

(No Model.)

2 Sheets—Sheet 1.

D. A. SUTHERLAND.

WELT GUIDE FOR SEWING MACHINES.

No. 282,798.

Patented Aug. 7, 1883.

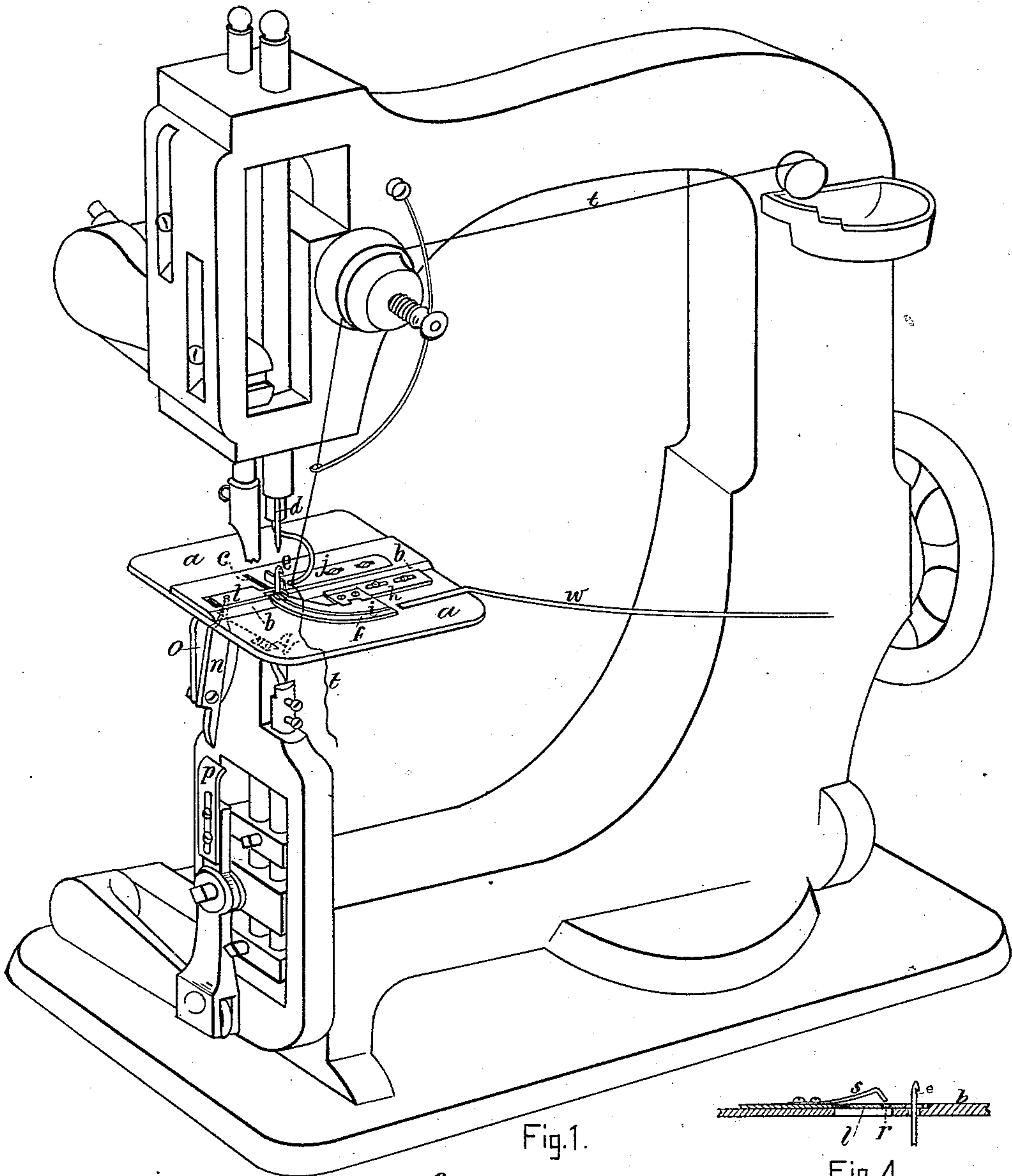


Fig. 1.

