2 Sheets—Sheet 1.

J. BACHELDER.

Sewing Machine.

No. 7,659. Patented Sept. 24, 1850.

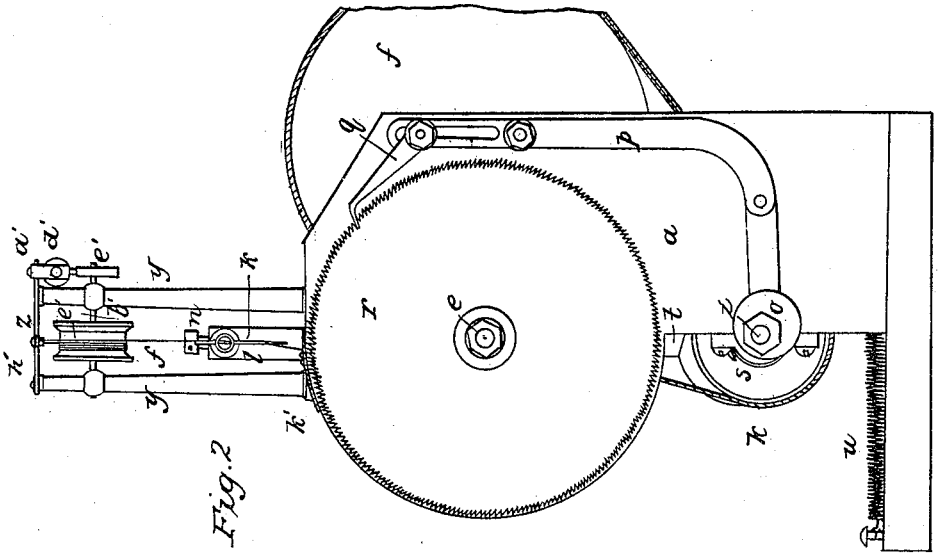

Fig. 2

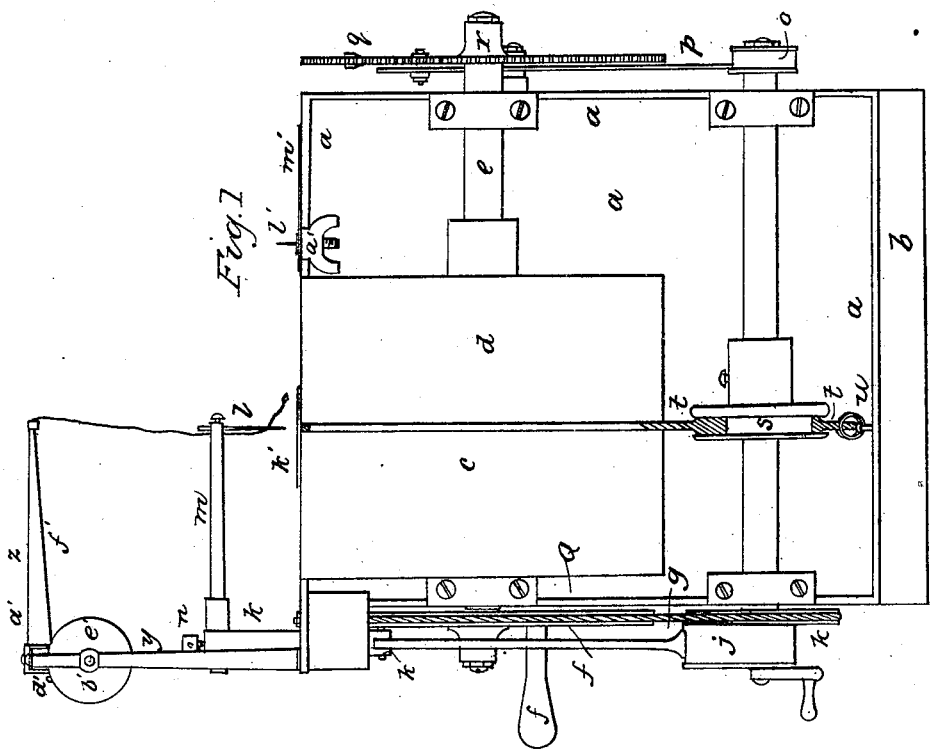

Fig. 1

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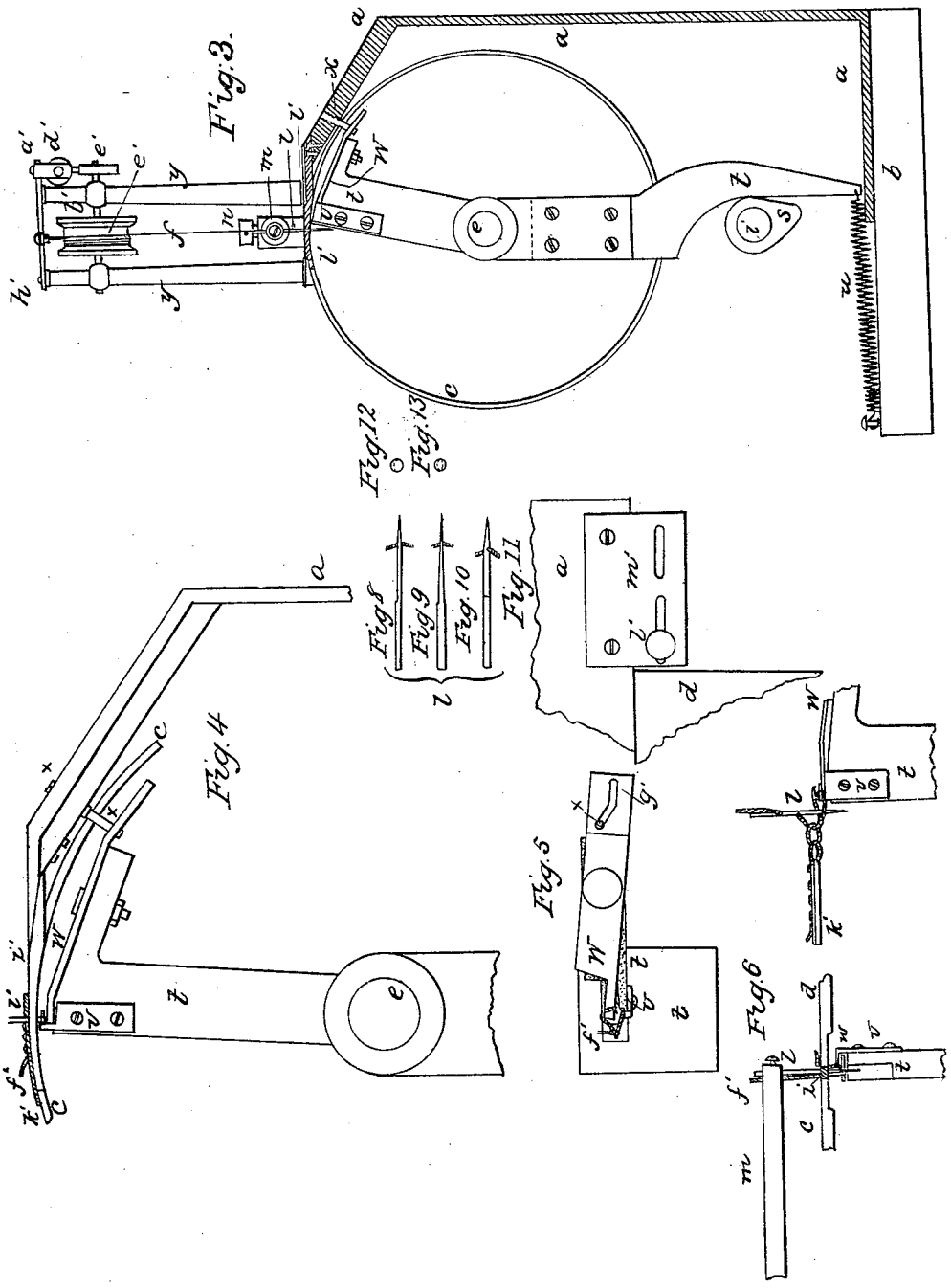

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JNO. BACHELDER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **7,659**, dated September 24, 1850.

To all whom it may concern:

Be it known that I, JOHN BACHELDER, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Machine for Sewing; and I do hereby declare that the following is a full and exact description of the same.

In the accompanying drawings, Figure 1 represents a view of the front or side of the machine opposite to the side where the operator would stand; Fig. 2, an end view; Fig. 3, a central sectional view; Figs. 4, 6, and 7, horizontal views of the hook and plier or loop-separator, and Fig. 5 a top view of the same.

The letter *a* denotes an iron frame set upon and secured by screws or otherwise to the foundation *b*, which may be the top of a bench or stand.

c and *d* represent two cylinders upon the shaft *e*. *c* is fixed and *d* nicely fitted and secured by a set-screw to admit of its being drawn back upon the shaft toward the end of the machine, in order to inspect the machinery inside the cylinders.

f represents a driving-pulley and crank combined, which is connected by the band *g* to the pulley *h* upon the shaft *i*. Upon the same end of the shaft *i* is fixed an eccentric, covered in the drawings by the cam-strap and connecting-rod *j*, which is jointed to the upright shaft *k* and puts in motion the needle *l*, which is set by a screw in the needle-arm *m*, said arm being made to pass through a hole near the top of the upright shaft and secured in its place by a set-screw, *n*. Upon the opposite end of the shaft *i* is fixed another eccentric, covered by the cam-strap and connecting-rod *o*. Said connecting-rod is jointed to the lever *p*, and by means of the pawl *q*, feeding into the ratchet *r*, the ratchet, being fixed upon the same shaft with the cylinders *c* and *d* moves, them and the cloth or work upon them the length of a stitch at every revolution of the shaft *i*.

