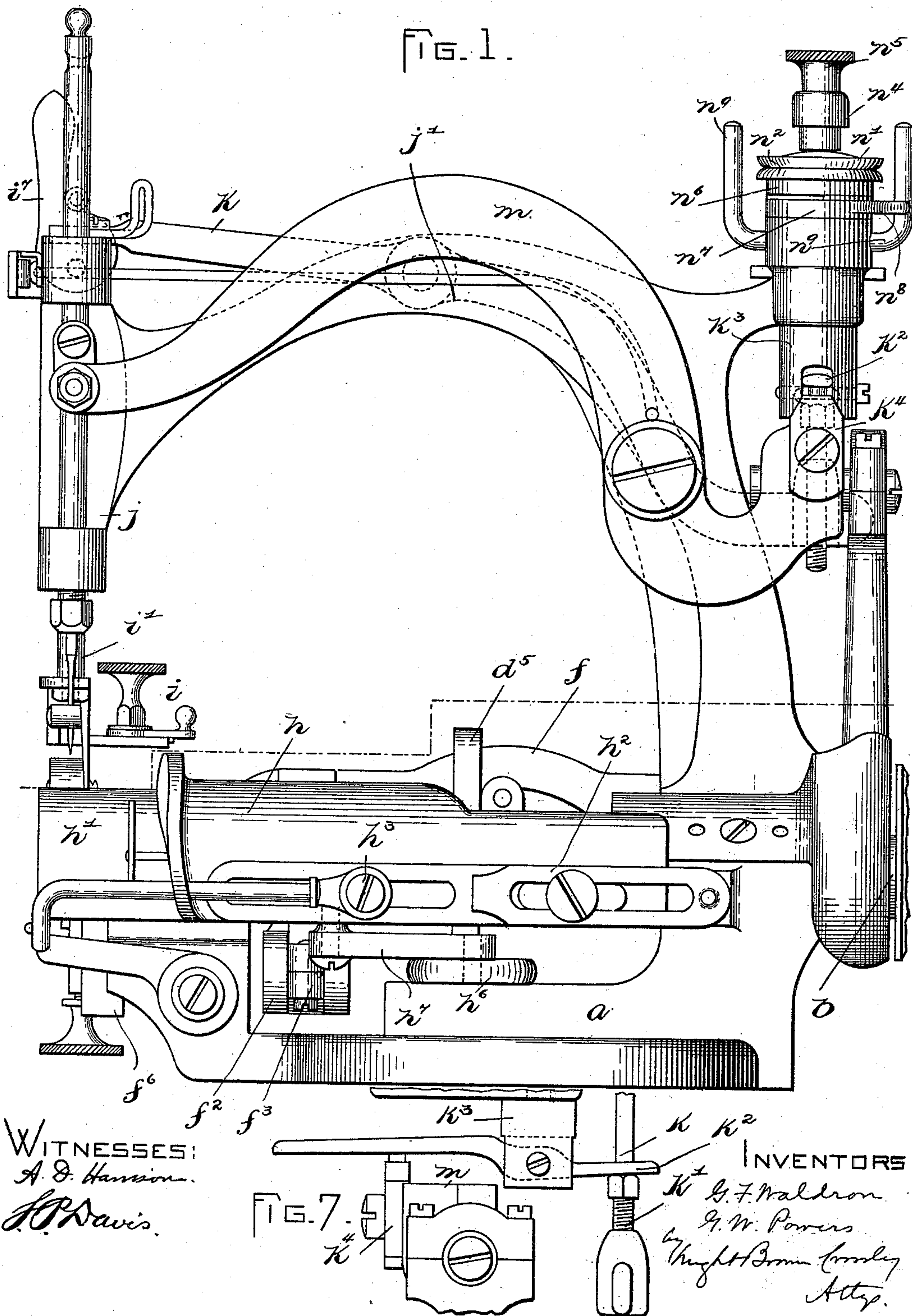


3 Sheets—Sheet 1.

Patented Mar. 12, 1895.



