2 Sheets—Sheet 1.

SHAW, CLARK & GIVEEN.

Sewing Machine.

No. 20,471. Patented June 1, 1858.

Fig. 1.

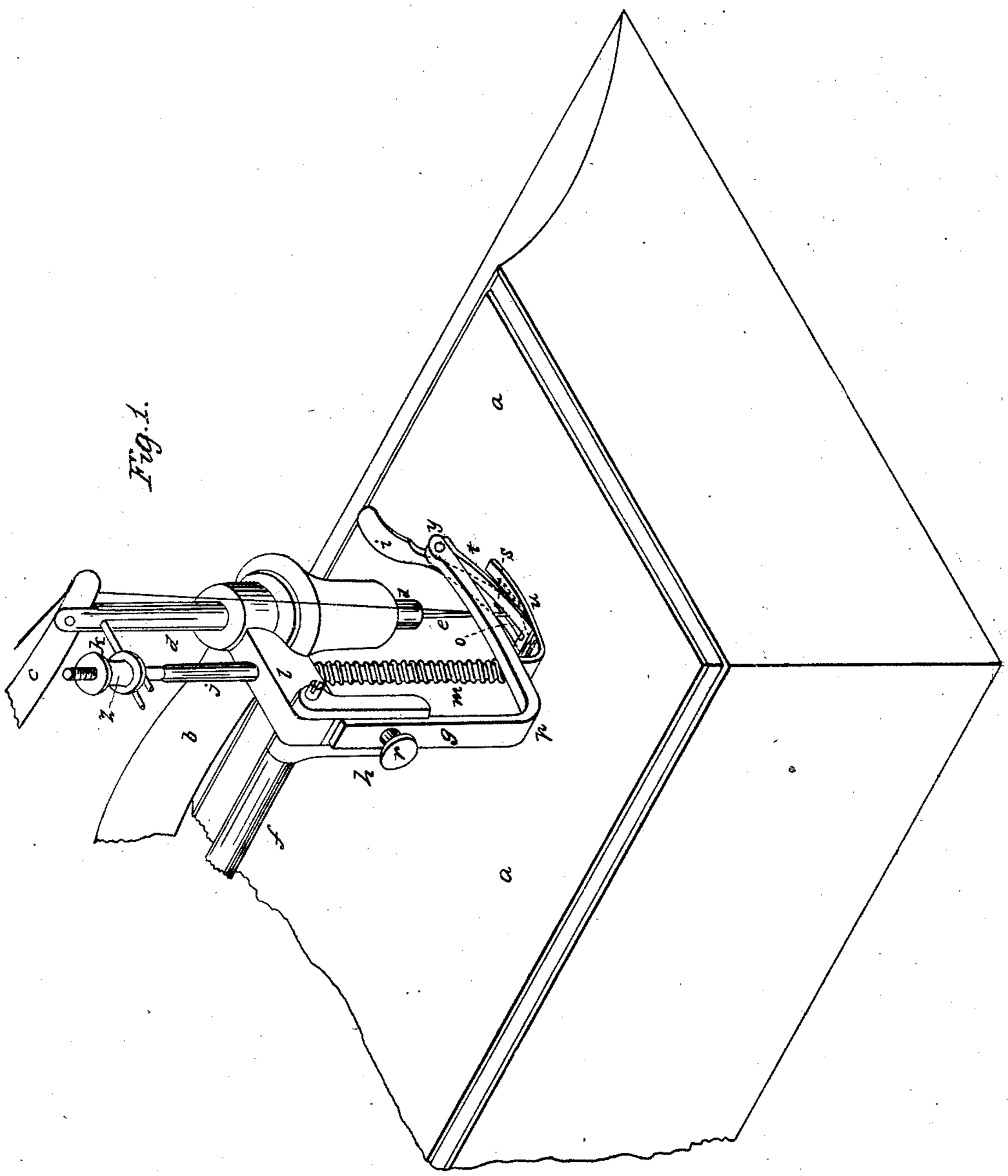