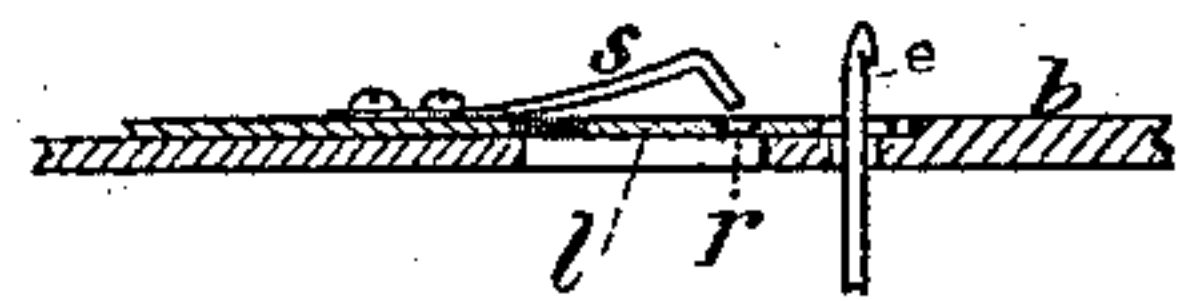


Fig. 4.

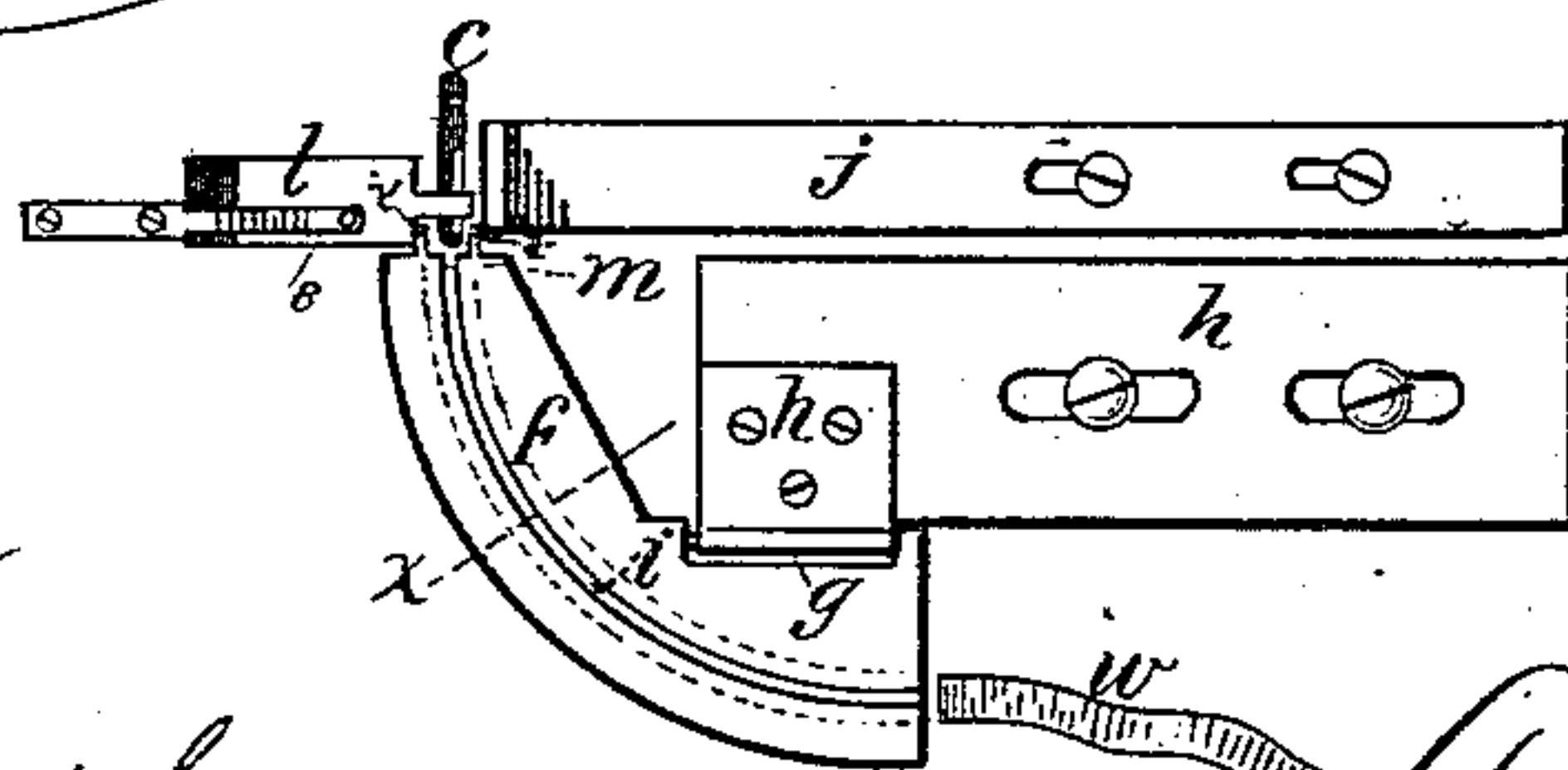


Fig. 2.

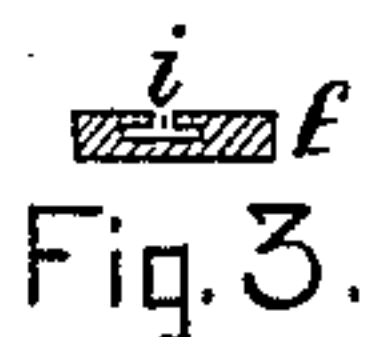


Fig. 3.