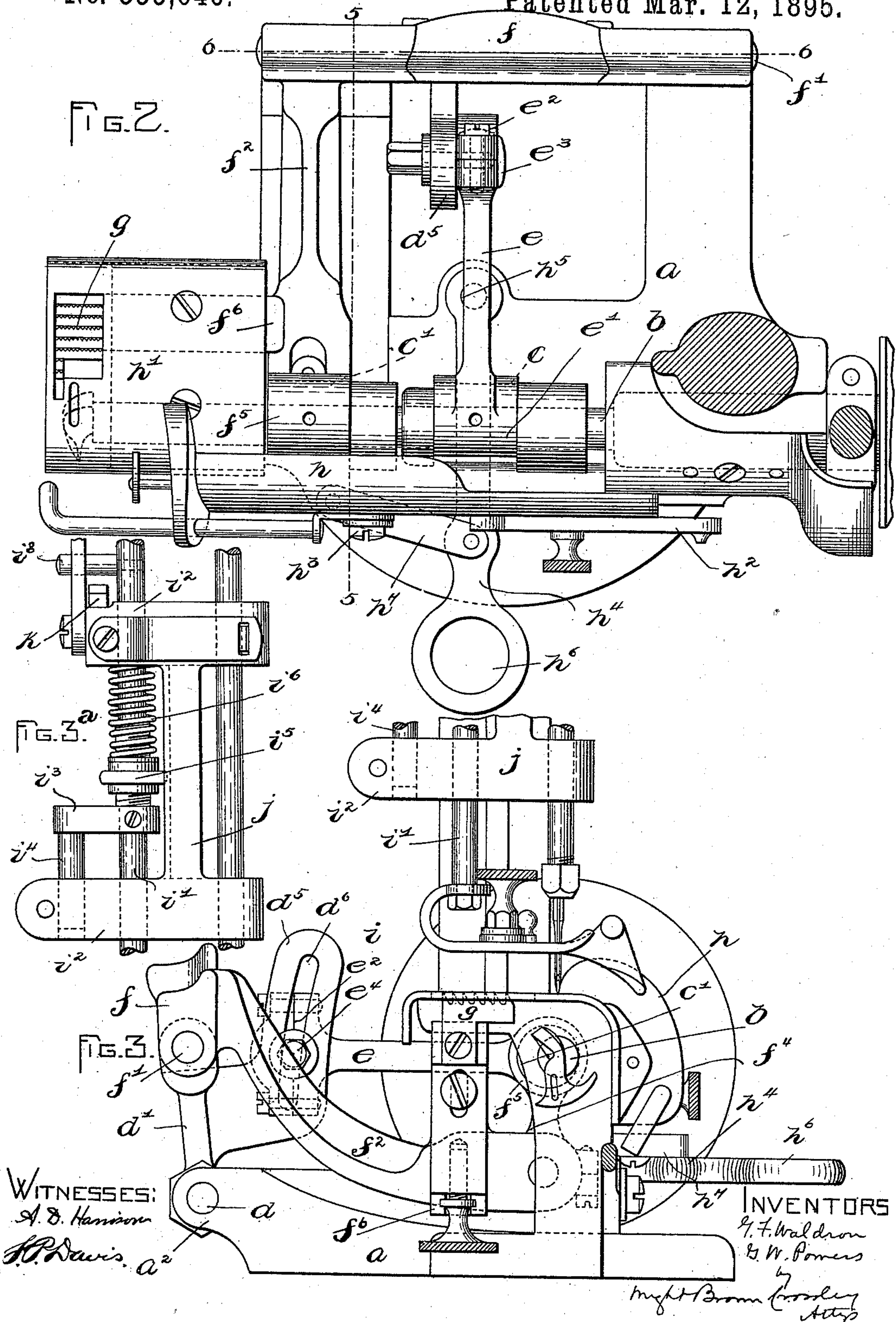
(No Model.)

3 Sheets—Sheet 2.

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SEWING MACHINE.

No. 535,646.

Patented Mar. 12, 1895.



(No Model.)

3 Sheets—Sheet 3.

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FIG. 4.