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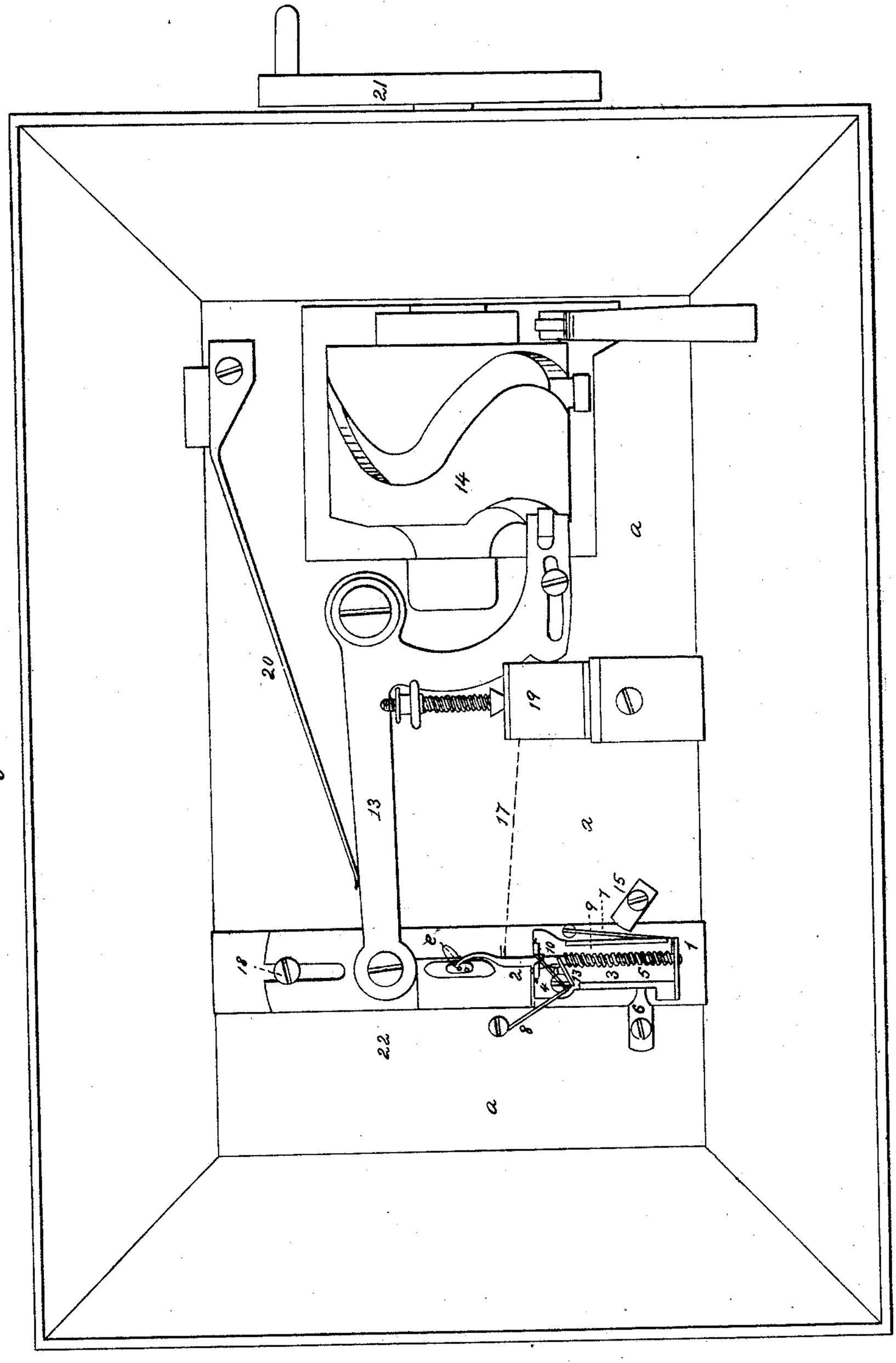
Fig. 2.



