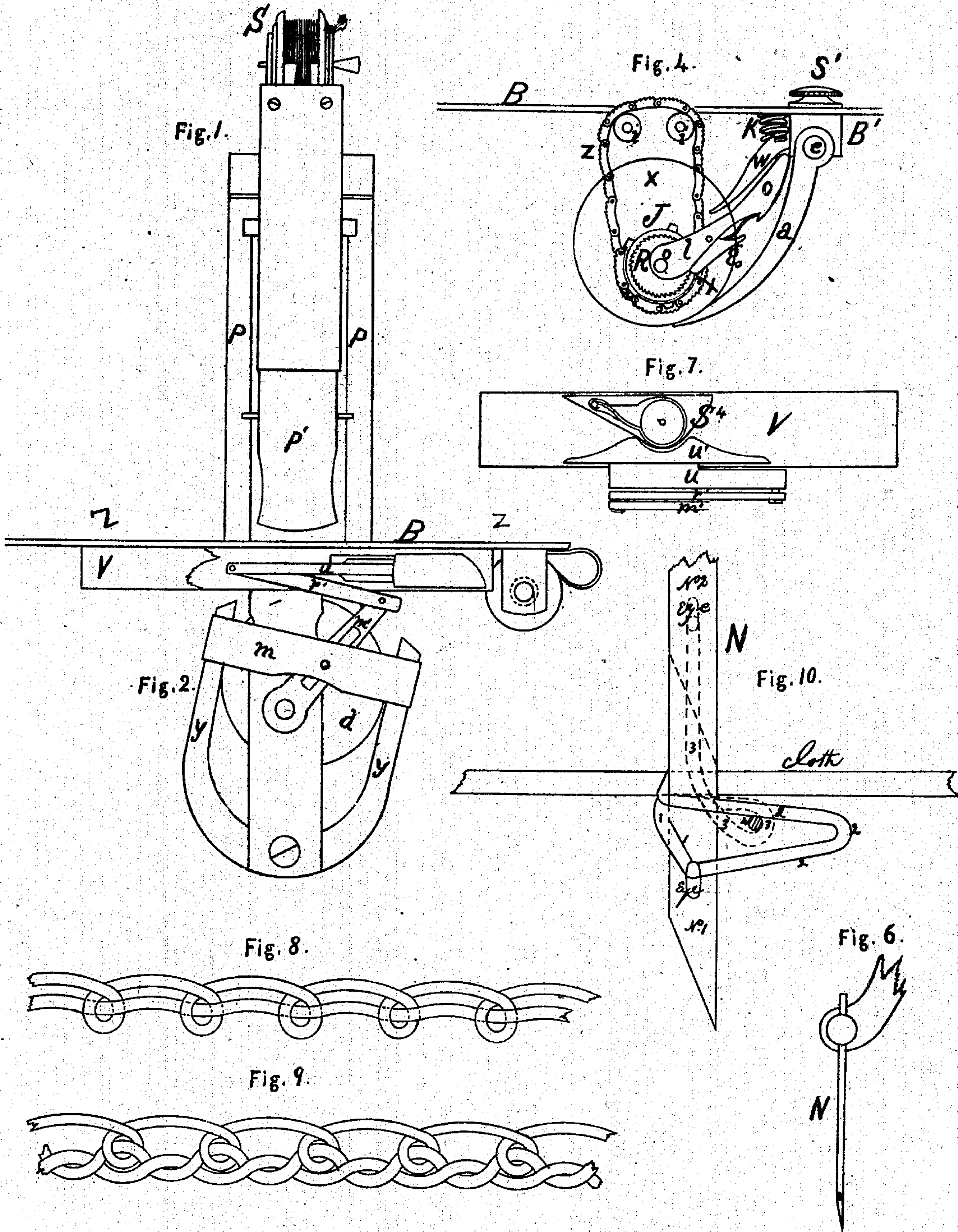


Jones & Houghian. Sewing Machine.

Patented May 14, 1861

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Witnesses.