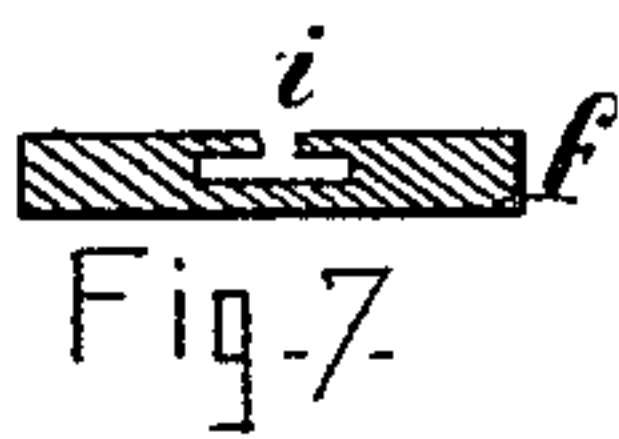
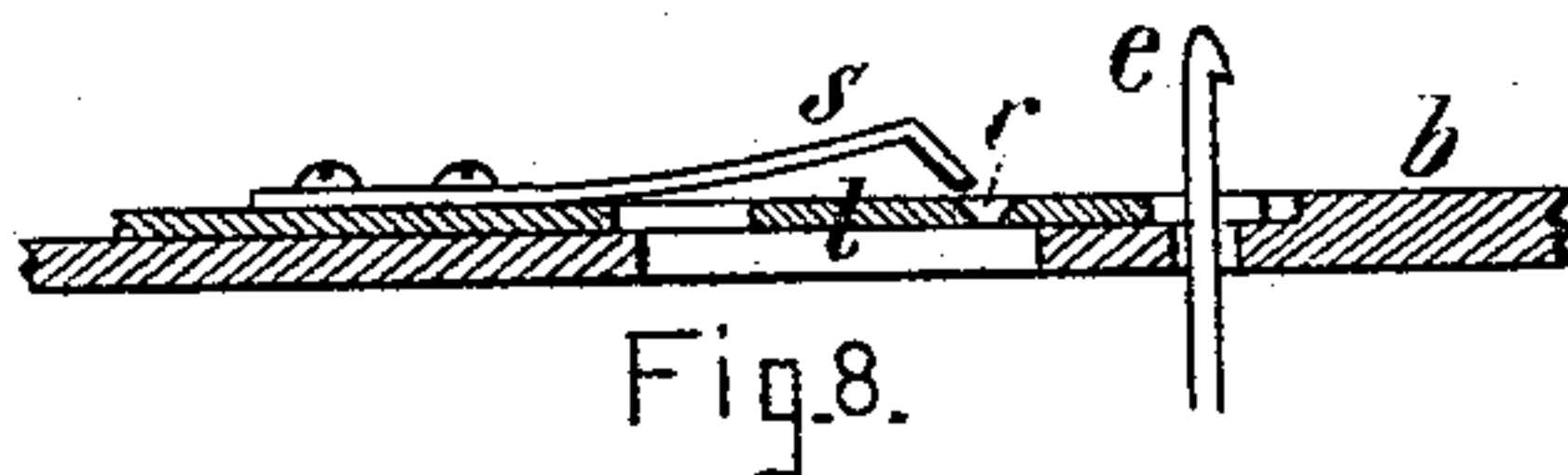