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

UNITED STATES PATENT OFFICE.

C. A. SHAW, J. CLARK, AND D. T. GIVEEN, OF BIDDEFORD, MAINE,
ASSIGNORS TO SHAW & CLARK, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **20,471**, dated June 1, 1858.

To all whom it may concern:

Be it known that we, CHARLES A. SHAW and JAMES CLARK, of Biddeford, in the county of York and State of Maine, and DAVID T. GIVEEN, of Saco, in the said county and State, have invented certain new and useful Improvements in Sewing-Machines; and we hereby declare that the said improvements are fully set forth and described in the following specification and accompanying drawings, of which—

Figure 1 is a perspective view of that part of a sewing-machine necessary to show our improved mechanism for feeding and holding the article being sewed. Fig. 2 is a bottom view of the machine, showing our improved mechanism for forming the stitch or looping apparatus.

In Fig. 1, *a* is the platform or bed on which the cloth rests. *b* is a horizontal stationary arm through which the perpendicular needle-bar *d* passes, having a branch arm, *l*, in the end of which one end of the rocking shaft *f* is disposed. *c* is a vibrating arm operated by a cam under the bed *a*, to which the needle-bar *d* is attached, and through which motion is communicated to said bar and the needle *e*. *g* is an arm having an elbow at *p*, which arm is attached and made adjustable at *h* to the shaft *f* by the screw *r*. *j* is a bifurcated pressure-rod which passes through the arm *l*. *i* is a serrated feed-pad hung near its center to the end of the arm *g* by a joint, *y*, having also a slot, *o*, corresponding with one in the bed-piece *a*, through which the needle *e* passes in sewing, and which feed-pad works between the shoe-shaped fingers *t t* at the lower end of the rod *j*. *m* is a spiral spring, which, by its expansive action, keeps the fingers *t t* upon the cloth. *k* is a fork or dog attached to the upper end of the needle-bar *d*, by which the rod *j* is raised at each upward motion of said bar. *s* is a spring attached to the arm *g* and pressing down upon the toe of the pad *i*. *u* is a cross-bar attached to the toe of the pad *i* and passing across the fingers *t t*, being so constructed as at the same time to prevent the pad *i* falling through the fingers *t t*, and still allowing the said fingers to be sufficiently raised to clear the cloth or article being sewed.

In Fig. 2, 1 is a horizontal slide, held in its place or raceway by the clasp 15 and screw 16 (which are fastened to the under side of the bed *a* in Fig. 1) in such a manner as to allow it to traverse freely therein. 2 is a partly screw-shaped looper, having a curved point, and carrying a thread, 17. 3 is a movable plate, having upright rests at each end in which the looper 2 is arranged. This plate is fastened to the slide 1 by the screw 4 on the needle side of the looper, and as far from it as possible, and in such manner as to allow it to be easily swiveled on the same. 7 is a spring which presses the plate 3 firmly against the adjustable dog 6 in such manner as to bring it in contact with it during the traverse motion of said plate. A notch is cut in the side of the plate 3 at 5, making a cam-shaped side to the same. 9 is a spiral spring around the looper 2, which, by its action on the pin 10 inserted in said looper, keeps the same in place when not caused to rotate by mechanism hereinafter described, and which, after each partial rotation, returns the looper to its proper position. 8 is a wire fastened to the under side of the bed-piece *a*, Fig. 1, so arranged that when in traversing back and forth the pin 18, inserted in the looper 2, comes in contact with said wire the looper is caused to rotate or partially rotate on its axis. 19 is the spool which supplies thread to the looper 2. *e* is the lower end of the needle, represented as having passed through the cloth through the slot *o*, and ready to receive the looper 2. 13 is a vibrating lever, operated by the cam 14 and wheel 21, through which motion is communicated to the slide 1. 20 is a spring, which throws the lever 13 back after having been moved by the cam 14.

