

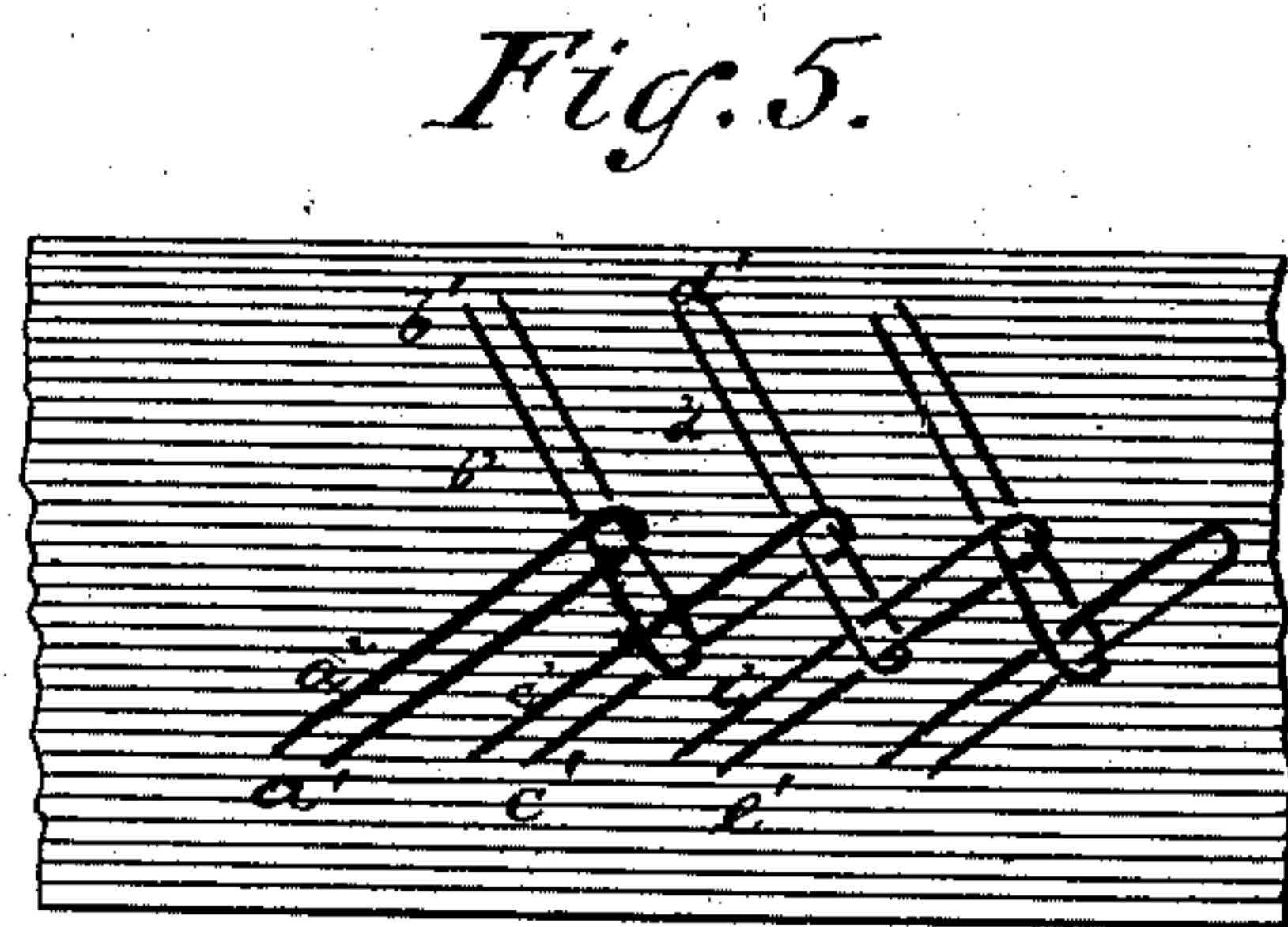