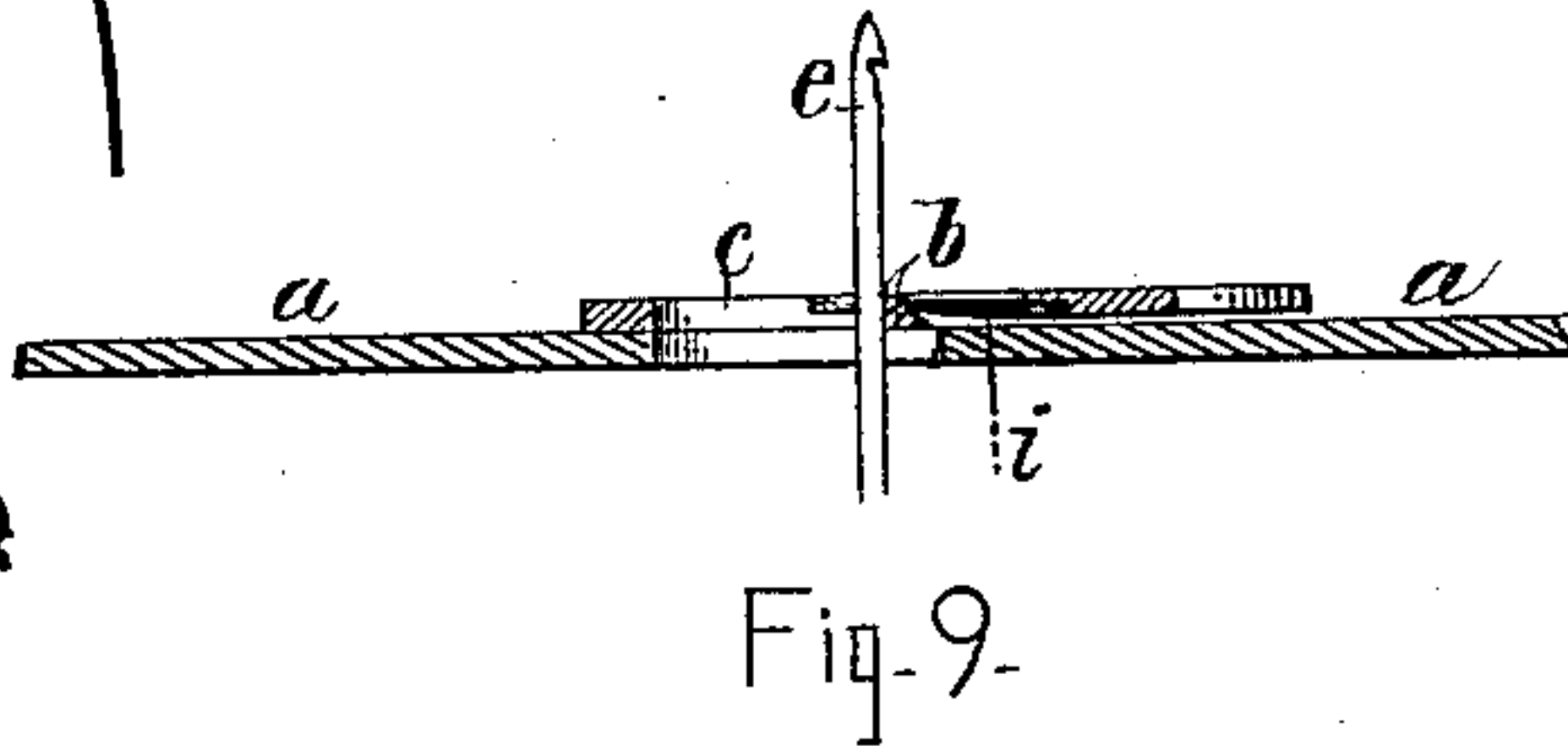
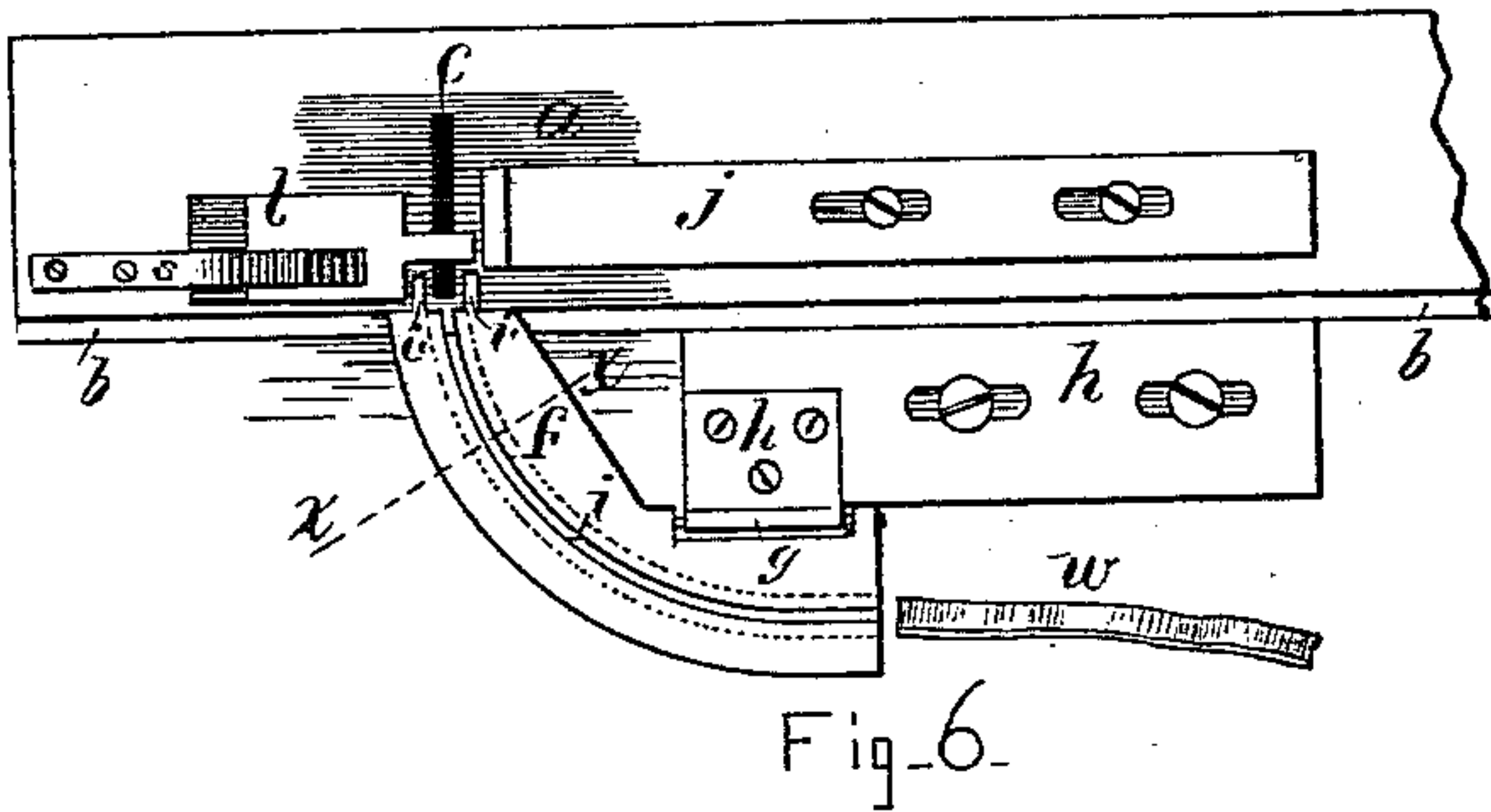