From the above it will be seen that when motion is communicated to the wheel 21 and cam 14 the lever 13 is caused to vibrate and the slide 1 made to traverse in its guides or raceway, the vibrating arm *c* and rocker-shaft *f*, Fig. 1, being also connected with the said cam, communicates motion to the needle *e*, and also through the arm *g* to the feed-pad *i*. The cam 14 is so constructed and arranged as that by its operations on the arm *c*, the rocking shaft *f*, and the lever 13 the feed-pad *i* shall feed the cloth through the machine or under the needle just prior to the passage of the needle *e* through the slot *o*, while at the same

time the slide 1 is moved in the right direction to carry the looper 2 through the loop on the needle while the needle is thrust through the cloth or material being sewed, as in Fig. 2. While in this position the looper remains nearly stationary while the needle is withdrawn, leaving a loop of thread on or around the looper, and until the needle returns and takes a loop of thread from the looper, when the looper is withdrawn, slipping off the loop taken from the needle and leaving a loop around the needle, the looper 2 and needle *e* taking a loop from each other alternately, whereby the thread 17 and the thread in the needle *e* are woven together, thus producing a concentration of fast stitches. The cam-shaped side of the plate 3, in passing the dog 6, by the action of the spring 7, comes in contact with it in such a manner as to be caused to swivel or turn on the screw 4, by which the point of the looper 2 is made to partly pass around the needle *e*, whereby the taking of the loop from the looper is more positively insured. The traverse motion of the slide 1 also brings the pin 18 in contact with the wire 8. By this, when the looper 2 is constructed of the right shape and this part of the mechanism correctly arranged, the looper is enabled to pass the needle *e* without coming in contact with it, and is also caused to partly rotate on its axis, whereby a strain is brought upon the thread 17 and the stitch tightened.

We are aware that it is not new to use an eye-pointed looper or needle for the purpose of carrying a thread through the loop of the perpendicular needle, and thus interweave the threads and secure the stitch, and we do not claim the same as our invention without regard to the peculiar construction and operation of such a looper.

We are also aware that a looper has been used which was attached to a slide by a screw in its center, or through the center of the looper itself, and on which it vibrated, as in the invention of Nettleton and Raymond, patented April 14, 1857, no part of which invention is claimed by us. Their looper does not tighten the stitch sufficiently, and it is difficult to obtain and keep a proper tension on the under or looper thread, and to in other ways so adjust the looper as to have it operate perfectly.

By our improvements the following are among the advantages obtained: The looper 2, by being mounted in rests, as described, and made to pass through the arc of a circle, represented by the dotted line 22, at some distance from the screw 4, as the center of motion, it is enabled by this and its rotary movements to pass the needle *e* without coming in contact with it, and also tighten and securely fasten the stitch, while at the same time the thread is partly drawn from the spool for the next stitch. When the needle-bar *d* is elevated, the rod *j* is also raised from the cloth, taking up the toe of the pad *i* by means of the bar *u* and releasing the work, thus allowing it to be put in or taken out of the machine with ease and facility.

We do not claim the wheel 21, cam 14, lever 13, slide 1, spring 20, slot *o*, needle *e*, or spool 19, or dog 6, in Fig. 2, as the same are in common use and not patentable. We also disclaim the use of two threads and the stitch formed by their combination in the manner described; also, all and any part or parts of the mechanism described, when those parts are in and of themselves separately considered, which are not of our invention; but

What we do claim, and desire to secure by Letters Patent, is—

The combination of the looping mechanism herein described, whereby the forward and backward, lateral, and reciprocating-rotary movements are given to the looper, for the purpose described and specified.

CHARLES A. SHAW.
JAMES CLARK.
DAVID T. GIVEEN.

Witnesses:
LUTHER BRYANT,
GEO. H. ADAMS.