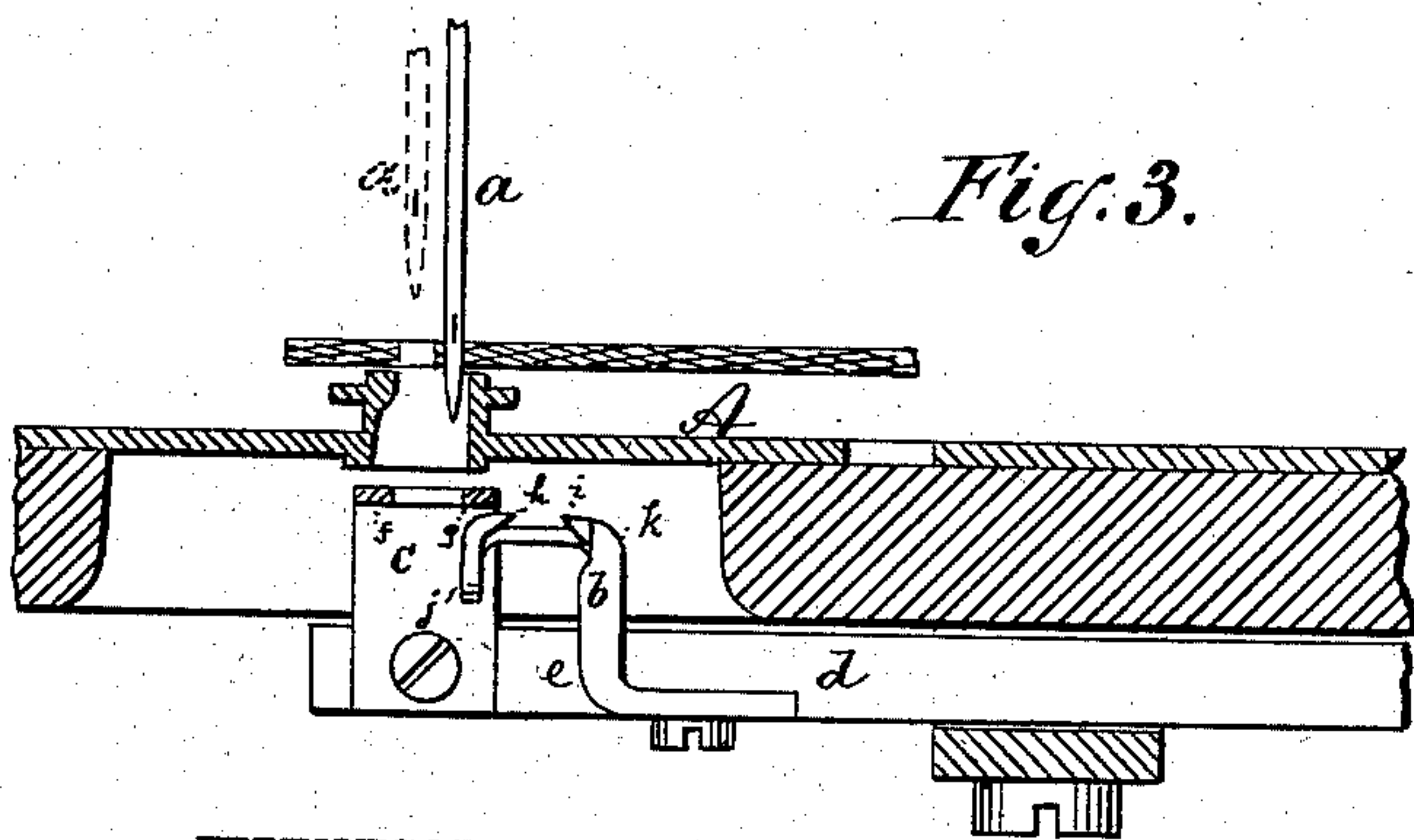
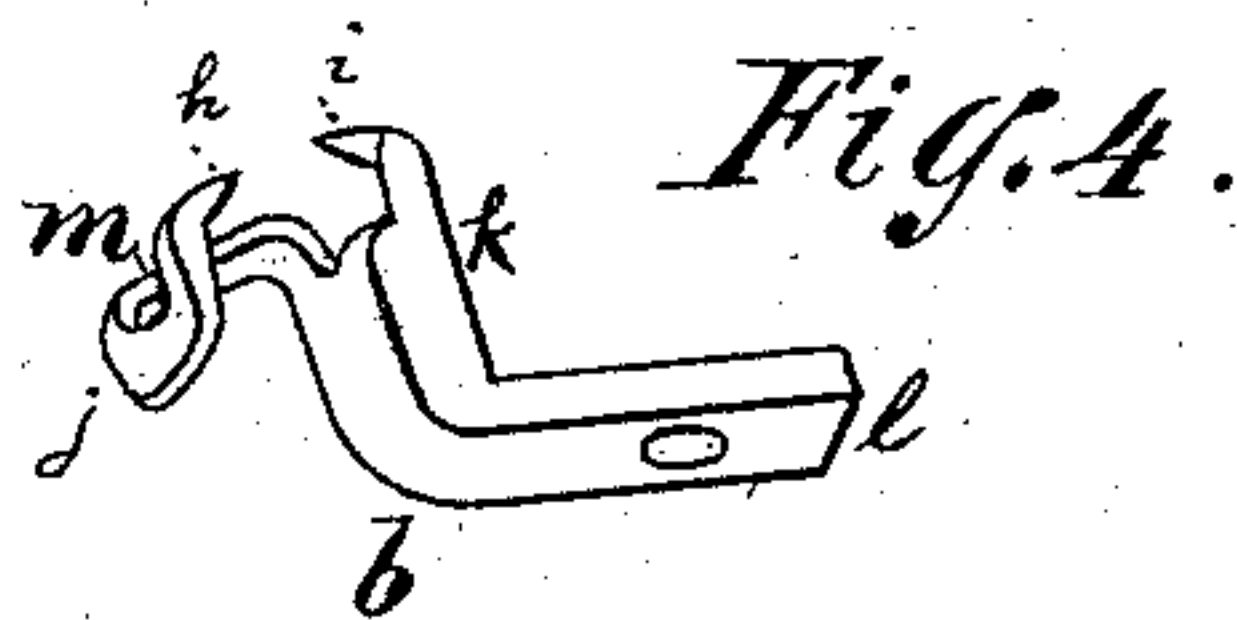
