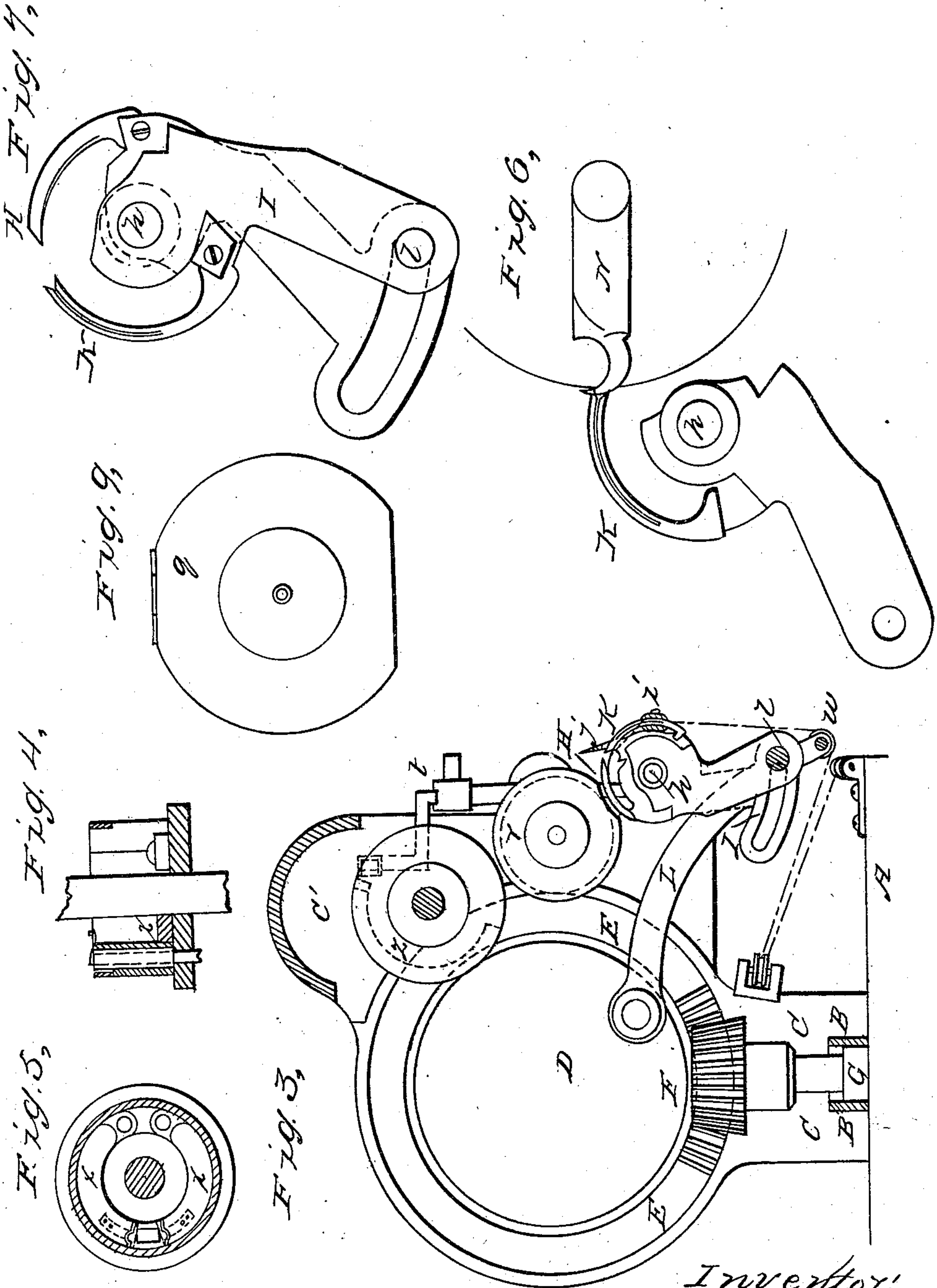


A. DESTOUY.
Sewing Machine.

No. 34,413.

Patented Feb. 18, 1862.



