

No. 614,271.

Patented Nov. 15, 1898.

F. MALSCH.
FEEDING DEVICE FOR SEWING MACHINES.

(Application filed Nov. 26, 1897.)

(No Model.)

Fig. 1.

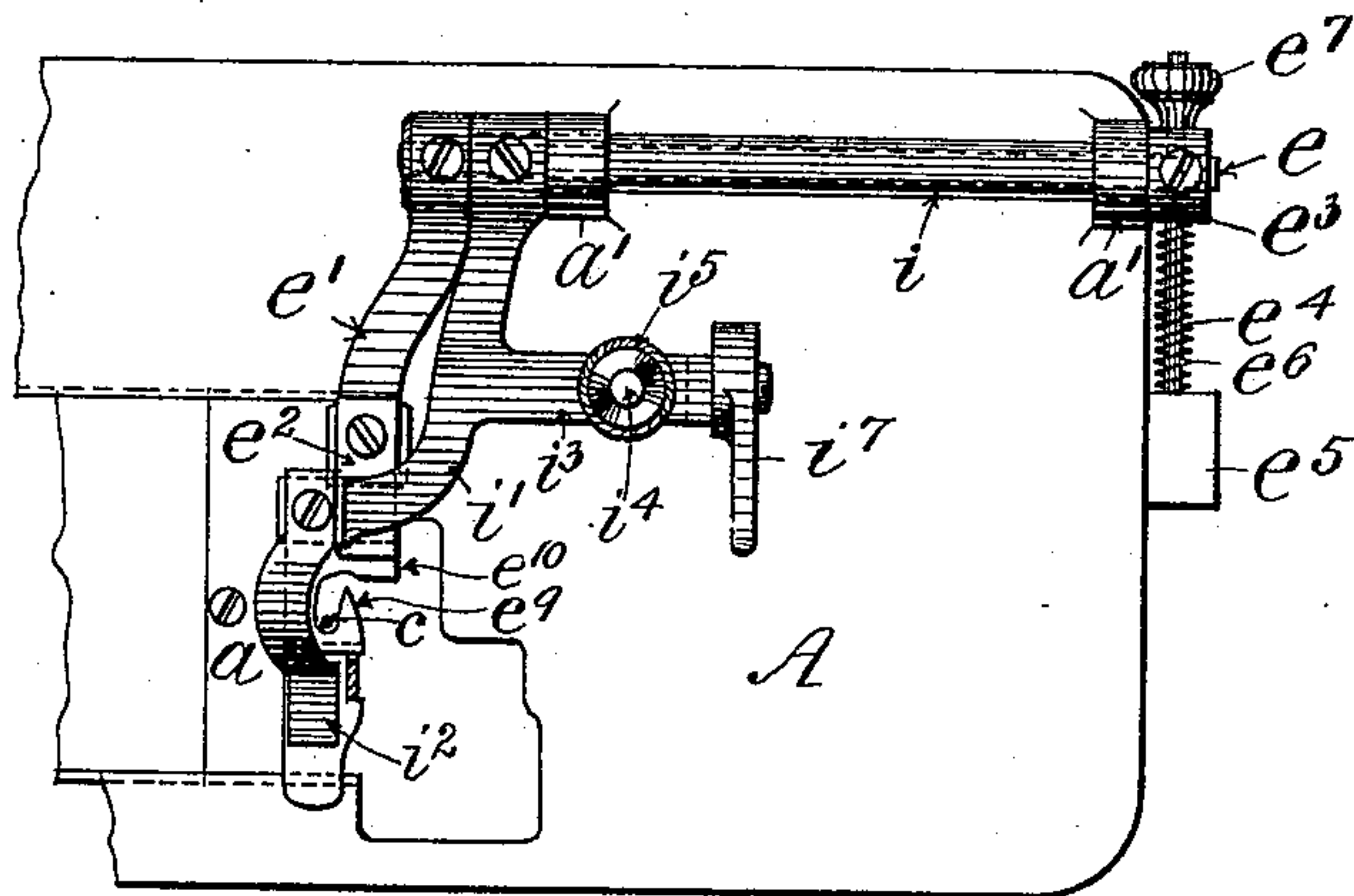


Fig. 2.