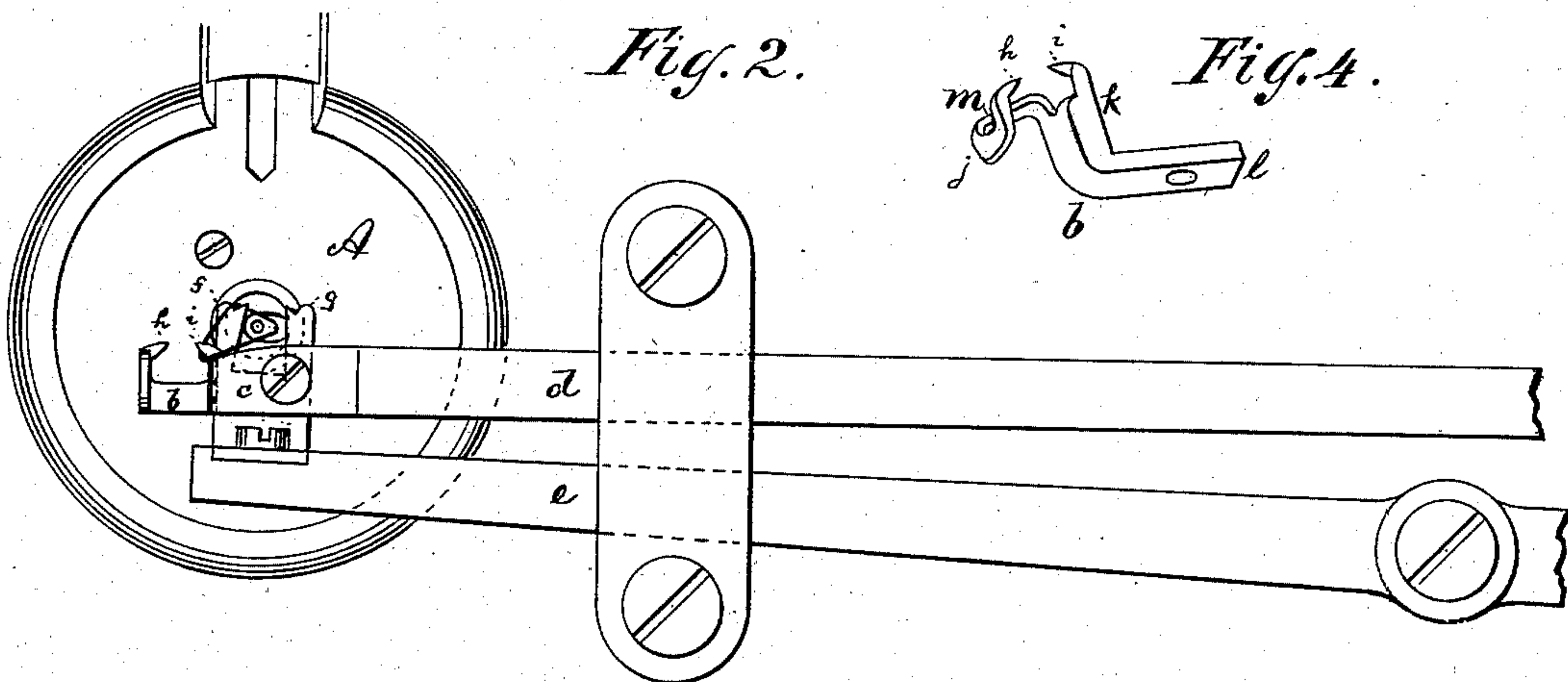