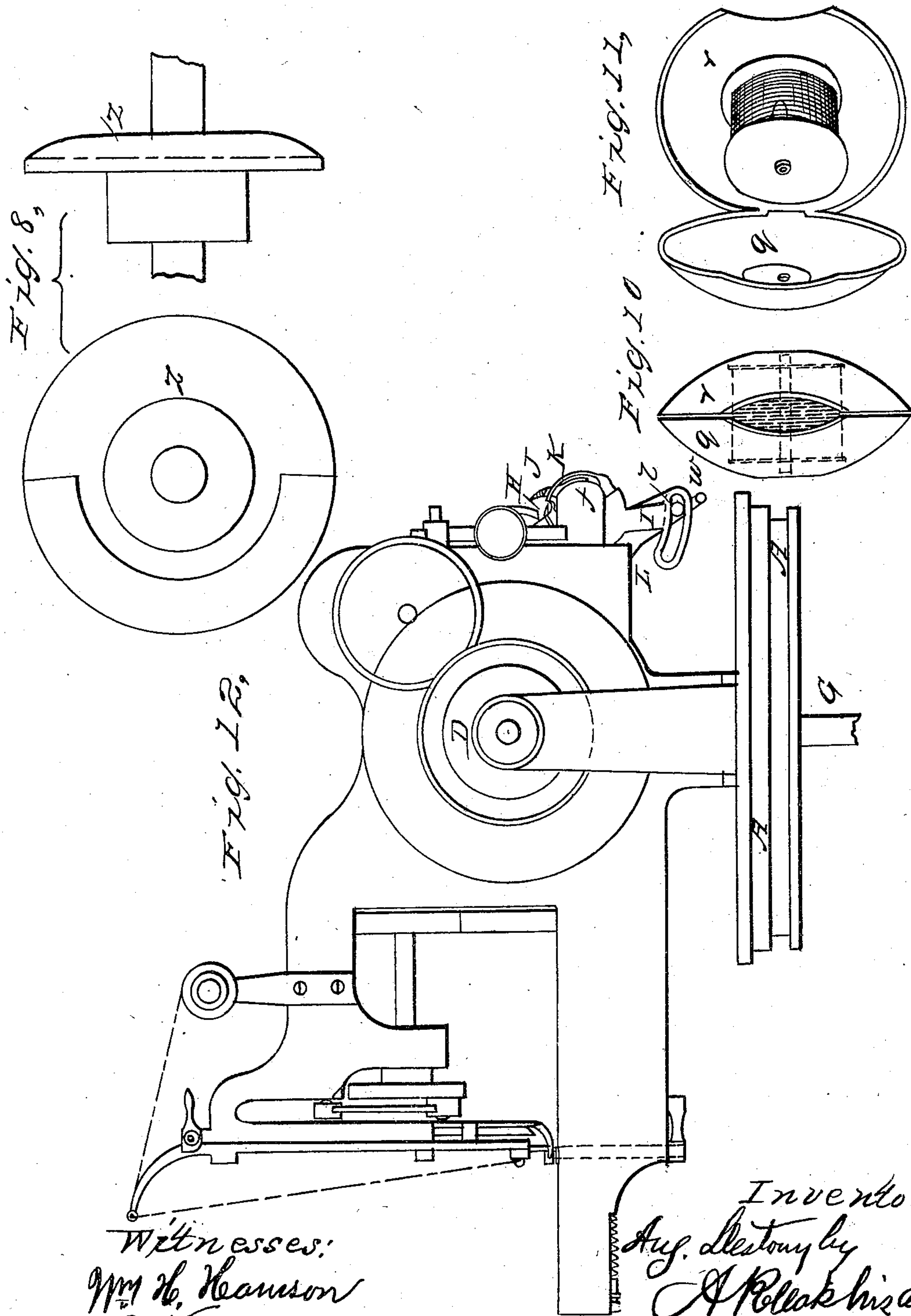
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Wm H. Pearson
E. Kingman

Inventor:
Aug Destouy by
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UNITED STATES PATENT OFFICE.

AUGUSTUS DESTOUY, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 34,413, dated February 18, 1862.

To all whom it may concern:

Be it known that I, AUGUSTUS DESTOUY, of New York, in the county of New York and State of New York, have invented certain new and useful improvements in machinery for sewing boots or shoes and other like articles made of leather or other similar substances; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 of Sheet 1 is a side elevation of my machine, representing the base-plate upon which it is mounted in section. Fig. 2 is a front elevation, and Fig. 3 a sectional elevation, of the machine. Figs. 4, 5, 6, 7, 8, 9, 10, and 11 are detail views; and Fig. 12, a double machine, arranged for the uniting of soles with their uppers, as well as for the sewing of other kind of work in shoe-making, saddlery, &c.

In Sheet No. 2, Figs. 1, 2, 3, 4, 5, and 6 represent respectively side, front, and rear elevations, plan and detail views, of a machine constructed according to the principle of my invention, but modified so as to be adapted to the sewing or stitching of such parts of articles made of leather, &c., which require the work to be laid on a sewing-table while being fed across the sewing mechanism; and my invention consists in the combination, in a machine provided with a table or support for the material to be sewed upon, and with a suitable feeding and thread-controlling device, of the following elements constituting a sewing mechanism: first, an awl and a forked needle, the former for piercing the material and the latter for carrying the under thread through it; second, a stationary thread-case for holding the upper thread, of such form as to allow of the loop formed of the under thread to pass over and around it; third, a rotary hook to seize and carry the under-thread loop over and around the case, so as to lock in the thread fed out from the said thread-case.

