

**No. 684,266.**

**Patented Oct. 8, 1901.**

**H. A. KLEMM.**

## FEED MECHANISM FOR SEWING MACHINES.

(Application filed Feb. 15, 1901.)

(No Model.)

**2 Sheets—Sheet 1.**

FIG.1.

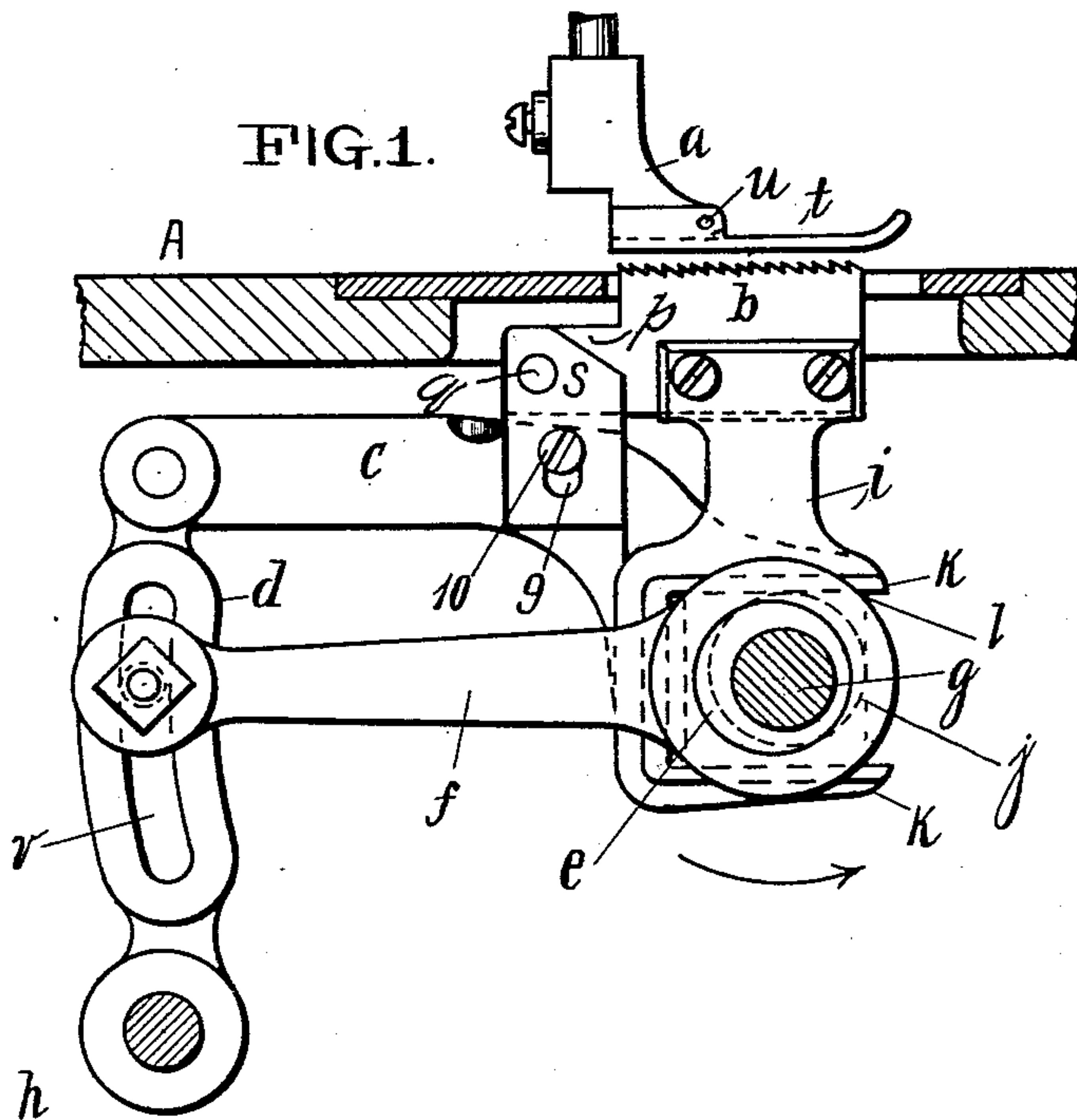


FIG. 2.