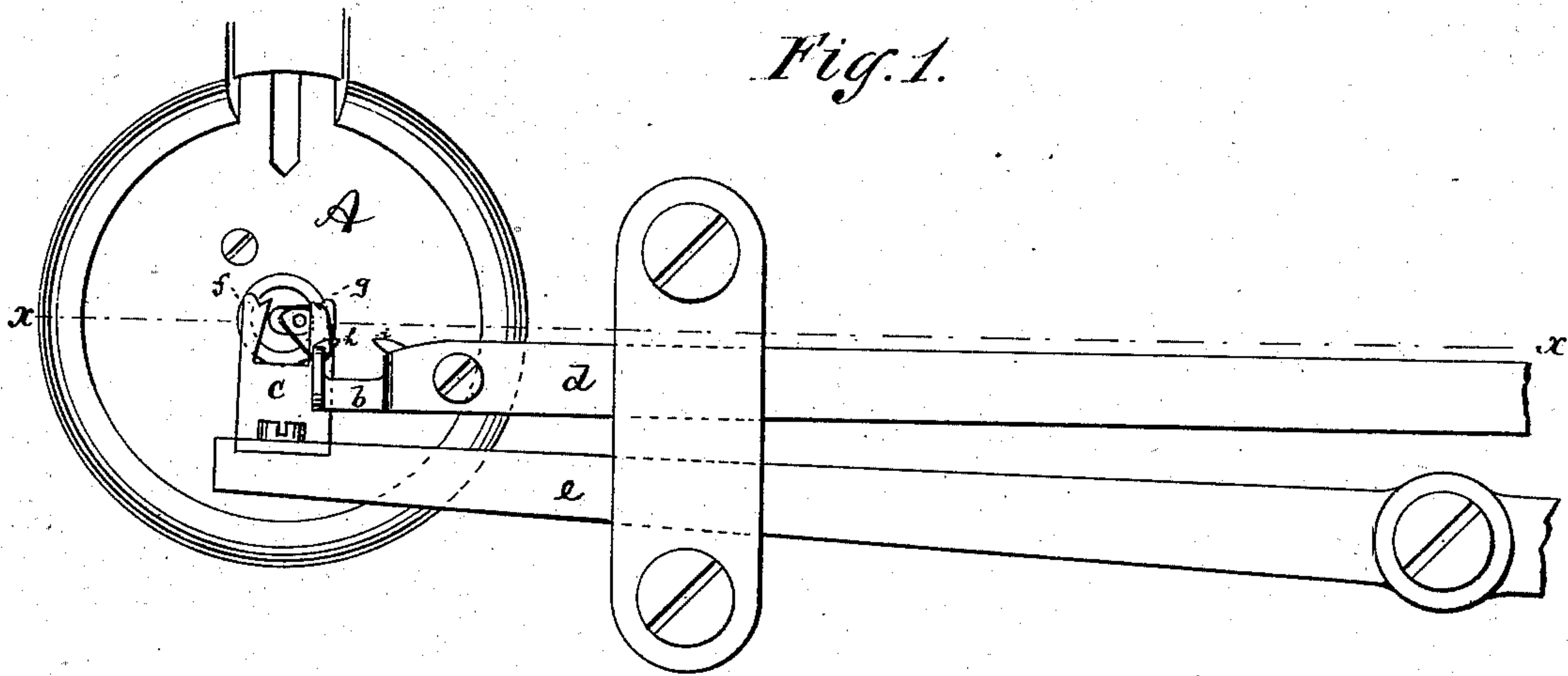
(No Model.)

