

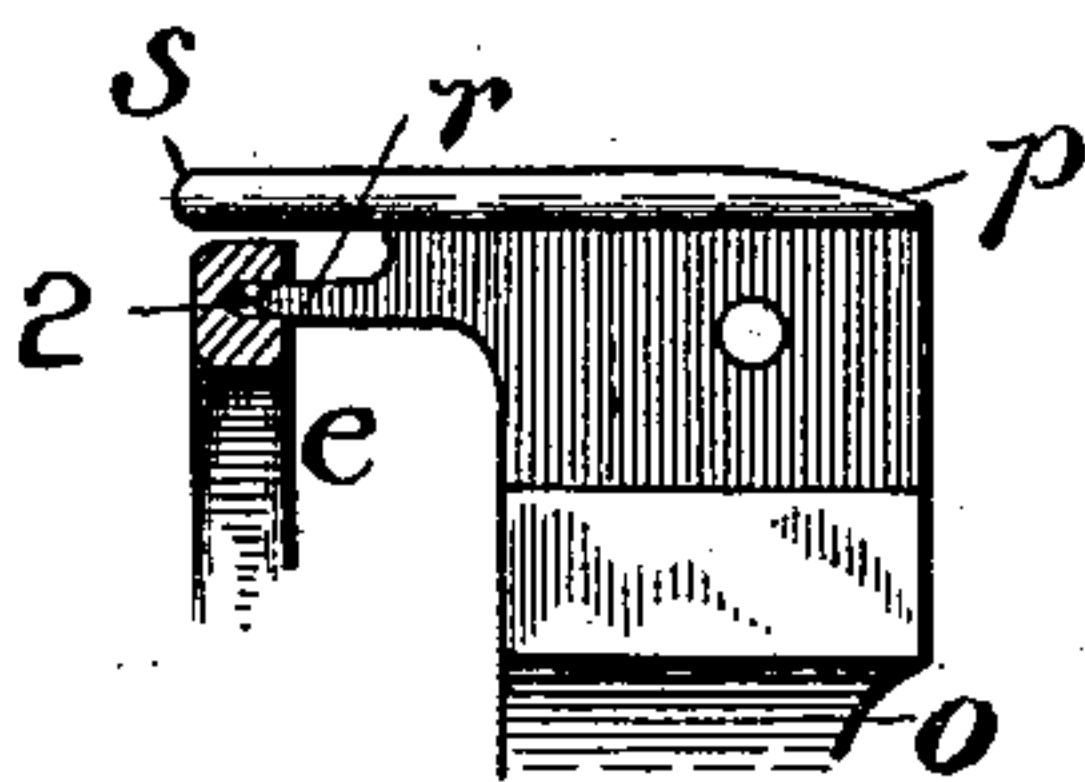