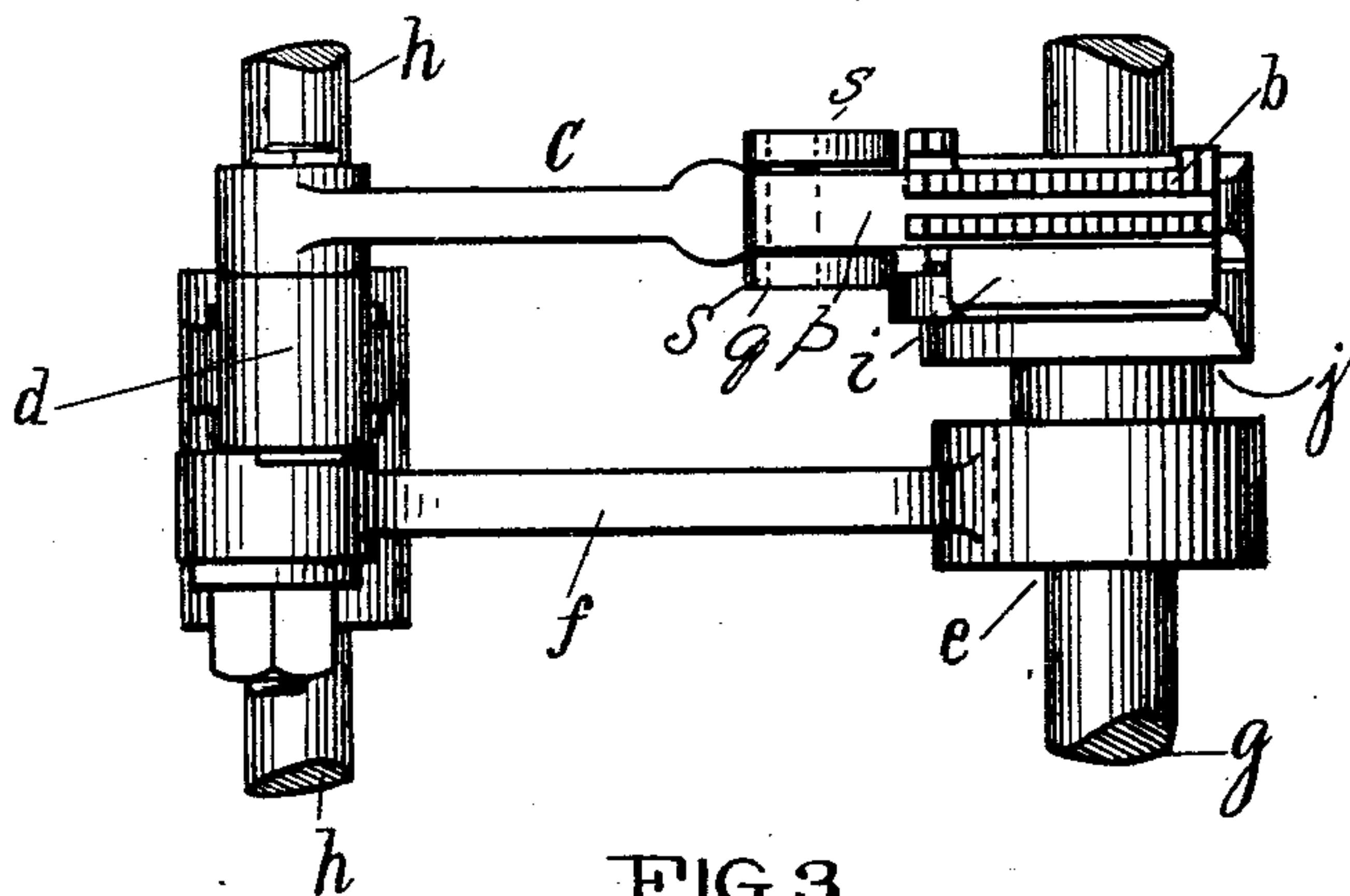