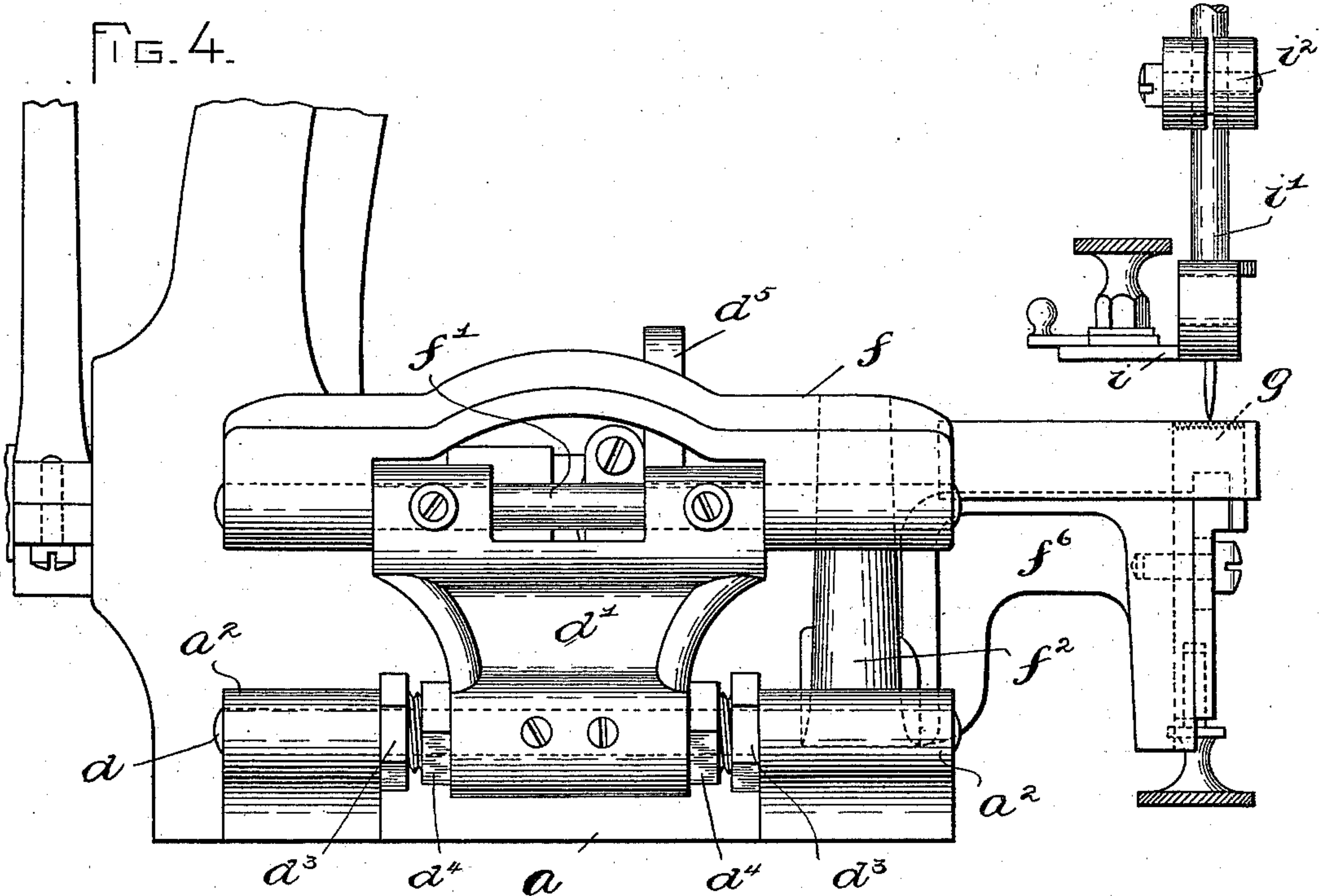


FIG. 5.