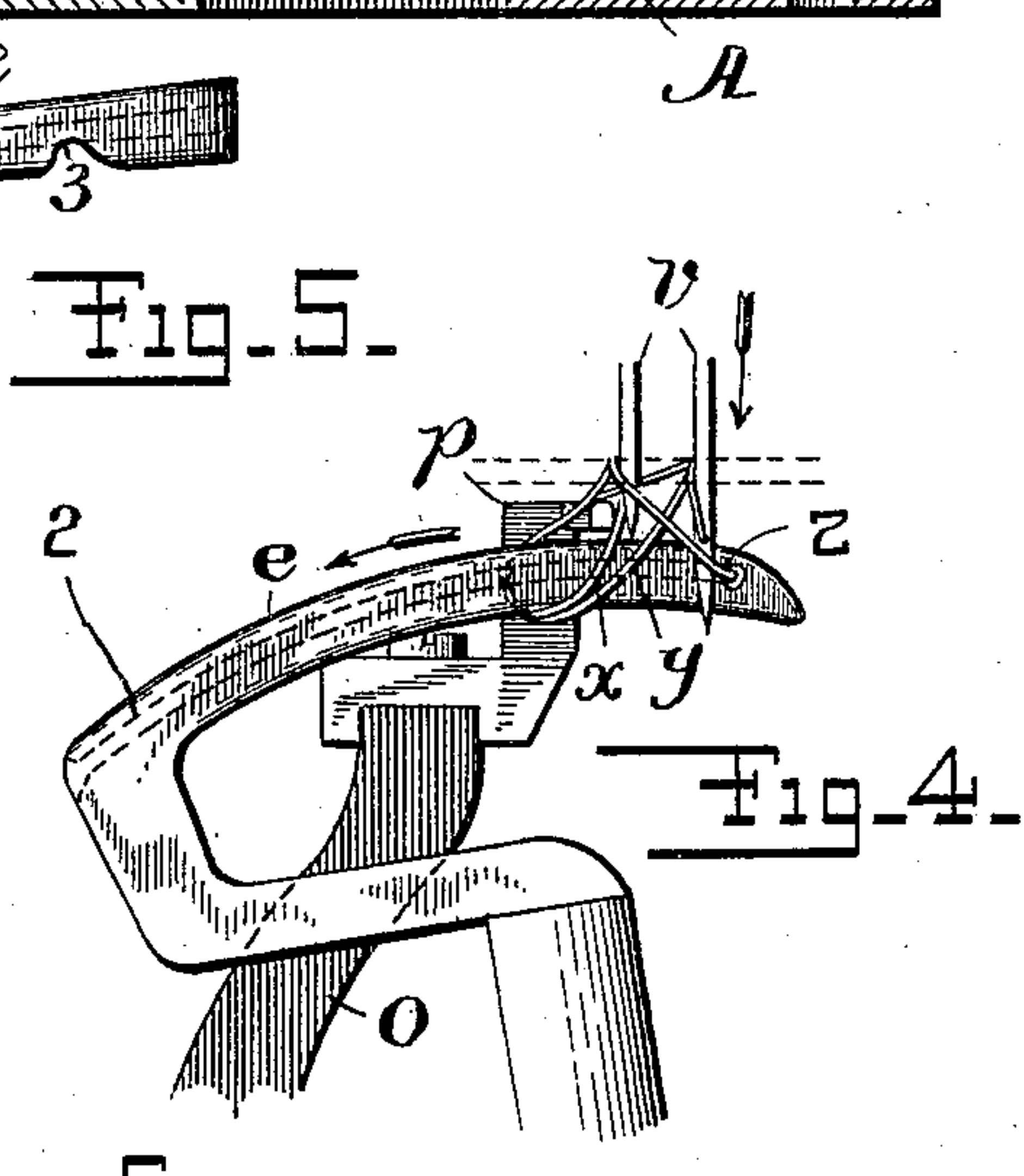
