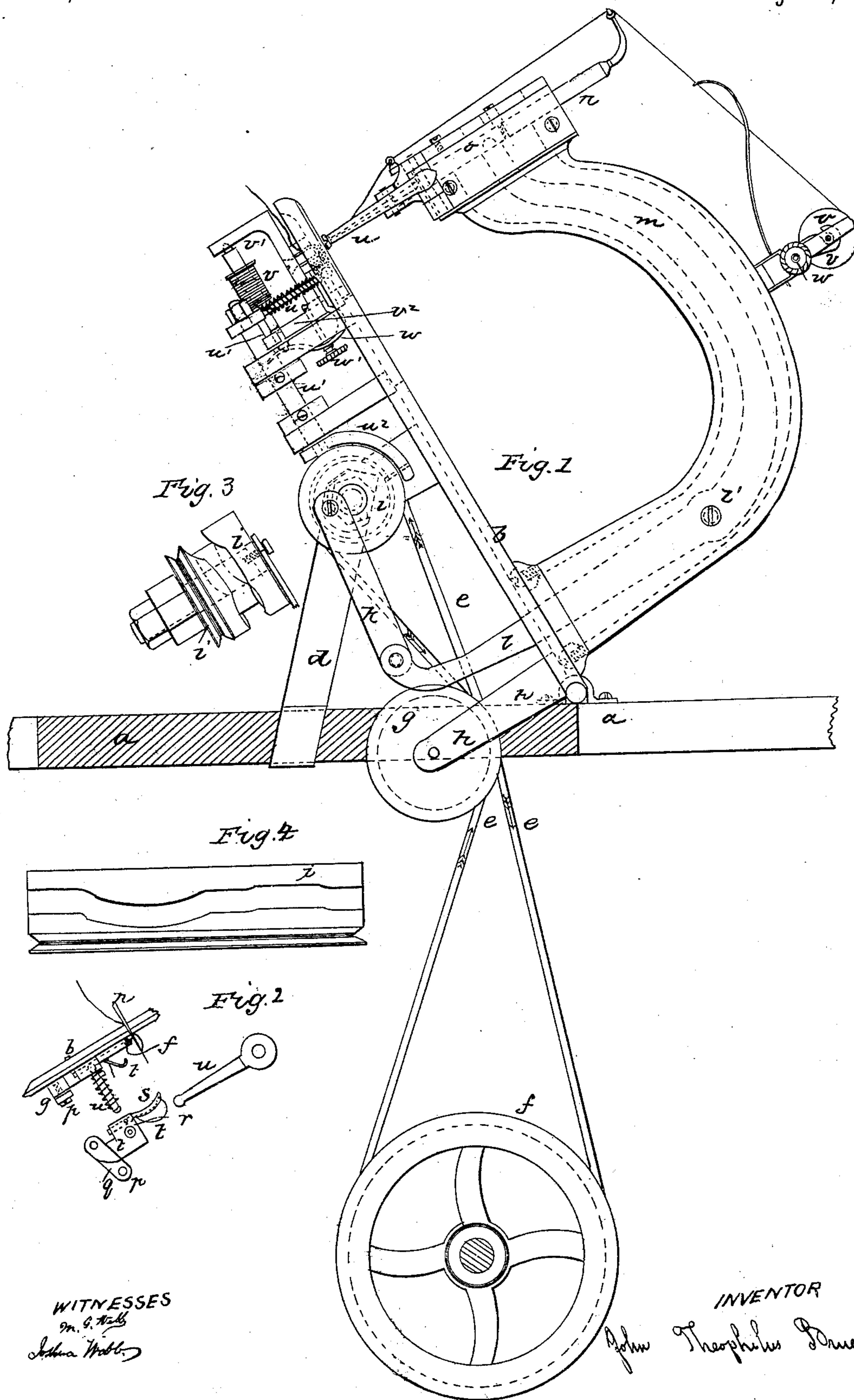


J. T. BRUEN.
Sewing Machine.

No. 31,208.

Patented Jan'y 22, 1861.



WITNESSES
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INVENTOR

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UNITED STATES PATENT OFFICE.

JOHN T. BRUEN, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 31,208, dated January 22, 1861.

To all whom it may concern:

Be it known that I, JOHN T. BRUEN, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machinery for Sewing; and I do hereby declare the following to be a full description thereof, referring to the accompanying drawings, in which—

Figure 1 is a vertical sectional elevation. Fig. 2 shows the lower needle apparatus. Fig. 3 is the cam *i*; Fig. 4, cam *i* developed.