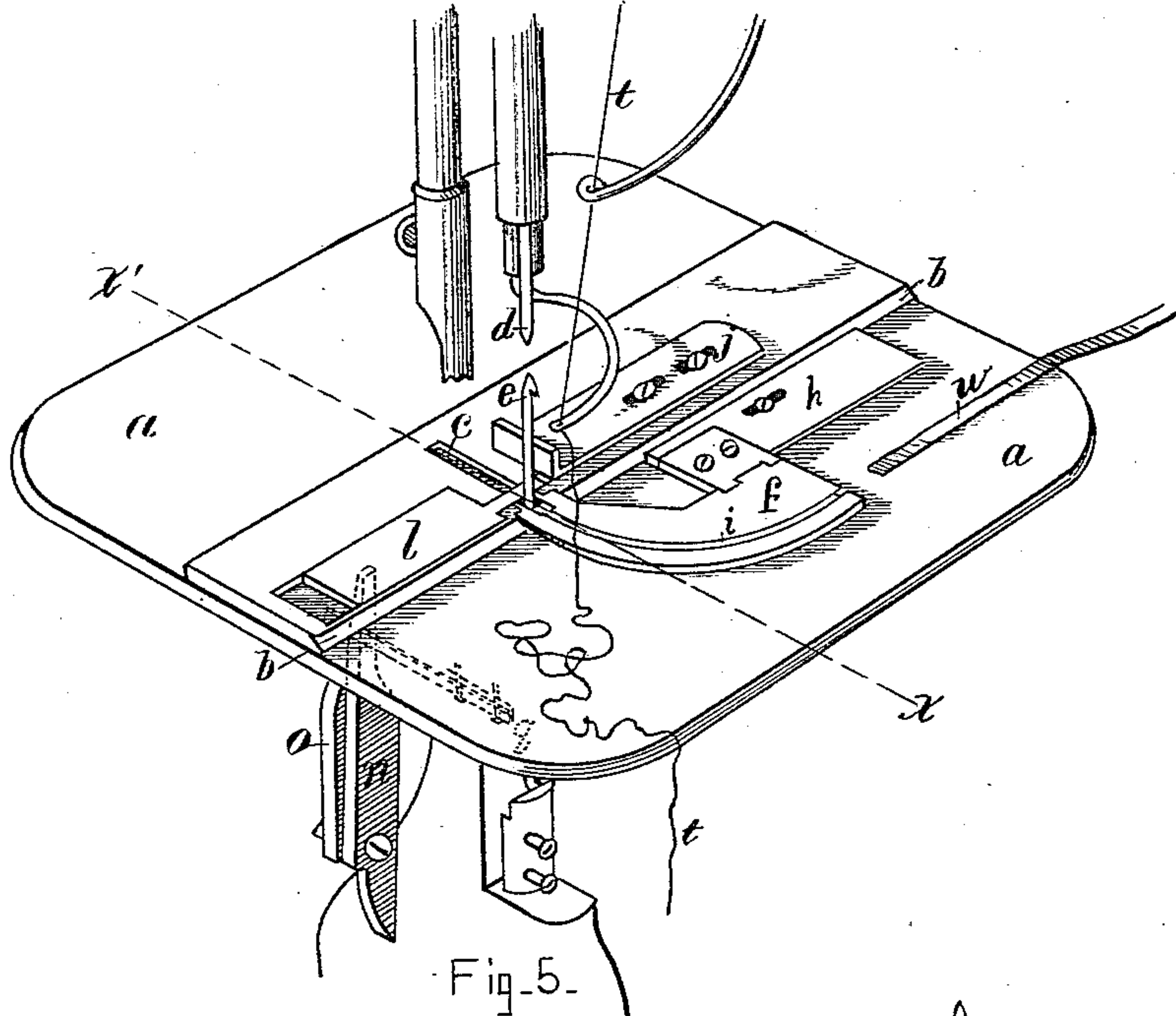
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Inventor:
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(No Model.)