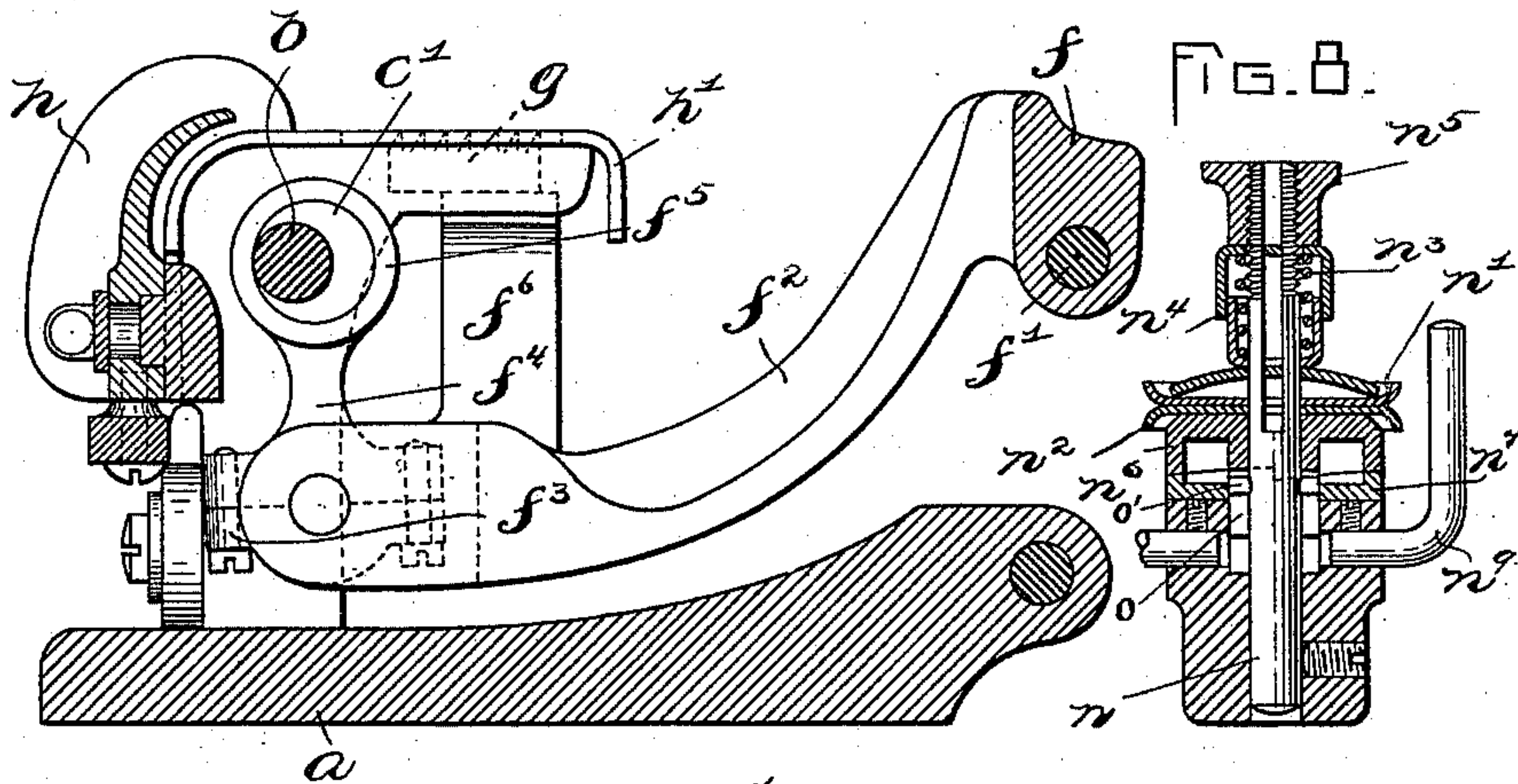