F. E. SCHMIDT.

LOOPER FOR BUTTON HOLE SEWING MACHINE.

No. 255,034.

Patented Mar. 14, 1882.



WITNESSES:

*Marine Leysa*  
*Jo. J. McGinley*

INVENTOR

*Friedrich E. Schmidt*

BY

*Frank P. Briesen*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

FRIEDRICH E. SCHMIDT, OF BROOKLYN, NEW YORK.

## LOOPER FOR BUTTON-HOLE SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 255,034, dated March 14, 1882.

Application filed December 16, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, FRIEDRICH E. SCHMIDT, of the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Button-Hole Sewing-Machines, of which the following specification is a full, clear, and exact description.

This invention relates to an improvement in the looper of a button-hole sewing-machine, and has for its object to so construct a looper in a machine sewing with but a single thread that at each lateral motion the looper will enter into and carry the loop of the needle-thread beneath the needle at its next descent. In this way a button-hole sewing-machine as now generally made and sewing with two threads may be converted into a one-thread machine by simply removing the old looper and replacing it by my looper, the other parts of the machine remaining unchanged.

The invention consists in a U-shaped looper for button-hole sewing-machines having two hooks opposite one another, the whole being so constructed that one half of the looper is a substantial duplicate of the other half, all as hereinafter more fully pointed out.

The invention also consists in the details of construction hereinafter described.

In the accompanying drawings, Figure 1 is a bottom view of part of a feed-plate of a button-hole sewing-machine, showing the looper and spreader with their levers. Fig. 2 is a similar view, showing the looper in a different position. Fig. 3 is a vertical longitudinal section on the line *x x*, Fig. 1. Fig. 4 is a perspective view of the looper, and Fig. 5 a diagram showing the stitch.

Similar letters of reference indicate corresponding parts in all the figures.

The letter A represents the feed-plate of a button-hole sewing-machine. *a* is the needle, *b* the looper, and *c* the spreader or loop-carrier. These parts move in manner well known in button-hole sewing-machines—that is to say, the feed-wheel A is revolved by suitable mechanism alternately fast and slow, and guides the clamp which holds the cloth, exposing the same to the needle. The needle *a* has two motions—to wit, the up-and-down motion and a lateral motion—so as to descend alternately

through the edge and the slit of the button-hole.

The looper *b*, the construction of which will be hereinafter more fully described, is connected to a lever, *d*, from which it receives reciprocating motion, moving alternately from right to left and from left to right of the operator. The spreader *c* has also a reciprocating motion imparted to it by its lever *e* moving alternately toward and away from the operator. The spreader is, as customary, divided into two parts or prongs, *f g*, by a slot of sufficient width to allow the needle to pass between them, notwithstanding its lateral vibration. Each of the prongs is provided with a slight indentation in its upper edge. The needle-looper and spreader operate in proper relation one to the other.

The looper *b*, Fig. 4, is U-shaped, being composed of two shanks, *j k*, connected by an arm, *m*. The shank *k* is provided with an extension, *l*, for attachment to the lever *d*. The arm *m* is made narrower than either of the shanks *j k*. Said shanks are provided with hooks *h i*, which face each other, as shown. The shanks are slotted between the hooks and arm *m* to receive the thread.

The points of the hooks *h* and *i* should be of about the same length and in line with one another, so that one shank, *k*, of the looper, with its hook, is a substantial duplicate of the second shank, *j*, and its hook. In this way one half of the looper will operate precisely like the other half.

The length of the looper should be such in proportion to the width of the spreader that during the reciprocating motion of the looper the hook *i* stops in line with prong *f* and the hook *h* in line with prong *g*—in other words, the distance between the two bends of the hooks *h i* should be greater than the distance between the prongs *f g* and less than the width of the spreader.

The operation of the machine is such that the loop formed when the needle passes through the edge of the button-hole (full lines, Fig. 3) is entered into by hook *i* and placed on prong *f*. This loop is entered into when the needle passes through the slit of the button-hole, (dotted lines, Fig. 3,) and a new loop is formed beneath

the first loop. The second loop is by hook *h* placed on prong *g*. The third loop is formed like the first loop, &c.

It is evident that the form of the looper may be varied to a certain extent and still embody my invention. Thus, in place of being made to reciprocate, it may be made to oscillate, and instead of being bent at right angles the arm *m* may be curved.

Fig. 5 is a diagram of the stitch. At *a' b' c' d' e'* the needle enters the cloth, forming loops *a<sup>2</sup> b<sup>2</sup> c<sup>2</sup> d<sup>2</sup> e<sup>2</sup>*, in manner indicated.

I claim as my invention—

1. The U-shaped looper *b* for a button-hole sewing-machine, having hooks *h i* opposite one another, the whole being so constructed that one half of the looper is a substantial duplicate of the other half, substantially as and for the purpose specified.

2. The looper *b* for a button-hole sewing-machine, composed of the parts *j m k* and hooks *h i*, the arm *m* being narrower than the shanks *j* and *k*, and the shanks being both slotted, substantially as specified.

3. In a button-hole sewing-machine, the combination of a looper, *b*, made of two equal halves and having hooks *h i*, with the spreader *c*, having prongs *f g*, all being so constructed that the distance between the two bends of the hooks *h i* is greater than the distance between the prongs *f g*, and less than the width of the entire spreader, substantially as specified.

FRIEDRICH E. SCHMIDT.

Witnesses:

F. V. BRIESEN,

JOS. J. MCGINLEY.