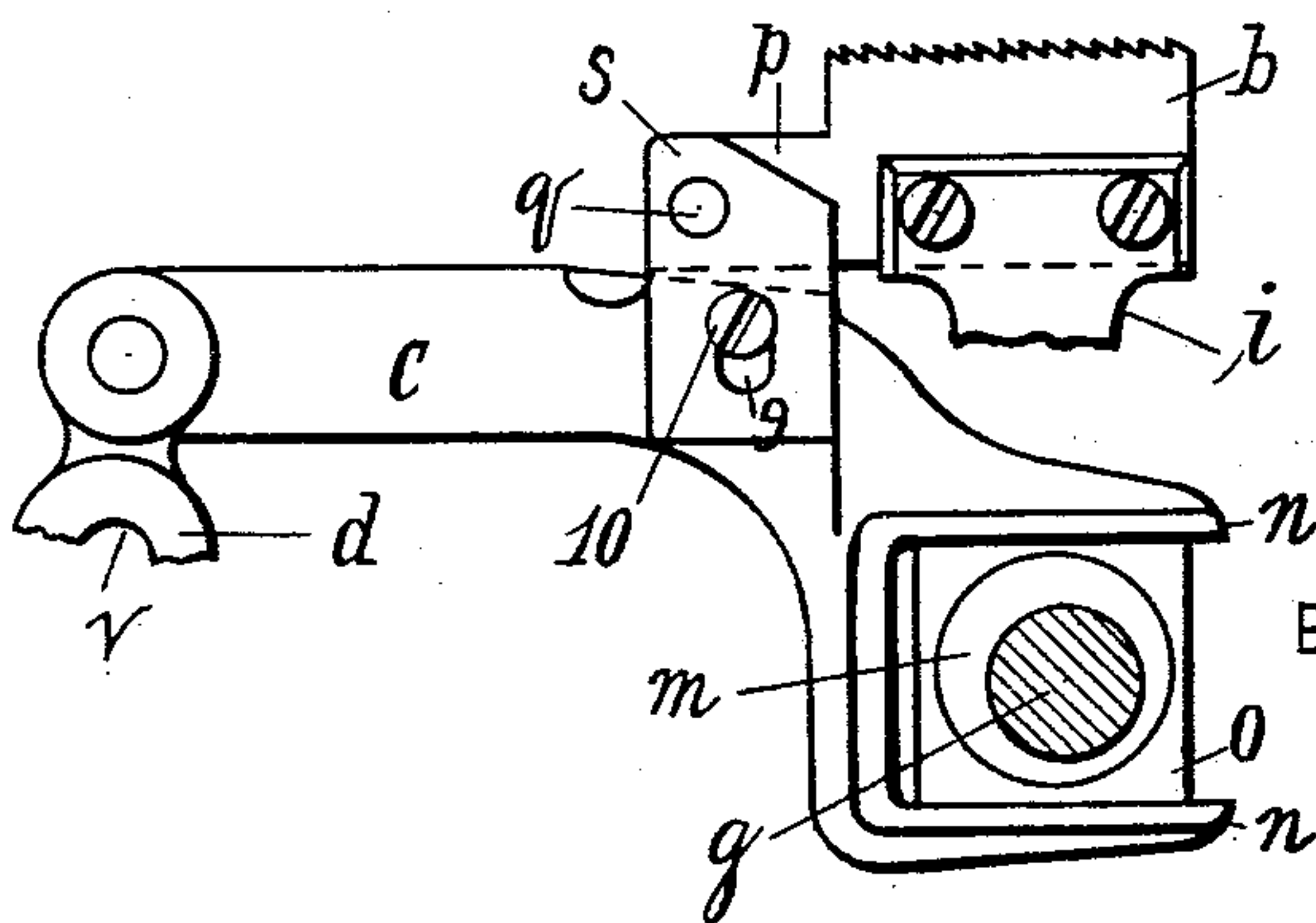