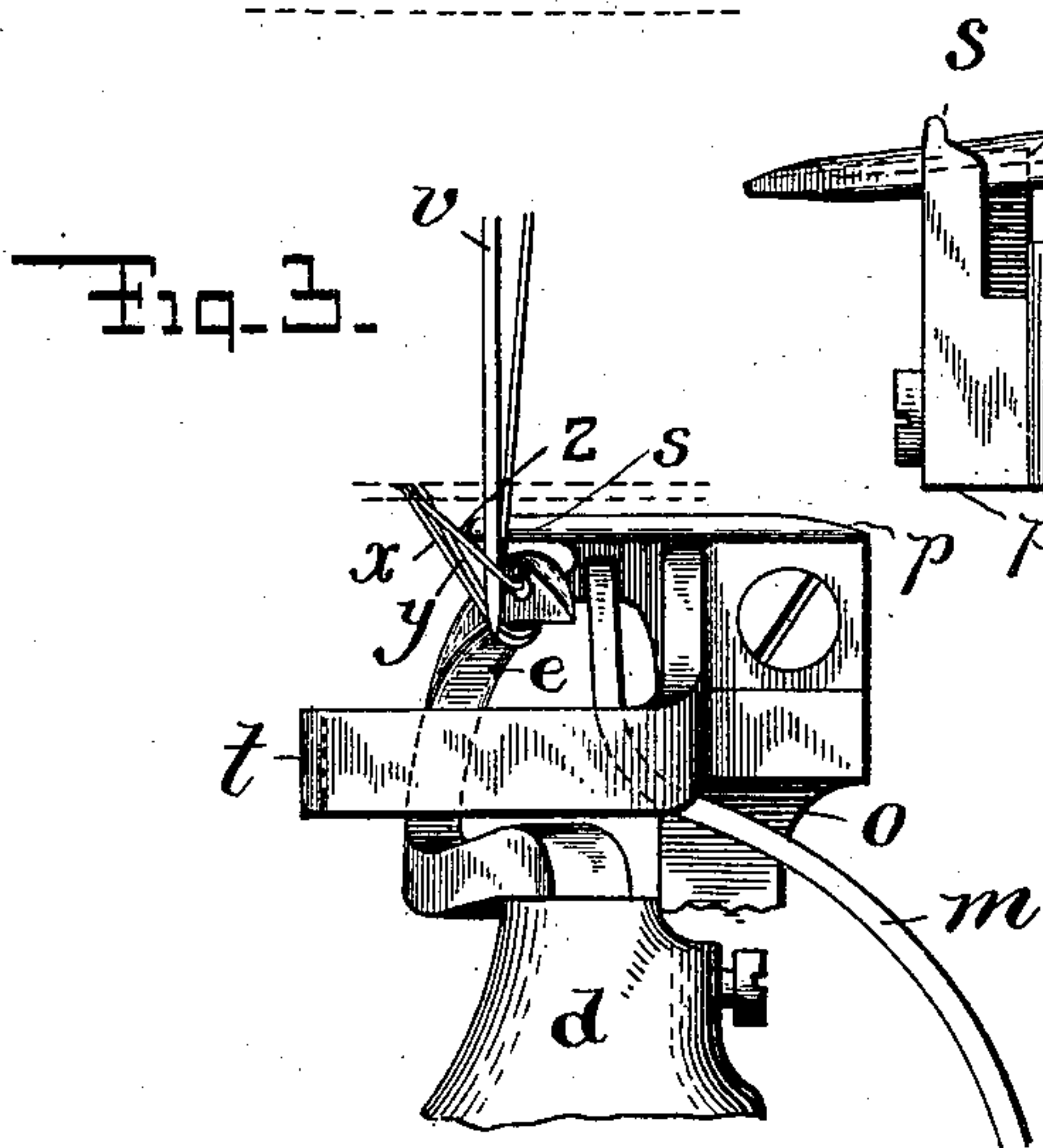