To enable others skilled in the arts to make and use this my improvement, I shall now proceed to describe its construction and operation.

The frame of the machine is here shown cast in one piece with a base-plate, A, capable of rotation on a pivot-sleeve, B, and consisting, first, of an upright round disk, C, through the center of which passes the axle D of the main cog-wheel E, that receives its motion from the

prime mover through the pinion F, fast on the head of the main shaft G, and imparts it to the operative parts of the machine; second, of a standard-casing, *c'*, in front of the disk, that incloses the sewing and feeding mechanism proper.

To the front part of the frame-work are attached two brackets, *f* and *g*, fitted with bearings to hold the axle *h* in such a manner as to allow of its reciprocating play in the direction of its length and of its revolution around its axis. One of the brackets (and preferably the one toward the left of the operator) is provided with the support *i*, for the material to be sewed to rest upon while it is being sewed, and the guard *j*, whose function it is to prevent the awl from being bent or broken and to give a support to the upper while it is being united with the welt and the sole. The support here shown is peculiarly adapted to the sewing of soles; and it consists of two bars slightly curved on top, leaving an intermediate space between them, which is wide enough to allow of the awl, after it shall have penetrated the materials to be sewed, to slide sidewise within the two bars a distance equal to the length of the stitches. At the outer end of the support I provide a hook, *k*, for attachment to it of the end of the under thread, and it is so arranged in relation to the slot in the support that the thread, when brought under proper tension, shall cross within the slot the path of the forked needle.

The sewing mechanism proper consists of the following three principal moving parts, viz:

First, the awl H—a piercing-instrument, curved concentrically with the shaft *h*, upon which it is mounted by means of the lever I. This lever and awl are actuated from the main cog wheel or disk by means of a rod connected therewith eccentrically at J, its other end being provided with a transverse pin having play within the curved slot in the end of the lever, so that when rotary motion is given to the disk-wheel E the pin *l* on the connecting-rod will first lodge in the extreme recess in the rear of the curved slot of the lever and carry the lever end backward, and thereby cause the awl to penetrate the material to be sewed. At this moment, and while in the leather, the awl is caused to travel sidewise, being actuated by a feed-bar which constitutes part of the feeding mechanism, of which mention will hereinafter be made. During this

lateral motion the connecting-rod is pushed forward, its pin advancing in the slot of the lever, without, however, imparting motion to it until it reaches the front end of the slot, when, by its further forward motion, it causes the awl to disengage from the material and to reassume the position which it is to occupy previous to its piercing the leather or material to be sewed.

Second, the forked needle K—a penetrating, though not piercing, instrument. It is arranged for action in conjunction with the awl on the opposite side thereof relatively to the support. It is operated by the connecting-rod L in the same manner as the awl-lever. Its motions, however, are vibratory in one and the same plane. The point of the needle is forked in such a manner as to seize within its recess the under thread, or the thread fed from the bobbin M, when stretched across the opening in the support.

Third. The rotary hook N derives its motion from the main wheel through the medium of the series of gear-wheels *m*, *n*, and *o*, which latter communicates the motion to the shaft on which the hook is mounted. The shank of the hook is shaped to conform with the stationary lenticular thread-case, around which it is caused to travel, and the hook is arranged to operate in conjunction with the forked needle, so that the thread carried through the material to be sewed is seized by it and in the form of a loop carried over and around the thread-case.

Besides these parts, which constitute the principal elements of the sewing mechanism, there are a thread-case and a feeding and thread-controlling device, of which I shall now proceed to give a detailed description.

The thread-case is composed of two shells, *q* *r*, hinged together, and open at one side, so that the spool the case is intended to contain may at any time be seen. One of the shells is perforated for the passage of the thread. The case is held loosely in position by means of two side cups, the one slightly pressing the case against the other. The second cup is rendered adjustable by means of the bar working in the bracket *s*, to which it is securely fixed by means of the set-screw *s'*. The thread, when taken off the forked needle, is carried over and around the lenticular case by passing between its holding-cups.