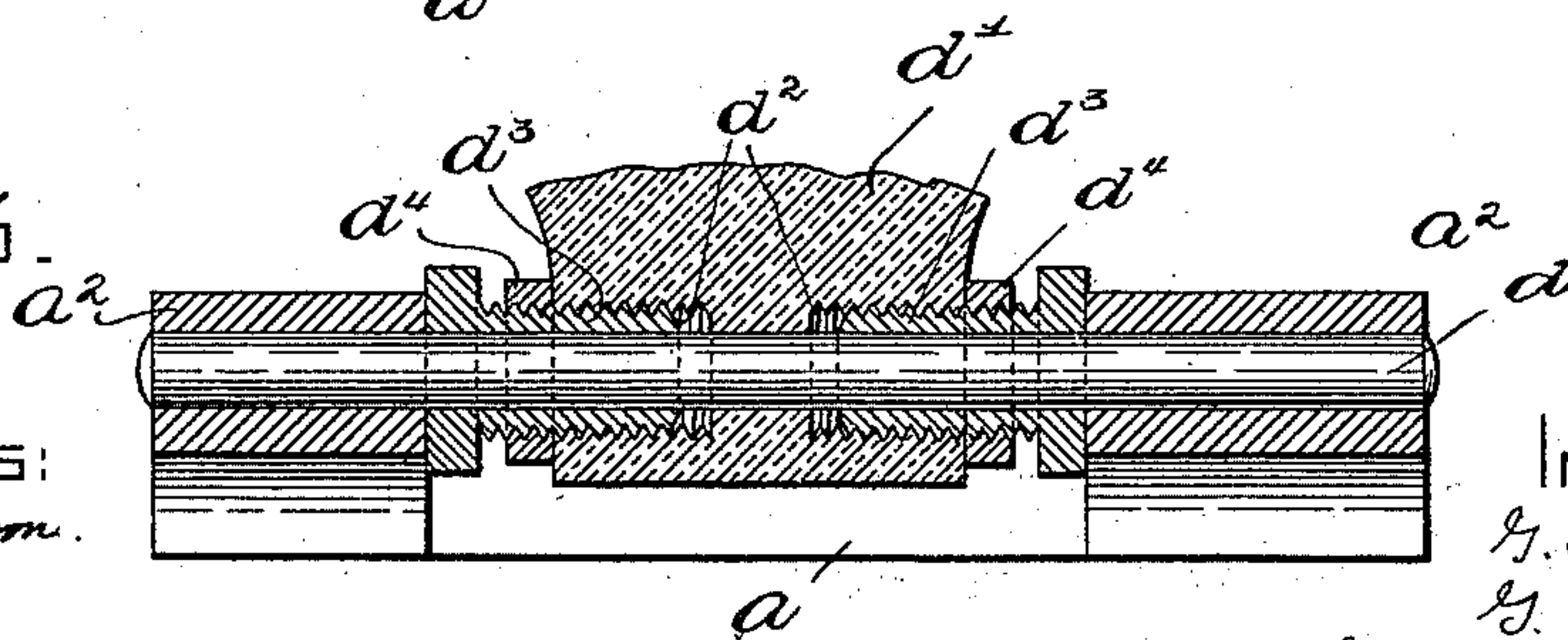