W. P. N. Fitzgerald
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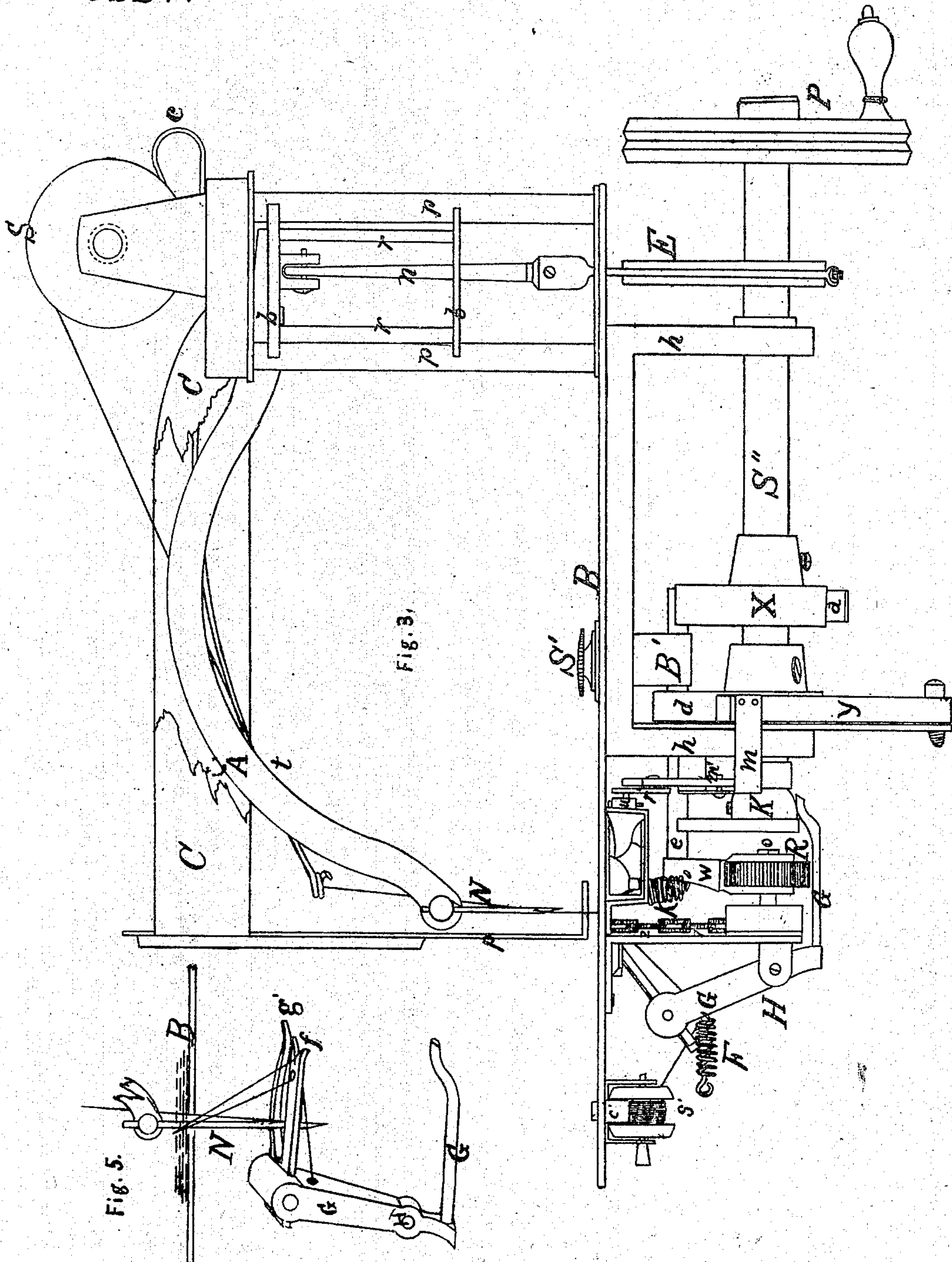
Inventor.

William Jones
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UNITED STATES PATENT OFFICE.