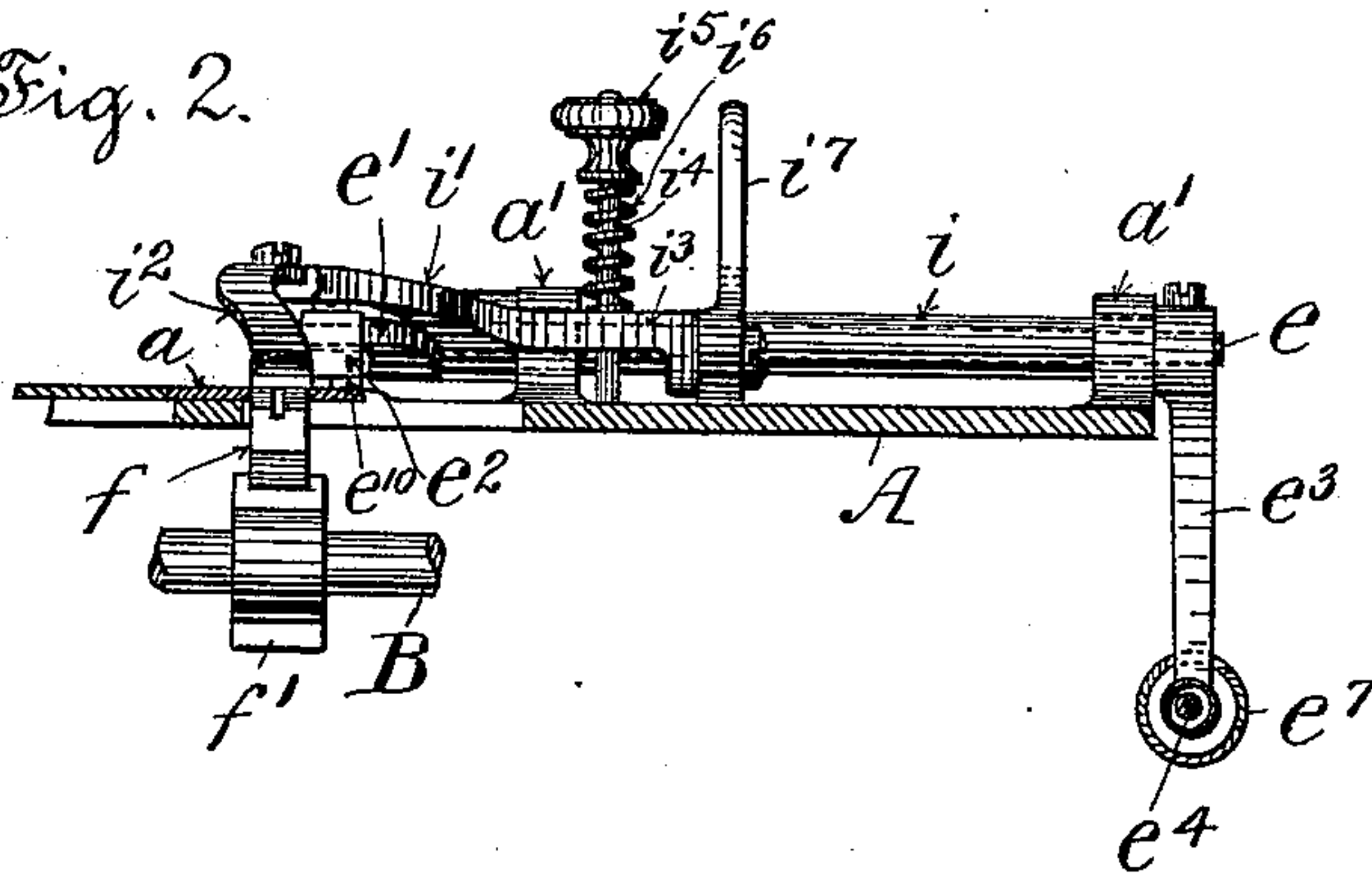


Fig. 4.

