x*, as shown in Figs. 3 and 4. The handle *g'* can be locked in gear or out of gear, as may be desired.

The operation is as follows: The shoe is fitted upon the block R, and the sole, with its

edge turned up, arranged thereon, as in Fig. 1. The thread, wound on a roller, U, is drawn through the eye of the hook L, and is then taken hold of by the hook of the needle I during the motions of the latter. The block S is brought in gear with the pinion *x*, and the hook N will fit under the turned-up edge of the sole, as in Fig. 1, to hold the same up. As the needle oscillates around the pivot *g* it is forced from the under side through the sole and upper, as in Fig. 1, and then takes hold of the thread *h'* by means of its hook. When drawn back it forms a loop within the upturned edge of the sole, and is forced out again through this loop to take fresh hold of a thread. It thus forms a new loop, and draws the same through the first-mentioned loop, which it then draws tight, thus forming the well-known chain-stitch, as indicated in Fig. 4. The shoe is at the same time fed along by the pinion *x*, so that each new stitch will be formed on a fresh portion of the edge. The hook M is pressed against the shoe whenever the needle is forced through the leather, so as to support the upper and edge, to let the needle, pierce easier, and to prevent the same from being bulged out by the needle. When the shoe is moved by the feed the hook M is withdrawn to be out of the way. The shoe is stationary when the needle pierces the leather and takes up and forms a loop; the feed only operates after a loop has been completed.

A sliding sleeve may be arranged on the needle to be operated by a lever on the pin *g*, for the purpose of casting off the loop left over the needle.

The swinging hook L serves as a tension-bar, and carries the thread over the hook of the needle.

For larger shoes the frame D must be set farther back by means of the bar *b* or its equivalent.

I am aware that an oscillating hook has heretofore been arranged to stay the leather or fabric while the needle pierces the same; but this I do not claim.

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

1. The frame D, constructed as described, in combination with the sewing mechanism, when made longitudinally adjustable to suit shoes of different width by means of the toothed bar *d* and spring-pawl *c*, as set forth.

2. The combination of the curved needle I and thread-guide L with the hooks M N, sole-support R S, and feed-pinion *x*, all arranged and operating substantially as herein shown and described.

The above specification of my invention signed by me this 27th day of January, 1869.

FRIED. VETTER.

Witnesses:

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