W. JONES, OF BROOKLYN, AND P. HAUGHIAN, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 32,297, dated May 14, 1861.

To all whom it may concern:

Be it known that we, WILLIAM JONES, of the city of Brooklyn, Kings county, and State of New York, and PATRICK HAUGHIAN, of the city, county, and State of New York, have invented new and useful Improvements in Machines for Sewing Cloth, Leather, &c.; and we hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part hereof, in which—

Figure 1 is a front view of the machine above the bed-plate; Fig. 2, a front view of the shuttle, shuttle-box, and mechanism for operating the shuttle; Fig. 3, a side view of the machine with parts of the frame removed, so as to show the right side of all the mechanism; Fig. 4, an end view from the rear, showing the apparatus for feeding the cloth, the eccentric x being supposed transparent, to show the parts beyond it; Fig. 5, a side view from the right of the needle, and of the fork and guide for opening the loops for the shuttle; Fig. 6, an enlarged view of the needle from the right side; Fig. 7, a top view of the shuttle and shuttle-driver; Fig. 8, a view of the stitch made with two threads; Fig. 9, a view of the stitch made with three threads.

Like letters indicate the same parts on all the figures.

In the accompanying drawings, B is the bed-plate. M is the needle; A, the needle-arm, and S the spool holding the thread for the needle.

$p p p$ are standards erected at the back of the bed-plate. These standards support the arm C of the presser, and also act as guides to the needle-arm.

$b b$ are two triangular plates of brass with their corners notched, and which are firmly held in their relative position to each other by the rods $r r$. These plates are made to fit between the standards $p p p$, so that the notches in their corners will receive them, and so that the standards will hold the said plates laterally in position, leaving them capable of rising and falling, guided by said standards. To the upper of these triangular plates the back end of the needle-arm is firmly attached, and to the lower side of the same plate is jointed a connecting-rod, extending downward to an eccentric, E, on the main shaft S', to which eccentric it is connected by a collar, so that as said main shaft revolves the needle-

arm, with its needle, will be elevated and depressed, while it is guided by the standards $p p p$ and the triangular cross-head $b b r r$.

The connecting-rod or pitman n works through slots in the lower triangular plate and in the bed-plate.

The bobbin, which holds the needle-thread, is seen at S, supported by two standards at the back end of the presser-bar, and the detent is a common spring, c , pressing upon thread on the bobbin.

t is the tensor-spring for taking up the thread as the needle is withdrawn.

The cloth-feeding is effected by an endless chain, the outer edges of whose links are toothed or roughened. This chain is seen at $z z$, and is supported by the toothed wheel J and the two friction-wheels $i i$. The teeth of the wheel J enter between the links of the feed-chain and drive it when the wheel moves. This wheel is firmly attached to the short shaft o . Firmly attached to the same shaft, o , is a ratchet-wheel, R, through which an intermittent motion is given to the shaft o , and thence to the toothed wheel J, and thence to the feed-chain. Motion is given to this ratchet-wheel by the following mechanism:

A lever, l , is hung loosely on the shaft o , the outer end of which is held upward toward the left by a spring, k , against a wiper, w . Jointed to this lever is a spring-dog, whose spring presses the lower end of the dog against the teeth of the ratchet-wheel R.

The wiper w is firmly attached to a shaft, $e e$, running parallel to the main shaft, and placed under the bed-plate near its left side, and supported by a box, B', hanging downward from the bed-plate. At the back end of this shaft an arm, a , firmly attached thereto, extends downward, inclined toward and resting against the eccentric x on the main shaft. With this arrangement it is obvious that when the main shaft revolves, starting with the arm a against the lowest point of the eccentric, as in Fig. 4, the eccentric will press the arm a toward the left of the machine, turning the shaft e , and bringing the wiper w downward, carrying the lever l with it, which, by the action of the spring-dog g , will carry the ratchet-wheel R partially around, and thence the feed-chain forward.

The box B' is fastened in a slot near the left side of the bed-plate, and is capable of being

slid from right to left, and is fastened, when adjusted, by a set-screw. It is obvious that this adjustment will adapt the feed to shorter or longer stitches.