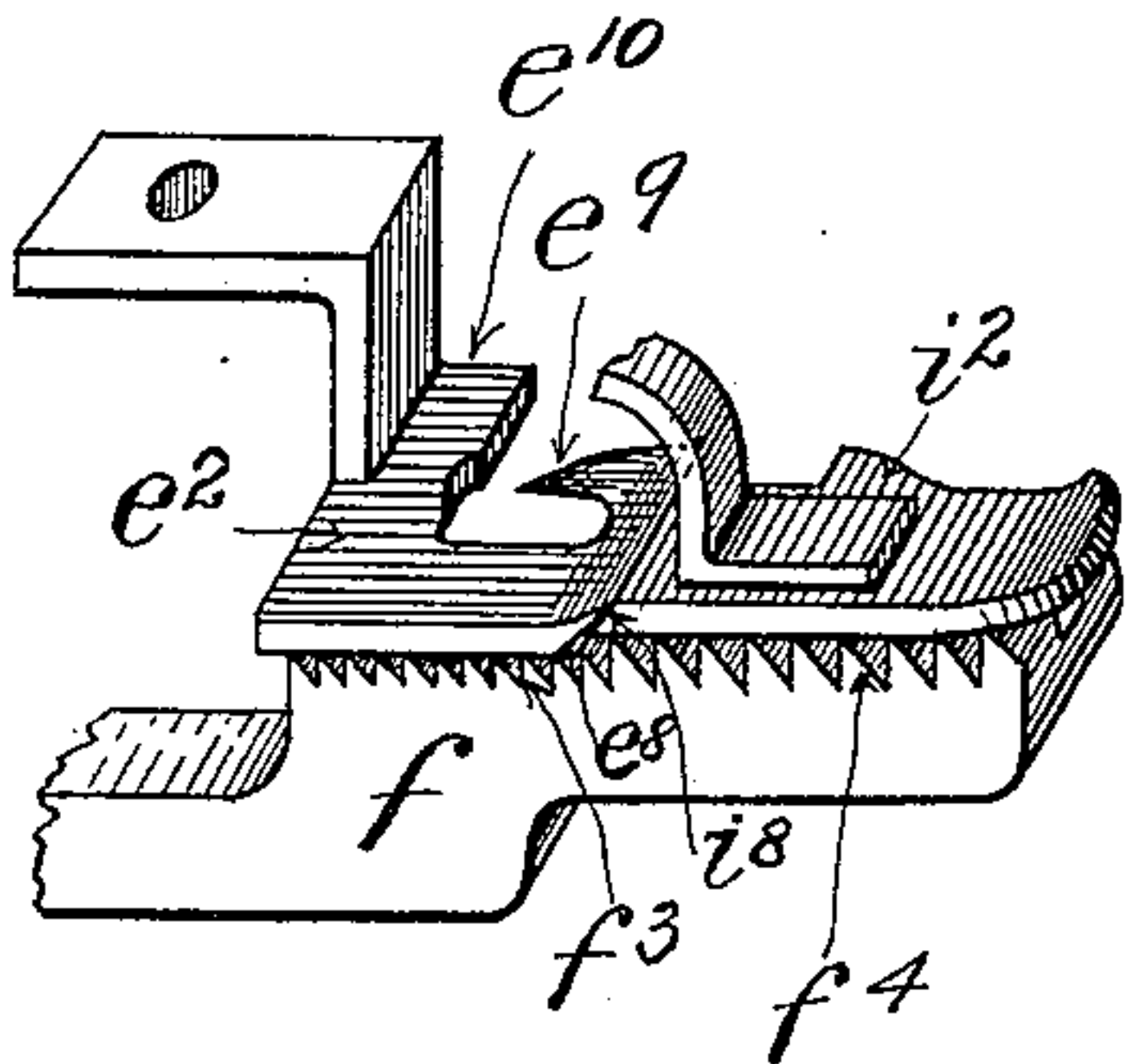
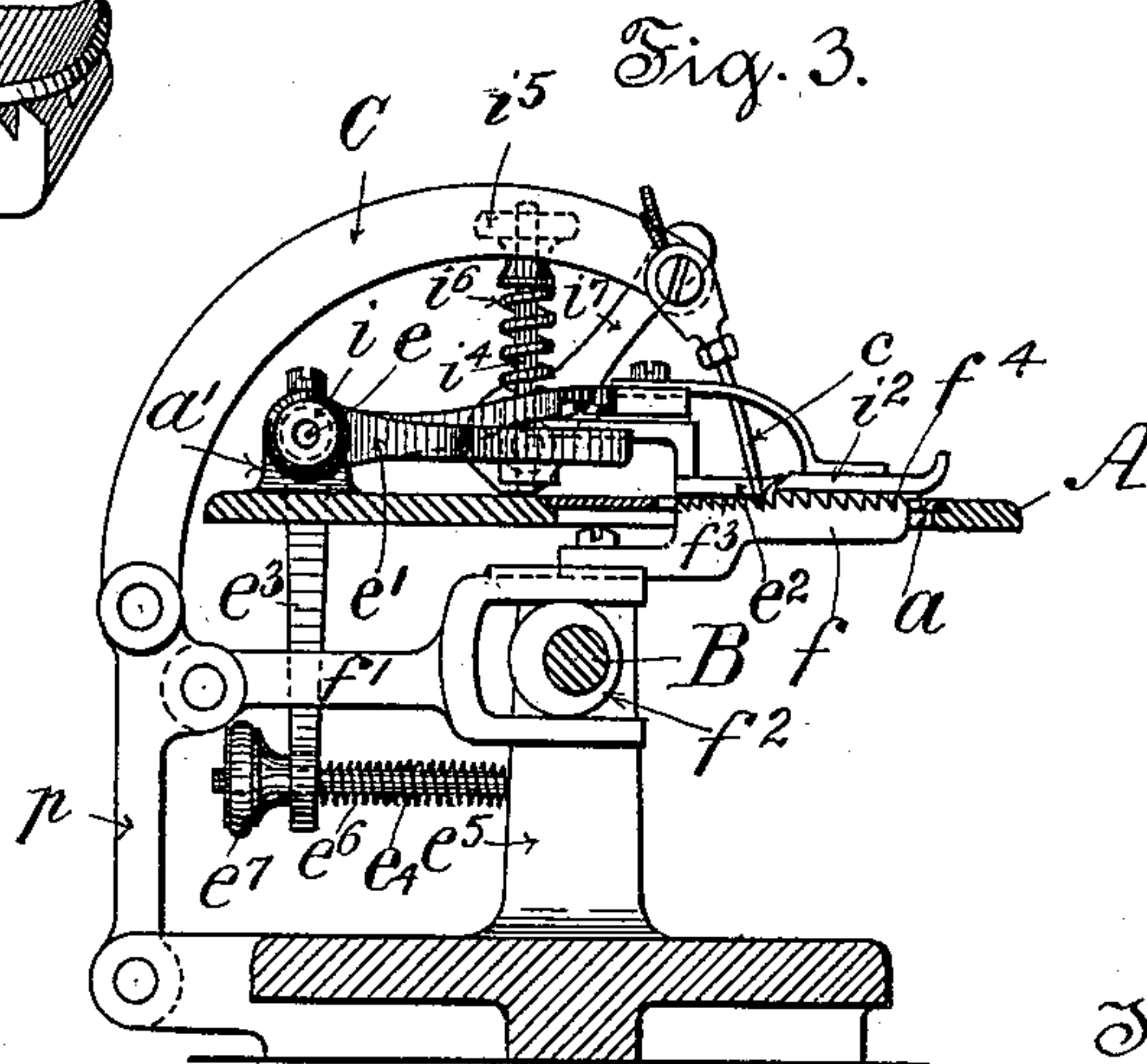