FIG. 6.



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UNITED STATES PATENT OFFICE.

GEORGE F. WALDRON AND GEORGE W. POWERS, OF BOSTON, MASSACHUSETTS; SAID POWERS ASSIGNOR TO SAID WALDRON.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 535,646, dated March 12, 1895.

Application filed February 8, 1894. Serial No. 499,483. (No model.)

To all whom it may concern:

Be it known that we, GEORGE F. WALDRON and GEORGE W. POWERS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Straw-Sewing Machines, of which the following is a specification.

This invention relates to certain improvements in that class of sewing machines designed for sewing straw, and the principal objects in view are to increase the wearing quality of the machine and to facilitate its manipulation.

To the above ends, the invention consists in a number of novel features of construction and combinations and arrangements of parts, all of which will be fully described hereinafter and pointed out in the claims.

The accompanying drawings illustrate the invention.

Figure 1 shows a front elevation of a machine embodying the invention. Fig. 2 shows a top plan view with the head removed. Fig. 3 shows an end elevation with part of the head omitted. Fig. 3^a shows the parts of the head omitted in Fig. 3. Fig. 4 shows a rear elevation with a number of parts omitted. Fig. 5 shows a section on line 5—5 of Fig. 2. Fig. 6 shows a section on line 6—6 of Fig. 2. Fig. 7 shows a detail of parts as viewed from the right-hand end of Fig. 1. Fig. 8 shows a sectional detail of a tension device.

The letter *a* designates the bed of the supporting frame of the machine, and *b* the driving shaft which carries two eccentrics, *c* and *c'*. The bed is formed with ears, *a*², in which is journaled a shaft, *d*; and a frame, *d'*, is fixedly mounted on said shaft between the ears, and is formed with screw-threaded sockets, *d*², around the shaft. Screw-threaded sleeves, *d*³, engage such sockets, and their heads bear against the inner sides of the ears, *a*². Lock-nuts, *d*⁴, on the said sleeves bear against the frame *d'*. By means of the sleeves and lock-nuts, wear of the parts may be taken up, and looseness of the frame prevented, and thereby lateral displacement of the toothed feeder also prevented, said feeder being carried by the frame, as will hereinafter appear.

The frame, *d'*, is formed with an upward projecting arm, *d*⁵, having an arc-shaped slot,

*d*⁶; and a pitman *e*, connects said arm with the eccentric, *c*, on the driving shaft, said pitman being formed at its forward end with a strap, *e'*, which embraces said eccentric, and at its rear end with a two-part bearing and socket, *e*², which embraces a ball, *e*³, on a pin, *e*⁴, fastened in the slot, *d*⁶. This ball-joint takes up any lateral play of the pitman, and thereby saves wear of the eccentric and strap.

A second frame, *f*, is journaled on a shaft, *f'*, affixed in ears of the frame, *d'*, and this second frame has an arm, *f*², extending downward and forward under the driving shaft, and there coupled by means of a ball-joint, *f*³, with a short pitman, *f*⁴, having a strap, *f*⁵, which embraces the eccentric, *c'*. The ball-joint takes up any lateral play, and saves wear of the eccentric and strap. The arm, *f*², has a lateral branch, *f*⁶, which supports the toothed feeder or feed-dog, *g*, the latter being vertically adjustable on said arm, *f*⁶.

It will be seen that through the means described, the desired compound movement of the feeder or feed-dog is effected, one of the eccentrics, *c*, on the driving shaft producing the forward-and-back movement of said feeder, and the other, *c'*, the up-and-down movement thereof.

A gage, *h*, for guiding the work in proper width over the work-supporting plate, *h'*, is fitted to slide on the front of the machine frame as usual, and is provided with an auxiliary gage, *h*², adjustable longitudinally on it, and adapted to abut a screw, *h*³, which projects through a slot in the gage, *h*, and thereby determines the forward position of the gage, *h*. By means of the auxiliary gage, *h*², the extent of movement of the gage, *h*, is regulated. The gage, *h*, is slid back and forth by means of a horizontal lever, *h*⁴, pivoted to the bed of the machine frame at *h*⁵, and projecting out in front of the machine where it is formed with an eye, *h*⁶, for the reception of the operator's finger. Said lever is connected by a link, *h*⁷, with the sliding gage, *h*, so that vibrations of the lever move the gage. Through these devices the gage can be very quickly and conveniently adjusted.

The presser-foot, *i*, is affixed on the lower end of a bar, *i'*, which extends loosely through ears, *i*², on the head, *j*, of the arm, *j'*. Said

bar has affixed to it a laterally-projecting arm, i^3 , which is provided with a pin, i^4 , whose engagement with one of the ears, i^2 , prevents the bar from turning. The said arm has a threaded hub portion which receives a nut, i^5 ; and a spiral spring, i^6 , surrounds the bar between the said nut and the upper ear, i^2 , and by bearing against these parts holds the presser-foot yieldingly downward. By turning the nut, i^5 , the tension of the said spring is determined. A cam-lever, i^7 , is adapted to elevate the presser-foot by acting against a pin, i^8 , fastened in the upper end of the bar, i^1 , said lever being worked by hand as usual.