The eccentric d gives motion to the shuttle through the following mechanism: The eccentric d is fastened firmly by a set-screw. Upon the main shaft S'' a yoke, y , is jointed below the main shaft to a hanger, h , from the bed-plate, within which yoke the eccentric d works. A strip of metal, m , bent into the form of three sides of a rectangle, connects the upper ends of the yoke, reaching forward above the main shaft, and having a pin at the middle of the front part of the strip. This pin enters a slot, cut lengthwise in an arm, m' , which extends upward and works freely on the main shaft. To the upper end of this arm is jointed a connecting-rod, r' , whose other extremity is jointed to a slide, u , working in and through the back of the shuttle-box, and holding the shuttle-driver u' . V is the shuttle box; S' , the shuttle. It is obvious that as the main shaft revolves the yoke y will vibrate from right to left, giving a similar vibration to the arm m' , and thence through the connecting-rod r' to the slide, shuttle-carrier, and shuttle.

The needle used in our machine is similar to other eye-pointed needles, except that it is chamfered off near the point on the front side, or side opposite to the shuttle-race, so as to carry the point thereof entirely to the back side of the needle, as seen particularly in Fig. 6, and the perforation for the eye, when the needle is in position, is nearly in the direction of the motion of the shuttle, as seen in the drawings. The shuttle, therefore, would not pass between the needle and the thread or through the loop, unless the loop were carried back of the needle. To effect this object we resort to the following mechanism:

G is a bent lever, whose fulcrum is at H , one extremity of which rests against the cam K and the other holds the fork f and the guide g' , which may be adjusted laterally in any well-known way. As the needle descends, the cam K , pressing against the top of the lower end of the lever G , carries its upper end, with the guide and fork, backward, and the guide, coming against the left of the needle, guides and steadies it, so that the left prong of the fork, distant from the guide the diameter of the needle, will take the thread on the right side of the needle and carry it backward, opening a loop for the shuttle, as shown in Fig. 5, and when the shuttle has passed through the loop the lower end of the bent lever, coming constantly upon the lower part of the cam, will allow the spring F to draw the upper end of the lever, with the fork and guide, forward to the position shown in Fig. 3, entirely freeing them from the needle and the thread.

The fork has a needle-eye near its end, as shown in Fig. 5. Through this eye a thread from a bobbin, s' , may be passed, which, in the

regular operation of the machine, will be worked into the stitch, producing an ornamental appearance.

When the point of the needle is chamfered off, as described, the needle-thread, being so much farther in front than the needle-point, will always come on the front of it, or on the side opposite to the shuttle, and this is the object of giving this form to the point. Without this or its equivalent the peculiar stitch would not be produced.

The feed should be from Z' toward Z , Fig. 2, the thread passing through the needle-eye in the opposite direction. The feed will then draw the thread between the cloth and needle-eye toward Z , and by virtue of the side point of the needle this thread will, when the needle descends, come in front of the needle, and extend round from the cloth to the Z' side of said needle, as shown at 1 1, Fig. 10, which is a side view of needle and its thread on the Z' side. The fork then seizes this needle-thread and carries it backward, forming a loop, so that the said thread extends from the cloth around the front and Z' side of the needle, as shown at 2 2 2, Fig. 10. The shuttle-thread is then passed through said loop, and is shown at 4, Fig. 10. The needle then, being drawn up to position No. 2, Fig. 10, draws that part of the needle-thread nearest the eye up between the needle and the other part of the loop, as shown at 3 3 3, Fig. 10, so that at the feed for the next stitch the needle-thread will take a "bight" upon itself and around the shuttle-thread, producing the stitch shown at Fig. 8; or, if the fork-thread be also used, the stitch shown at Fig. 9 will be produced, the shuttle-thread merely passing through a common open loop in the fork-thread, while the bight in the needle-thread is the same as before. In Figs. 8 and 9 the needle-thread is without color and the shuttle-thread is pink, and in Fig. 9 the fork-thread is blue. The third position of the needle-thread in Fig. 10 is in dotted lines for distinction, not to indicate that the needle is between it and the eye.

Having fully described our improvements, what we claim as our invention, and desire to secure by Letters Patent, is—

1. The side-pointed needle, as described.
2. The combination of the needle with the fork and shuttle, as described.
3. The combination of the guide with the fork and needle, as described.
4. The combination of the feed-chain with the fork and needle, as described.
5. Retaining the needle-thread in making the stitch on the side of the needle opposite to the shuttle, substantially as set forth.

WILLIAM JONES.
P. HAUGHIAN.

In presence of—

W. P. N. FITZGERALD,
JAS. E. WEST.