Fig. 3.



Witnesses:
John Cantley.
Harry Brinkin.

Inventor:
Frank Malsch
By Hermann Bormann
Att'y.

UNITED STATES PATENT OFFICE.

FRANK MALSCH, OF CAMDEN, NEW JERSEY, ASSIGNOR TO THE INDUSTRIAL MANUFACTURING COMPANY, OF SAME PLACE.

FEEDING DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 614,271, dated November 15, 1898.

Application filed November 26, 1897. Serial No. 659,831. (No model.)

To all whom it may concern:

Be it known that I, FRANK MALSCH, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented a new and useful Feeding Device for Sewing-Machines, of which the following is a specification.

My invention relates to devices for feeding goods or fabrics under a stitching-needle, and more particularly to such devices which are employed for feeding knit or other elastic goods on a two-thread or overseam sewing-machine. In sewing knit goods on such machines I have found that when an ordinary feed comprising a common feed-bar and presser-foot is used the fabric is stretched at the line of sewing in such measure as to distort the shape or edges of the fabric operated upon. This is entirely overcome if the goods directly in front of the needle are gathered quicker and faster than immediately under and in rear of the needle. To this end I provide two separate presser-feet, one in front of the stitching-needle and the other partly surrounding the needle and extending in the rear thereof, the former pressing harder against the feed-bar than the latter by means of adjustable springs, and a feed-bar with two sets of teeth, large or coarse teeth in the front portion under the presser-foot having the strong tension-spring and small teeth in a different plane from the large teeth under the presser-foot in rear of the needle.

My invention will be more fully understood taken in connection with the accompanying drawings, forming part hereof, in which my improved feeding device is shown in connection with an overseam sewing-machine for which I filed an application for a United States Patent March 13, 1897, Serial No. 627,278, and it will be apparent to those skilled in the art to which my invention pertains that the feeding device may also be applied to other types of sewing-machines.

In the drawings, Figure 1 is a plan of a cloth-plate, showing the two presser-feet and their accessory mechanism. Fig. 2 is a front view of the same, showing also the feed-bar. Fig. 3 is a sectional elevation showing the feed, the two presser-feet, and also the stitch-

ing-needle arm; and Fig. 4 is a perspective view of the two presser-feet and the feed-bar.