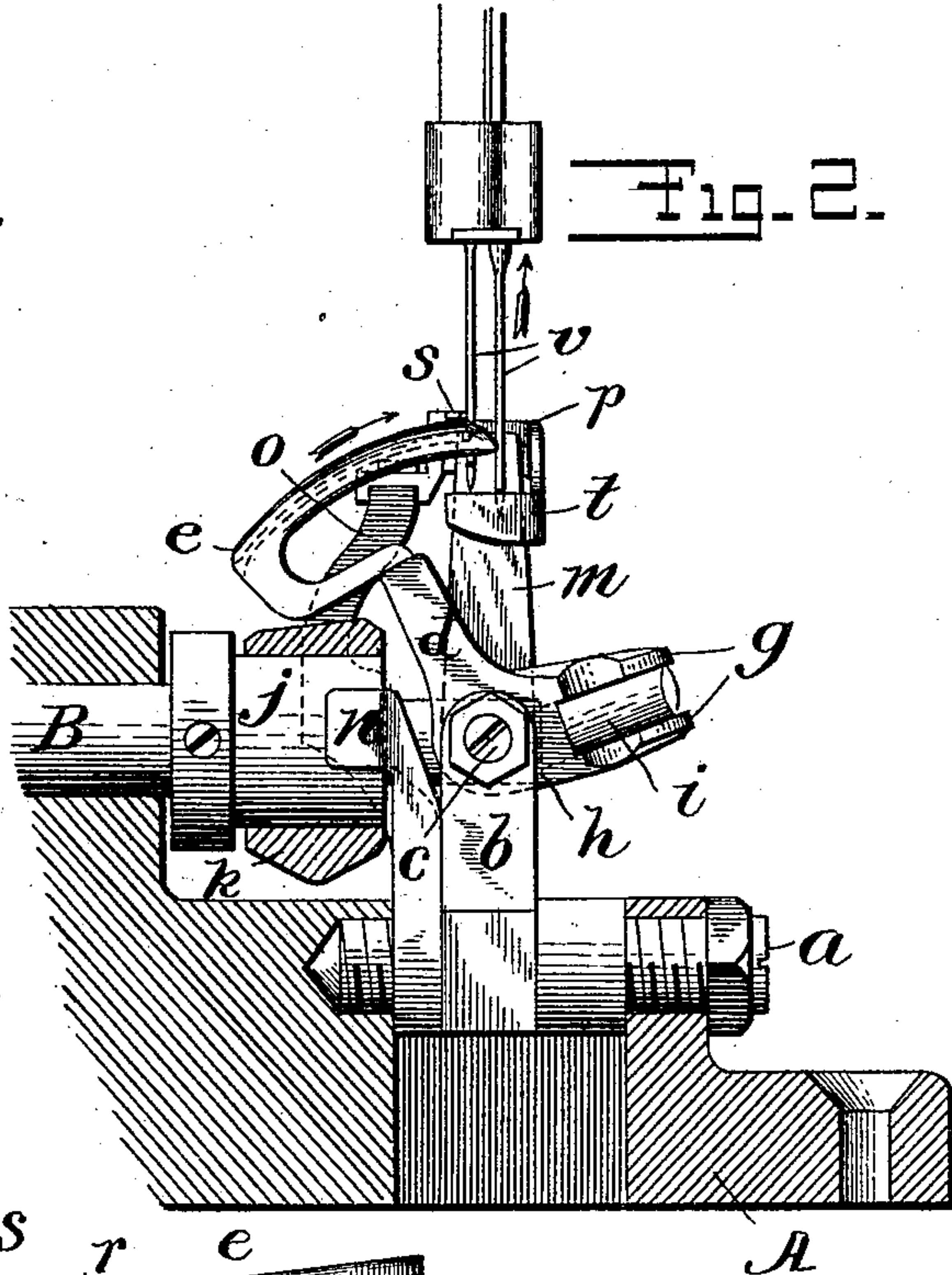