The construction is as follows: *a* is the table, on which the machine rests while in use, and to which the metal plate *b*, that forms the base to which the working parts are attached, is jointed at *c* when the base is raised, as seen in Fig. 1. It is held at the proper elevation by means of a spring-catch, *d*, attached to the base, and catches upon the table, so as to enable the operator to examine the under side for adjustment, &c. The moving parts of the machine are driven by a band, *e*, that passes around and receives its motion from a band-wheel, *f*, hung in the frame that supports the table-top *a*. This frame is not shown in the drawings, as it forms no part of the invention. The wheel *f* is turned in the common way by a treadle. The band *e* extends up over two small pulleys, *g*, supported on hangers *h*, projecting down from the base-plate *b*. Thence the band *e* passes around the cam *i* in a proper groove, *i'*. This cam communicates motion to different parts of the machine. The position of these pulleys and wheel must be determined (dependent on their diameter) so as to keep the band *e* equally tight, whether the base *b* is flat on the table or elevated, as seen in the drawings. This arrangement saves the necessity of removing the band in changing the position of the machine, which can be worked in either position equally well. With this arrangement the advantage is also attained of reversing the direction of revolution of the driving-wheel *f* by unhooking the band and reversing it on wheel *f*. The relative position of the band-wheel and treadle with the machine can be changed by turning them to a right angle from that seen in the drawings.

The cam *i* above named is seen detached in Fig. 3. It is a short cylinder, having an irregular groove around its periphery. This groove is developed in Fig. 4, and its form is intended to give the proper motion to the lower needle,

as hereinafter explained. On the end of the cam-cylinder *i* there is a pin or wrist that communicates a vibrating motion to the lower end of a lever, *l*, of curved form by means of a connecting-bar, *k*. The lever *l* runs up through the hollow arm *m*, having on its front the stationary guide for the vertical needle-bar *n* to slide in. The fulcrum of the lever *l* is at *l'* in the arm *m*, and its front end is jointed to the needle-bar by a ball-and-socket joint at *o*, which gives a steady, noiseless motion to the sliding needle-bar *n* in moving the needle up and down through the cloth, preventing backlash and the missing of stitches and irregularity consequent thereon.

The lower-needle apparatus is constructed as follows: *p* (see Fig. 2) is the pivot by which it is attached to the under side of the base-plate, the arm *q* turning horizontally on it. The other end of arm *q* is jointed to the needle-holder *r*, the form of which is distinctly seen in Fig. 2. This holder *r* has the needle *s* inserted in it, and is held by a set-screw. The needle is curved and flat, having a rounded point, which is on a line with the joint of the holder. It has an eye near its point, and another near the shank, through which the lower thread passes. On the convex side of the needle there is a groove from one hole or eye to the other, along which the thread lies. A small, light hook, *t*, is affixed to the shank of the needle by passing it through a hole made in it, so that it can be turned therein. This can be brought into a parallel plane with the needle, as in the plan, Fig. 2, where the point of the hook comes near the eye of the needle; or it can be swiveled down out of the way, as seen in the same figure, side elevation. A socket for a ball-joint is made in the needle-holder *r* at *r'*, and the rounded upper end of the arm *u* fits into it. This arm *u* has an eye or collar on its inner end that fits onto the rock-shaft *u'*, and is fastened by a nut. This allows the arm *u* to be exactly adjusted. On this arm there is a spring coiled, that bears up against the needle-holder *r* and keeps it up against the base-plate *b*. The rock-shaft *u'* is vibrated by an arm, *u²*, projecting upward and curving over the cam *i*, and bearing in its end a wrist or pin that enters in the groove in the cam *i*. By this means the needle receives its proper motion, not, as will be observed, in a right line, but with a compound movement intended to produce the best possible effect in

operation. The thread for the upper needle, as well as for the lower one, is fed from a spool, on which the proper tension is made by a peculiar friction apparatus. In Fig. 1 this apparatus is seen in front view below the table and an end view on top of arm *m*, both having the same letters of reference. *v* is a thread-spool slipped onto a triangular-formed mandrel, (which form readily secures any ordinary spool.) The ends of the mandrel are turned to a point, and one of them rests on a recess in a hanger, *v*². The other end of the mandrel is rounded, and passes through a notch in the hanger *v*², made long enough to receive it loosely. A curved spring, *w*, is affixed to the hanger at this end, and extends over the end of the mandrel, the point of which is received in a recess made therefor in the spring. A set-screw, *w'*, passes through the bow of the spring into the hanger *v*², and serves not only to increase the pressure of the spring upon the end of the mandrel, but so straightens it as to throw up the end of the mandrel against the side of the notch, and thus produces friction sufficient for the tension of the thread without abrading the parts by too much end pressure.

The operation of the machine is as follows: In making the tambour-stitch, or single thread,

the upper needle alone is threaded, which carries a loop of thread down through the cloth and base where the lower needle is made to pass through the loop, which, as it passes into the shank, is caught by the hook *t*, which, for this purpose, is in the position shown in the plan, Fig. 2, by which the loop is pushed forward and held in position until a second descent of the upper needle. By a repetition of these movements the seam is produced. If two threads are used, a double-loop stitch is made by turning down the hook *t* out of the way, as seen in the elevation, Fig. 2.

Having thus fully described my improvements, I claim—

Needle-holder *r*, jointed by a double joint to the permanent frame, moved and held up to its place by the socket-joint arm *u* and spring constructed and arranged as herein described, and the hook *t*, combined with the lower needle, in the manner and for the purposes set forth.

In testimony whereof I have hereunto set my hand in presence of—

JNO. TH. BRUEN.

Witnesses:

M. G. WEBB,

JOSHUA WEBB.