Referring now to the drawings for a further description of my invention, A is the cloth-plate of a machine; *a*, the throat-plate; B, the main shaft; C, the needle-arm, and *c* the stitching-needle. On the cloth-plate A are provided two lugs *a'*, in which a hollow shaft *i* is journaled. Inside this hollow shaft *i* is provided another shaft *e*, which projects at each end from the hollow shaft *i*. On one end of this shaft *e* is secured a lever-arm *e'*, carrying on its free end the presser-foot *e²*, and on the other end is attached an arm *e³*. A stud *e⁴* is secured to a portion *e⁵* of the machine-frame, and a spring *e⁶*, surrounding the said stud, is interposed between said arm *e³* and said frame portion *e⁵* to keep the said foot *e²* normally pressed against the throat-plate *a*. The outer end of the stud *e⁴* is threaded and provided with a milled nut *e⁷* to adjust the pressure with which the foot *e²* is to bear upon the fabric.

The hollow shaft *i* is provided with an arm *i'*, having secured to its free end the presser-foot *i²*, and this arm *i'* has an extension *i³*, by which the said foot *i²* is brought to bear more or less on the fabric to be sewed. On the cloth-plate A and protruding the extension is attached a stem *i⁴*, threaded at its upper end for a nut *i⁵*. A spring *i⁶* is placed between the extension *i³* and nut *i⁵*, and its tension may be increased or decreased by the said nut *i⁵* to impart proper pressure to the said presser-foot *i²*.

A handle *i⁷* with a cam-shaped end bearing on the cloth-plate A is pivoted to the extension *i³* to lift both the presser-feet *e²* and *i²*, so as to facilitate the insertion of the fabric between the said feet and the feed-bar *f*, as will be more fully described.

The feed-bar *f* is operated in the usual or any preferred manner. In Fig. 3 the feed-bar is shown fastened to an eccentric-strap *f'*, which has a longitudinal motion from the oscillating plate *p* and an up-and-down motion from the eccentric *f²* on the main shaft B. The feed-bar *f* is provided with two sets of teeth *f³* and *f⁴*. The former are small and

act in conjunction with the presser-foot e^2 , having a light pressure imparted by its tension-spring e^6 , and the set of teeth f^4 are coarser, extend above the teeth f^3 , as shown in Figs. 3 and 4, and act in conjunction with the presser-foot i^2 , having a strong tension-spring i^6 .

In the vertical motion of the feed-bar f and at its highest position the small teeth f^3 project only a little above the throat-plate a and disappear or recede under the latter much quicker than the coarse teeth f^4 , so that the feeding of fabric is continued under the presser-foot i^2 , while that under the foot e^2 is discontinued, which has the effect that the fabric is gathered quicker in front of the stitching-needle than in rear thereof, by which the elastic fabric is fed in such a manner that a distortion thereof or its edge is impossible.

The presser-foot i^2 is provided with a beveled edge i^8 on the lower face and in rear of the foot, whereas the presser-foot e^2 has a corresponding beveled edge e^8 with the edge on top and at the front of the foot e^2 , and these beveled edges serve a twofold purpose—first, the fabric can easily pass from under the foot i^2 to under the foot e^2 , and, secondly, when the foot i^2 is raised by means of the handle i^7 its beveled edge i^8 engages the beveled edge e^8 of the foot e^2 and raises the same, so that the goods to be operated upon may be inserted between the feed-bar and the said presser-feet i^2 and e^2 .

The presser-foot e^2 is provided with the usual tongue e^9 necessary for the formation of an overseam double-thread stitch and is extended sidewise, as at e^{10} , so that a continuous chain of stitches may be formed if

a piece of fabric has been fed through the machine, the presser-foot e^2 serving to keep such chain of stitches in order even when a new piece of fabric to be operated upon is inserted under the presser-foot i^2 , so that no entangling of threads at this point is possible.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a sewing-machine in combination with stitch-forming mechanism, a feeding device comprising a feed-bar having one end thereof provided with a set of coarse teeth and the other end with a set of finer-cut teeth, the latter having their apexes below the apexes of the coarser teeth, a presser-foot operating in conjunction with the set of coarse teeth, a spring for said presser-foot another presser-foot operating in conjunction with the set of finer teeth, and a spring of lesser tension than the aforesaid spring for the last-mentioned presser-foot, substantially as and for the purposes set forth.

2. In a sewing-machine in combination with stitch-forming mechanism, a feeding device comprising a feed-bar f having two different sets of teeth f^3 and f^4 , a presser-foot e^2 over one set of teeth, a presser-foot i^2 over the other set of teeth, beveled edges e^8 and i^8 on the respective feet, and a handle i^7 , substantially as and for the purposes set forth.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANK MALSCH.

Witnesses:

HERMANN BORMANN,
SAML. S. WEAVER.