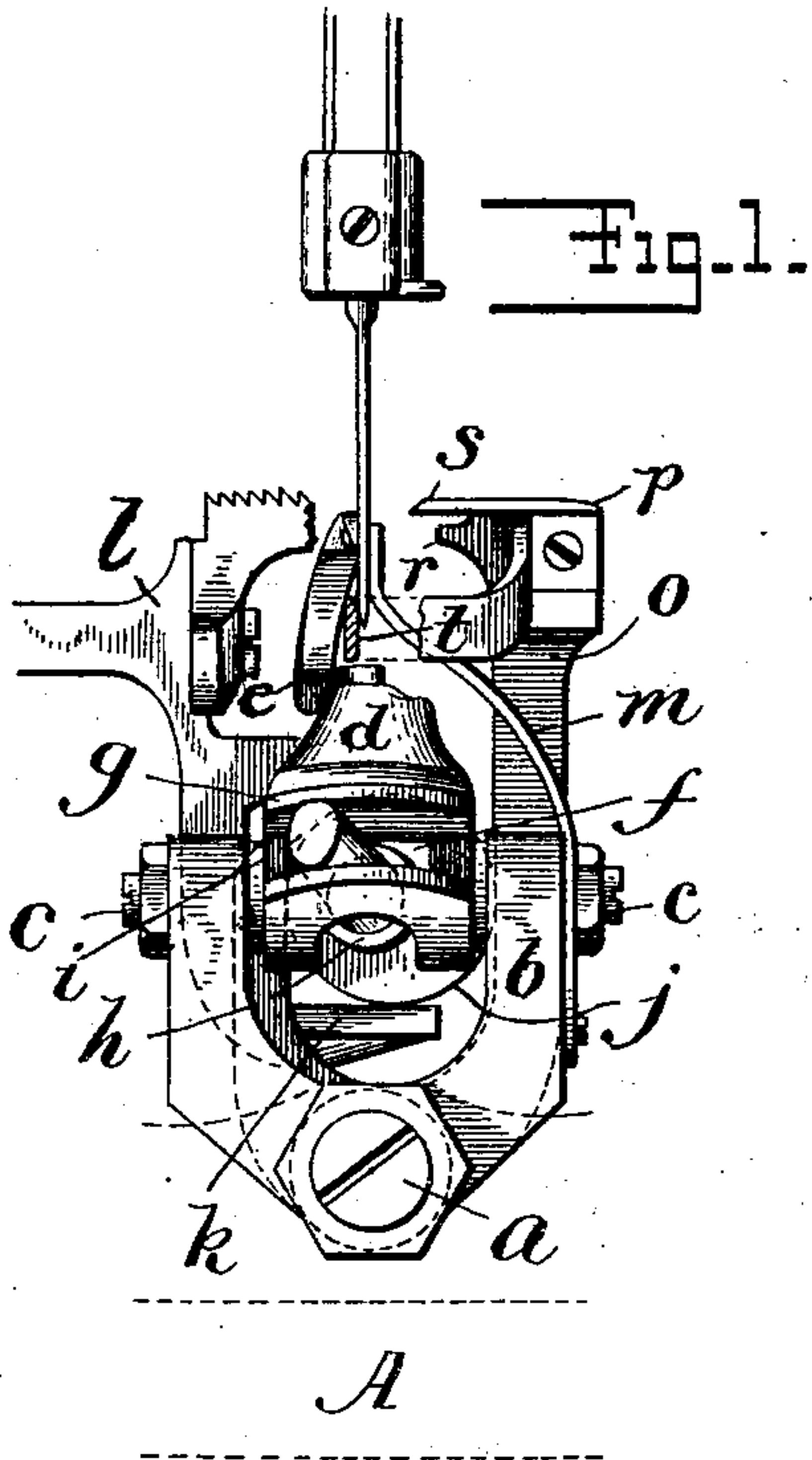
No. 712,852.