2 Sheets—Sheet 2.

D. A. SUTHERLAND.
WELT GUIDE FOR SEWING MACHINES.
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Witnesses.
C. H. Keyes
H. E. Remick,

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UNITED STATES PATENT OFFICE.

DANIEL A. SUTHERLAND, OF LYNN, MASSACHUSETTS.

WELT-GUIDE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 282,798, dated August 7, 1883.

Application filed August 11, 1880. (No model.)

To all whom it may concern:

Be it known that I, DANIEL A. SUTHERLAND, of Lynn, Massachusetts, have invented certain Improvements in Mechanism for

5 Stitching Welts in the Seams of Boots and Shoes; and I do hereby declare that the following specification is a full, clear, and exact description thereof, and the accompanying drawings an illustration.

10 My improvements relate to the throat-plate and the welt-guide; and the object of my invention is to facilitate the insertion of a welt-strip between the two pieces of stock united by the seam in a boot-leg or similar article.

15 An essential feature of novelty in this improvement is the beveling of the throat-plate backward from the needle-hole toward the operator, so that as the stitching proceeds the welt advances through the welt-guide and the

20 stock is fed forward, one piece above and one below the welt-guide, the lower piece rising and the upper piece descending until they reach the needle and receive the stitch at substantially the same angle to the horizon.

25 A form of welt-guide heretofore in use with a flat throat-plate consists of a hinged plate having between its upper and lower surfaces, which are artificially united, a curved channel for the passage of the welt-strip, and also

30 an edge-guide, both adjustable toward and from the plane of reciprocation of the needle.

A fatal difficulty with the flat throat-plate is that as the lower piece of leather passes straight or horizontally over the table, all the

35 yield under the presser-foot is on the part of the upper piece, which is bent by the presser-foot at each stitch abruptly downward over the edge of the welt-plate next to the foot, and is stitched while thus held on a bend by said

40 foot. The effect of thus stitching into a single seam a straight piece and a piece on a curve is to effect a permanent bend or pucker of the seam and stock thus united, and to disfigure and practically ruin the boot or shoe in

45 which it is incorporated. This obstacle is completely overcome by my invention. I have also devised means of preventing the welt-strip from being drawn down into the needle-slot during the intervals between the

50 passage of the successive pieces of leather con-

stituting the uppers upon which the machine operates, the welt-strip being continuous and the uppers applied thereto, following each other with intervals of an inch or so.

Figure 1 of the drawings is a perspective 55 view of a wax-thread sewing-machine to which my improvements are applied; Fig. 2, an enlarged plan of the welt-guide and attachments. Fig. 3 is a cross-section of the welt-guide at *x*, Fig. 2, and Fig. 4 a detail, 60 hereinafter explained. Figs. 5, 6, 7, and 8 are enlarged views of the devices shown in the other figures, and Fig. 9 is a vertical section of the throat-plate at *x' x'* in Fig. 5.

In the drawings, *a* is the table over which 65 the work passes; *b*, the beveled portion of the throat-plate secured thereto or formed integral therewith; and *c*, the needle-slot in the plate, through which the awl *d* passes downward to perforate the leather, and the needle *e* rises to 70 engage the thread *t*, and moves forward before descending to feed the leather forward, in preparation for another stitch.

The welt-guide *f* is a metallic plate hinged at *g* to an adjustable piece, *h*, secured to the 75 table in such position as to bring the mouth *m*, from which the welt emerges, opposite the slot *c* and just at the top of the bevel *b*. The welt-guide is formed from a quarter-segment of a circular disk, and the welt-channel *i* is 80 an arc of about ninety degrees of a circular groove cut into said disk and broadened beneath the surface, on each side, by a suitable cutting-tool, forming a channel open at the top, but only wide enough where broadened 85 below the top for the passage of the welt-strip *w*. A cross-section of the welt-guide at *x* is indicated in Fig. 3. From a circular disk grooved, as stated, and cut through the center into fourths, I am accustomed to form the 90 welt-plate *f*. A welt-guide of this kind is cheap, durable, and not liable to clog or catch the welt-strip, and it has the advantage that the strip enters from one side, where it is not disturbed by the manipulation of the stock en- 95 tering in the direct line of feed of the machine. This welt-plate has a limited movement on the hinge *g* sufficient to allow free passage of the lower piece of leather beneath the mouth *m*, which bears gently upon it un- 100