Near the center of the shaft *i* is fixed, by a set-screw, the flanged cam *s*. (Represented in Fig. 3 with flanges removed.) The lower end of the hook and plier-lever *t*, being held against the surface of this cam S by the spiral spring *u*, imparts a vibratory motion to said lever *t*, causing at every revolution of the shaft *i* the hook *v* and plier *w* upon the upper end of said lever *t* to traverse past the needle, catching off the thread in its passage toward the guide-pin *x*, (see Fig. 4,) which thread slips back upon the points of the hook and plier against the heel or bend in each, Figs. 5 and 7. The point of the plier is held against the point of the hook until it passes the needle. By the guide-pin *x* in the slot *g'*, and as soon as the heel of the plier has passed the needle, the guide-pin *x* strikes the curve or angle in the slot and throws the point of the plier, which holds one side of the loop, away from the hook, (see Fig. 5,) thus widening the loop and holding it in the position in Fig. 5 until after the needle has retreated from its position when the thread was caught off (see Fig. 4) and out of the cloth, and returned, passed through the cloth in another place, and through the loop just described as being held open by the plier. The cylinders and cloth upon them, *k'*, Figs. 1 and 4, were moved, while the needle was out of and above the cloth the length of the stitch, in the manner already described.

The length of the stitch is determined by the distance the axis of the pawl is set from the axis of the lever *p*, which, by means of the slot in the upper end of said lever *p*, is made movable at pleasure. The needle having returned to the position seen in Fig. 7, at this moment the inclination toward the extreme point of the cam *s*, Fig. 3, begins to press the lower end of the lever *t* from the shaft *i*, and consequently the upper end, with the hook and plier, in an opposite direction—that is to say, from the guide-pin *x* toward the needle. Before the points of the hook and plier have reached the needle the plier-point will have been carried back against the point of the hook by the action of the guide-pin *x* in the slot *g'*. When the points of the hook and plier, in being carried back, pass the needle, the loop they held slips off, and is drawn up by the thread-spring *z*, and when the extreme eccentric or part of the cam most distant from its center presses against the lever they will have gained their original position or point from which they started to catch off the thread from the needle and completed the process of making one stitch, of which all subsequent ones are but a repetition.

y y are columns supporting the cross-bar *h'*, to which are attached the thread-spring *z* and the friction-spring *a'*. The columns *y y* also provide bearings for the spool-spindle *b'*. The friction-spring *a'*, held against periphery of the

friction-wheel c' (which is fixed upon the end of the spool-spindle) by the screw d', prevents the too rapid delivery of the thread from the spool e', and causing a tension of the thread f', which acts upon the thread-spring z and draws up the loop when released by the hook and plier and the thread more or less firmly into the cloth being sewed, according to the amount of friction applied to the friction-wheel c' by the action of the screw d'.

i', Figs. 1, 3, and 4, is a center-piece held by being screwed to the frame between the edges of the cylinders directly under the needle, and through which there is a hole for the needle to pass. Its object is to support the cloth and prevent it being carried between the cylinders by the needle in piercing it. The circle center l' is a spur set in a slot in the plate m', Figs. 1 and 11, opposite the needle-hole by a nut, n', on the under side. The center of the circle to be sewed is pierced by the spur. The size of the circle is enlarged or diminished by sliding the spur in the slot from or toward the needle.

The needle l, I make from steel wire of suitable size, and in shaping it keep it round where it passes through the needle-arm, and as much farther toward the eye as practicable, in order to retain its stiffness. Commencing above the eye, I cut away either all from one side or part from two opposite sides, so as to leave it an oval shape, (see Figs. 12 and 13,) leaving more stock in proportion to the size of the needle at each side of the eye than is retained in the ordinary method, and consequently much stronger, its width being about double its thickness, as seen in Figs. 8, 9, and 10.

That the circle center hereinbefore described may be more fully explained and understood, I would mention that it is designed to sew the tops of caps and other similar work. The spur l' is on a line with the needle, both being directly over the shafts e and i, the distance between the spur and needle being the radius of the circle it will sew. The center of the cap or circle to be sewed is pierced by the spur or point l', rests upon its flange or collar, and revolves round said spur. The edge of the cloth is carried forward under the needle by being pressed upon and adhering to the surface of the cylinder, the same as other work. To keep the work smooth we find it convenient to use two pieces of pasteboard or thin metal of a diameter a little less than that of the circle being sewed, with holes in their centers for the spur l' to pass through and place the cloth between them.

My machine makes what is called the "chain-stitch"—that is to say, a loop within a loop—a succession of loops, as seen in Fig. 7. I do not claim to have invented the stitch. That was made by hand before the invention of any machinery for sewing, and is also made by Morey and Johnson's and Reynolds' machines.

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

The machinery herein described for making the stitch, viz: the combination of the hook v, the plier w, and needle l, as constructed and made to operate together, substantially as described.

JOHN BACHELDER.

Witnesses:
THOS. J. DELANO,
CHAS. I. DELANO.