Patented Nov. 4, 1902.

A. RONTKE.  
DOUBLE CHAIN STITCH SEWING MACHINE.

(Application filed Nov. 28, 1901.)

(No Model.)



Witnesses:  
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# UNITED STATES PATENT OFFICE.

ALBERT RONTKE, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

## DOUBLE-CHAIN-STITCH SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 712,852, dated November 4, 1902.

Application filed November 26, 1901. Serial No. 83,768. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT RONTKE, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Double-Chain-Stitch Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention has for its object to provide a simple and effective device for holding aside the needle-thread loops retained upon the looper during the descent of the needles for the succeeding needle-thread-loop-seizing operations in that class of chain-stitch machines comprising one or more eye-pointed needles and a cooperating reciprocating looper or loopers. In my United States Patent No. 568,702, issued September 29, 1896, 20 such a device was shown in a cylinder-bed sewing-machine having a rotary main shaft and a feed-actuating rock-shaft journaled within the work-supporting arm; and it is the purpose of the present invention, among others, to provide a reciprocating needle-loop detainer adapted to a flat-bed machine of another well-known type, wherein the feed-actuating rock-shaft is replaced by other feed-actuating means.

30 The invention consists, primarily, in a needle-loop detainer mounted upon a carrier independent of the feeding device, but actuated by the feed-lifting device. It further consists in a particular form of loop-detainer and in certain details of construction and arrangement of its actuating means in relation to other operative parts of the sewing-machine.

40 The invention will be understood by reference to the drawings annexed, in which the present improvement is shown embodied in the two-needle machine forming the subject of my patent application, Serial No. 83,769, filed simultaneously herewith, in which—

45 Figure 1 is a front elevation of the stitch-forming and feeding members of the machine, showing the looper as about taking the needle-thread loops from the needles; and Fig. 2 is an elevation of the same viewed from the rear side of the machine with the feed-bar omitted to expose the parts behind the same. 50 Figs. 3 and 4 are similar views, upon a larger

scale, showing the stitch-forming members in the positions they assume when the needles descend through the looper-loops and indicating the position of the needle-threads of the previous stitch upon the looper. Figs. 5 and 6 are respectively a plan and sectional elevation of the looper and loop-detainer when in their cooperative positions.

A is the bed of the machine, having a supporting stud or pin *a*, upon which is mounted the rocking yoke *b*, having bearing-centers *c*, upon which is pivoted the looper-carrier *d*, sustaining the thread-carrying looper *e* and having an opening *f* and projecting lips or flanges *g* to embrace, respectively, the cam or eccentric *h* and inclined crank-pin *i* upon the outer end portion of the rotary main or driving shaft B for giving the usual lateral and endwise movement to the looper *e*. The main shaft is also provided adjacent to the cam *h* with a feed-lifting cam or eccentric *j*, embraced by a forked arm *k* of the feed-bar *l*, supported by the usual rocker, deriving its lateral movements from a cam or eccentric upon the main shaft, but not herein shown, as it forms no part of the present invention.

The looper-supporting yoke is provided with the spring-arm *m*, the upper portion or head of which constitutes a combined needle-guide and loop-forming device, serving to maintain the needles close to the path of the looper in the latter's loop-seizing movements and insuring the formation of the needle-thread loops upon the proper side of the needles.

Mounted upon the pivotal pin or stud *a* adjacent to the looper-supporting yoke *b* is the detainer-yoke, having its arms *n* and *o* embracing the feed-lifting cam or eccentric *j*, the longer of which arms extends upwardly and carries the detainer *p*, having a lateral projecting finger *r*, adapted to enter the longitudinal thread-groove 2 in the looper *e*, and a second finger *s*, disposed above and somewhat forward of the latter and arranged to project over the top of the looper. The timing of the cams or eccentrics *j* and *h* is such that the detainer approaches the looper as the latter receives, when in its retracted position lateral movements in the direction of the detainer, and the body of the looper is



so inclined to the direction of its loop-seizing movement that the point of the finger *r* will remain in the groove 2 throughout nearly the entire forward movement of the looper. The  
 5 vibrating arm *o* is further provided with a laterally-projecting member providing a needle-guard *t* to prevent the springing of the needles into the looper-path, and thereby insure against the breaking of the needles by  
 10 the interference thus occasioned.

In the operation of the machine the needles *v* descend through the looper-loop, and the thread-guide *m* and guard *t* close in upon the same, the former above and the latter below the eyes, to enable them to throw out their  
 15 respective loops for the looper. The looper advances successively through the needle-thread loops *x* and *y* as the needles commence to rise, and when the looper is in its  
 20 forward position the loops of needle-thread are received in the lateral notch 3 in the heel of the looper. The latter then makes its lateral movements toward the detainer *p*, which simultaneously approaches the looper until  
 25 the detaining-finger *r* enters the groove 2 and the finger *s* projects above the looper in time to detain the needle-thread loops on the looper after they slip out of the notch 3, the detainer maintaining this relation with the looper until  
 30 nearly the end of its backward movement and just after the points of the needles have both descended below the top of the looper and have entered its loop, when the previously-formed needle-loops are released by  
 35 the recession of the looper and detainer and are permitted to be drawn up into the fabric. In other words, the detaining-fingers *r* and *s* hold the loops of needle-thread back out of the way of the descending needles until the  
 40 said needles have passed down past the looper, and said fingers thereby prevent said loops from being cast off from the looper as early as they might otherwise be cast off to the endangerment of being engaged by the  
 45 needles in such manner as to cause "skipped" stitches.