A lever, k , pivoted to the arm, j' , extends under the pin, i^8 , at its forward end, and at its rear end carries a bearing screw, k' , adapted to be engaged by one end of a rocker, k^2 , pivoted in a swiveled support, k^3 , and projecting forward so as to bear on a piece, k^4 , fastened to the needle-operating lever, m . Said rocker may be swung into and out of engagement with the bearing pieces, k' and k^4 , at the will of the operator, the rocker projecting forward sufficiently to afford a handle by which to shift it laterally.

When it is desired to reciprocate the presser-foot, the rocker is moved into engagement with the bearing-pieces, and vibrations of the needle-lever are transmitted to the presser-foot lever through the rocker.

The machine is equipped with an improved tension device of the following construction: A stud, n , is affixed to an arm of the machine frame, and a pair of tension-disks, n' , n^2 , are fitted loosely over said stud. The upper disk is yieldingly pressed against the lower one by a spiral spring, n^3 , which is inclosed by telescoping cups, n^4 , and regulated as to tension by a nut, n^5 , screwing on the upper threaded end of the stud. Underneath the disks, n' , n^2 , are arranged a pair of cam-washers, n^6 and n^7 , one of which forms a seat for the disk, n^2 , and is splined to the stud so as to prevent it from turning thereon. Said washer n^6 is here shown (see Fig. 8) as formed with an elongated hub or sleeve with a slot o which is engaged by a pin o' passing transversely through the stud n . The other washer, n^7 , is free to turn on the stud, and has a handle, n^8 , Fig. 1, to turn it, and is limited in its movements by arms, n^9 , against which said handle abuts. The abutting faces of these washers are of cam shape, so that the turning of the lower washer in one direction moves the upper washer upward and the lower tension-disk against the upper one. Thus by shifting the handle, n^8 , the tension can be increased in prescribed degree, and relieved at the will of the operator.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a sewing machine of the character described, the combination of a driving shaft having two eccentrics differently set, a frame pivoted to the bed of the machine, a pitman connecting said frame with a strap on one of the said eccentrics, an arm pivoted to the frame and extending under the driving shaft, a strap on the other eccentric having a pendant pitman pivoted to said arm, and a feed-dog supported on said arm.

2. In a straw-sewing machine, the combination of the machine-bed having ears, a shaft journaled in said ears, a frame affixed on said shaft and having screw-threaded sockets surrounding the same, screw-threaded sleeves engaging said sockets and fitting against the ears, lock-nuts on said sleeves and fitting against the frame, a pitman connecting said frame with an eccentric on the driving-shaft, and a feed-carrying arm pivoted to the said frame and connected with another eccentric on the driving-shaft.

3. In a sewing machine of the character described, the combination of a width-gage fitting the front side of the work-supporting plate of the machine and adapted to slide longitudinally thereon, a lever lying upon and pivoted to the bed of the machine-frame and extending under the gage with its free end projecting at the front of the machine, and a link pivoted to the said lever and to the lower edge of the sliding gage.

4. In a sewing machine of the character described, the combination of a width-gage arranged to slide over the work-supporting plate of the machine, means for shifting said gage, a fixed stop engaging a slot in the gage, and an auxiliary gage on the width-gage and adapted to abut the fixed stop and limit the movement of the width-gage, said auxiliary gage being adjustable to vary the extent of movement of the latter.

5. In a sewing machine of the character described, the combination of a needle-operating lever, a vertically-movable presser-foot bar spring-actuated downward, a lever adapted to elevate said bar, a rocker adapted to engage said levers on opposite sides of its (the rocker's) pivot, and operatively connect them to produce reciprocations of the presser-foot, and a swiveled support for the pivot of the rocker allowing the latter to be shifted laterally to an inoperative position.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 2d day of February, A. D. 1894.

GEO. F. WALDRON.
GEO. W. POWERS.

Witnesses:

C. F. BROWN,
F. P. DAVIS.