der the hand of the operator resting upon the upper piece of leather. Thus the two pieces of stock and the welt-strip between them pass together from the welt-guide onto the top of the beveled throat-plate *b*, and beneath the presser-foot, (not shown,) receiving the stitches at a distance from their edges regulated by an adjustable guard, *j*. The side walls, *i*, of the welt-channel extend forward to the needle-hole, so as to guide the welt-strip properly to the needle, whatever may be the width of the stock, which has for its guide the adjustable guard *j*. Thus the edges of the stock, touching the guard *j*, may uniformly project beyond the edge of the welt-strip guided to the needle by the side walls *i*, and as the under piece of leather rises, moving up the bevel surface of the plate *b* at the same time that the upper piece descends over the mouth *m* to pass beneath the presser-foot, each will have substantially the same bend, from opposite directions, at the stitching-point, and the seam formed will be straight or without pucker.

It is obvious the table *a* may be cut away, with a bevel or shoulder in front of the stitching-point, with the same effect as follows the raising of the bevel *b* on said table.

A difficulty has been experienced in the practical use of sewing mechanism for uniting welts to uppers, in that between the successive pairs of upper-leathers, where only the welt-strip is acted on, said strip would be punched by the awl and drawn by the needle and thread, and would tend to pass downward bodily into the slot *c*, thus clogging and interrupting the action of the machine. I obviate this difficulty by closing the slot *c* temporarily, except as to the needle-hole, by a spring-pressed piece, *l*, working in a slot of the throat-plate during the downward movements of the awl and needle. Now, since the needle must move laterally to effect the feed, I provide means for withdrawing the piece *l* at such time. The means illustrated consist in a lever, *n*, pivoted to a downwardly-projecting stud, *o*, located beneath the table *a*, which lever engages at its upper end with the sliding piece *l*, and at its lower end is beveled or wedge-shaped to receive the thrust of a finger, *p*, which rises and falls with the needle, retracting the piece *l* while the feed takes place, and permitting its immediate return under the influence of a spring, *q*, beneath the table *a*. It is obvious that other devices may be employed to alternately close and open the needle-slot *c* for the purpose stated.

There is no necessity for the operation of the slot-closing mechanism while the stock is being stitched, since its two thicknesses of leather, besides the welt, have sufficient stiffness not to be carried into the slot *c*. I therefore throw such mechanism out of engagement by any convenient means while the uppers are passing the needle, and instantly engage it when the welt-strip alone is being operated upon. Figs. 4 and 8 indicate one of my devices adapted to this end. I perforate the slide *l*, as at *r*, and secure to the table or throat-plate a light spring, *s*, terminating in an oblique arm, which may be pressed down into the perforation *r*, so as to draw back the slide *l* when the uppers are entered, depressing the spring, and hold said slide dormant until the uppers have entirely passed the needle. The spring *s* will then rise, releasing the slide, and the slot-closing mechanism will operate, as above described, with relation to the welt alone, until the next uppers are entered.

I claim as of my invention—

1. A yielding welt-guide, through which the welt-strip passes, while the stock passes above and below it, in combination with a sewing mechanism and a throat-plate beveled toward the mouth of the welt-guide, substantially as and for the purpose set forth.
2. The combination of a hinged welt-guide and a beveled throat-plate, substantially as and for the purpose set forth.
3. The combination of an adjustable welt-guide and edge-guide, with a beveled throat-plate, substantially as and for the purpose set forth.
4. The combination, with a welt-guide, of a movable slot-closing plate and suitable operative mechanism therefor, substantially as and for the purpose set forth.
5. The combination, with a welt-guide and a slot-closing plate, of apparatus for temporarily disengaging its operative mechanism, substantially as set forth, and for the purpose stated.
6. A welt-guide having the side walls of the welt-channel extended beyond the mouth thereof to the needle-hole, in combination with an adjustable guard for the edges of the stock, substantially as and for the purpose stated.

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