While the improvement is shown herein as embodied in a two-needle machine, it is obvious that it may be advantageously applied  
 50 to a machine employing one needle or more than two. It is also immaterial what particular form of carrier and actuating mechanism therefor be adopted or what is the precise character of movement of the looper  
 55 with which the same coöperates, as the invention is not limited to such matters.

The fingers *r* and *s* are provided to engage the needle-thread loops at different points adjacent to the supporting-looper, so as to  
 60 prevent the binding of the thread-loops thereon during the retraction of the looper and to positively insure the holding back of such loops from the needle-paths until the needles have descended below the level of  
 65 the looper. The finger *s* also serves additionally as a spreader for deflecting the needle-thread loops beyond the needle-paths,

the threads lying in the notch formed therein to receive them.

Having thus set forth the nature of the invention, what I claim herein is— 70

1. In a sewing-machine, the combination with stitch-forming mechanism comprising a rocking or reciprocating looper and a thread-carrying needle or needles, and a feeding device including a feed-lifting cam or eccentric, of a thread-detainer coöperating with said  
 75 looper and mounted independently of said feeding device to move transversely of said looper, and means, actuated by said feed-lifting cam or eccentric, for moving said thread-detainer toward said looper when the latter is in a retracted position and away from said  
 80 looper when the latter is moving forward.

2. In a sewing-machine, the combination 85 with stitch-forming mechanism comprising a rocking or reciprocating looper and a thread-carrying needle or needles, and a feeding device including a feed-lifting cam or eccentric, of a thread-detainer, and a carrier for the same  
 90 pivoted upon a fixed part of the machine to move transversely of the looper and having a portion embracing the said feed-lifting cam or eccentric, for rocking or vibrating the said thread-detainer in a single plane only. 95

3. In a sewing-machine, the combination with stitch-forming mechanism comprising a rocking or reciprocating looper having a lateral groove extending lengthwise thereof, and a thread-carrying needle or needles, of a  
 100 thread-detainer having a finger adapted to enter said groove in the looper, and means for reciprocating the same transversely of the looper.

4. In a sewing-machine, the combination 105 with stitch-forming mechanism comprising a rocking or reciprocating looper having a lateral groove extending lengthwise thereof, and a thread-carrying needle or needles, of a thread-detainer having one detaining-finger  
 110 adapted to enter the said groove in the looper and a second detaining and spreading finger adapted to be projected above the looper, and means for reciprocating said detainer transversely of the looper. 115

5. In a sewing-machine, the combination with stitch-forming mechanism comprising a rocking or reciprocating looper and a thread-carrying needle or needles, of a rocking carrier, a thread-detainer mounted upon said carrier and having a finger projecting toward said  
 120 looper, and a needle-guard also mounted upon said carrier and movable therewith toward and from the needle path or paths, and means for actuating said rocking carrier. 125

6. In a sewing-machine, the combination with stitch-forming mechanism comprising a rocking or reciprocating looper-carrier, a looper mounted upon said carrier and having a lateral groove extending lengthwise thereof, a thread-carrying needle or needles, and  
 130 means for giving said looper-carrier and looper movements both lengthwise and transversely of said looper, of a rocking carrier and



means for actuating it, and a loop-detainer  
mounted upon said rocking carrier and pro-  
vided with a loop-detaining finger adapted to  
enter the lateral groove in said looper, said  
5 looper being set in its carrier at an angle with  
the direction of its loop-taking movements,  
as and for the purpose set forth.

In testimony whereof I affix my signature  
in presence of two witnesses.

ALBERT RONTKE.

Witnesses:

HENRY J. MILLER,  
HENRY A. KORNEMANN.