The feeding mechanism may vary according to the kind of work, and to conform with the general arrangement of the machine. In this machine it is similar to what is known as the "needle-feed," and may be termed, in connection with the machine, the "awl-feed." To the shaft carrying the gear-wheel *m* is attached a cam-disk, Z, located within the front part of the standard-frame. This cam-disk is constructed to actuate the short end of the feed-bar, and thereby cause the said bar to vibrate on the pivot *t*. The lower end of the feed-bar is shaped into a fork which embraces the rocking shaft upon which, as axis, the awl and the

needle rotate. A spring, *u*, is provided to bear the short end of the feed-bar against the cam-disk, and a set-screw, *v*, located in a suitable position, is arranged to limit the stroke of the feed-bar. By turning, therefore, the main cog-wheel E, rotary motion will be imparted to the cam-disk, which in its turn will vibrate the feed-bar between the limits determined by the position of the cam-disk and that of the set-screw. By turning the set-screw to the right or left it may be made to project more or less, and thereby give the bar more or less vibratory travel. The forked end of the feed-bar bearing against the side of the awl-socket, which being free to slide laterally upon its axis, it will be seen that the motion of the forked end is transmitted to the awl. The cam-disk being timed to actuate the feed-bar when the awl shall have penetrated the material to be sewed, it will be understood that the material is dragged sidewise a distance determined by the length of the stitches. The lateral movement of the awl is determined, first, by the stop or set-screw, which fixes the limit of its back-stroke; second, by the cam-disk, which causes it to advance, and when at its extreme stroke to remain stationary until the fork-needle, which is now directly opposite the awl, shall have come up to the material. As the fork-needle advances the awl recedes, and thereby allows the fork-needle, with its thread, to come up through the hole punched by the awl. The thread on the fork-needle forms an open loop, which is caught by the rotary hook N the moment the needle shall have reached the extreme end of its upward and forward motion. The loop thus caught by the rotary hook is distended and bulged by being brought into contact with the curved surface of the lenticular case. The loop, by being thrown over the stationary thread-case, imprisons and takes up the loose thread supplied by the said thread-case, and is locked by the under-thread loop being drawn up in the following manner: The under thread, which is wound over a large bobbin, M, is properly conveyed over a system of pulleys or other guiding devices to the eye W in the end of the lever L. The operation of the parts is such as that the eye, with its lever, occupies the extreme position in rear when the loop is cast off the thread-case. At this moment the lever advances, and by so doing draws on the loose thread of the disengaged loop and takes up the slack. To better insure this action, and to prevent the friction of the thread in the material from overcoming the tension of the thread derived from the bobbin, and whereby, instead of taking up the slack, it would draw more thread from the bobbin, I provide for giving the bobbin increased friction during the time the awl-lever is engaged in drawing up the slack thread. This I effect by the employment of an internal friction-brake, (shown in Figs. 4 and 5,) and operated from the outside by means of a latch or its equivalent. The friction device consists in two hinged clamps, *x*, clasping the shaft or

sleeve fast on said shaft when expanded by a wedge driven or pushed in from the outside. In the accompanying drawings the wedge is shown operated by a latch beveled on one side, so that it will be depressed, and operate the wedge when the gear-wheel is rotated in its proper direction, but will stop the machine when rotated in the contrary direction. I do not confine myself to this friction-drum. Indeed, I may dispense with friction devices as applied to the bobbins altogether. A second lever or any other take up or thread-controlling device may be used as well, and in some instances with better effect.

In Fig. 12 I have shown the machine complete and combined with an ordinary sewing-machine, or a sewing-machine constructed according to my invention, but differently arranged, so as to adapt itself to stitching, &c.

In the several figures in Plate 2 is represented a machine modified as last hereinbefore mentioned. The stationary thread-case, with its rotary carrier, is located underneath the table. The hook is fixed upon a hollow shaft which is mounted and rotates on the cup-spindle. The middle gear-wheel, *b*, transmits the movements to the upper and lower gear-wheels, *a* and *c*, which operate respectively the needle-bar and the rotary hook and feed-wheel. The latter is actuated by a vibrating lever, *d*, whose motions are derived from an eccentric, *e*, fast on the hook-shaft.

The two machines may be mounted in one frame and upon one plate, and movement may be transmitted to either from one pinion.

Having thus described my invention, I shall state my claim as follows:

In a machine provided with a table or support for the material to be sewed to rest upon, and a feeding and thread-controlling device, the combination of the following elements constituting a sewing mechanism adapted to the manufacture of boots and other like articles, viz: an awl and a forked needle, the former for piercing the material and the latter to carry the under thread through, and a stationary thread-case and a rotating hook, the former for holding the upper thread and the latter to seize and carry the under-thread loop over and around the thread-case, so as to lock in the thread fed out from said case, the whole being arranged, substantially as described, to operate in the manner and for the purposes set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

DESTOUY.

Witnesses:

A. POLLAK,
EDM. F. BROWN.