FIG.3.



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2 Sheets—Sheet 2.

FIG. 4.

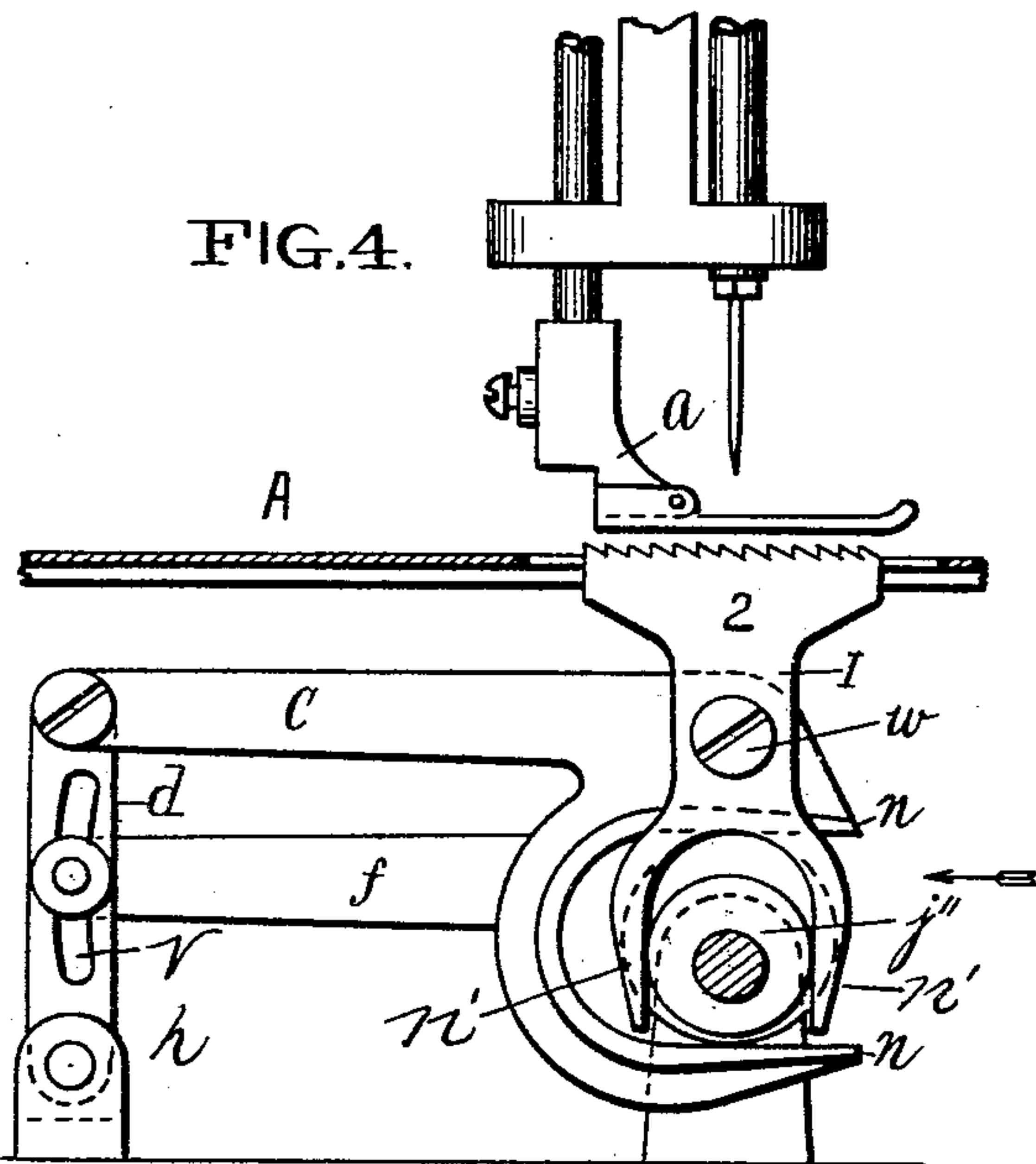


FIG. 5.

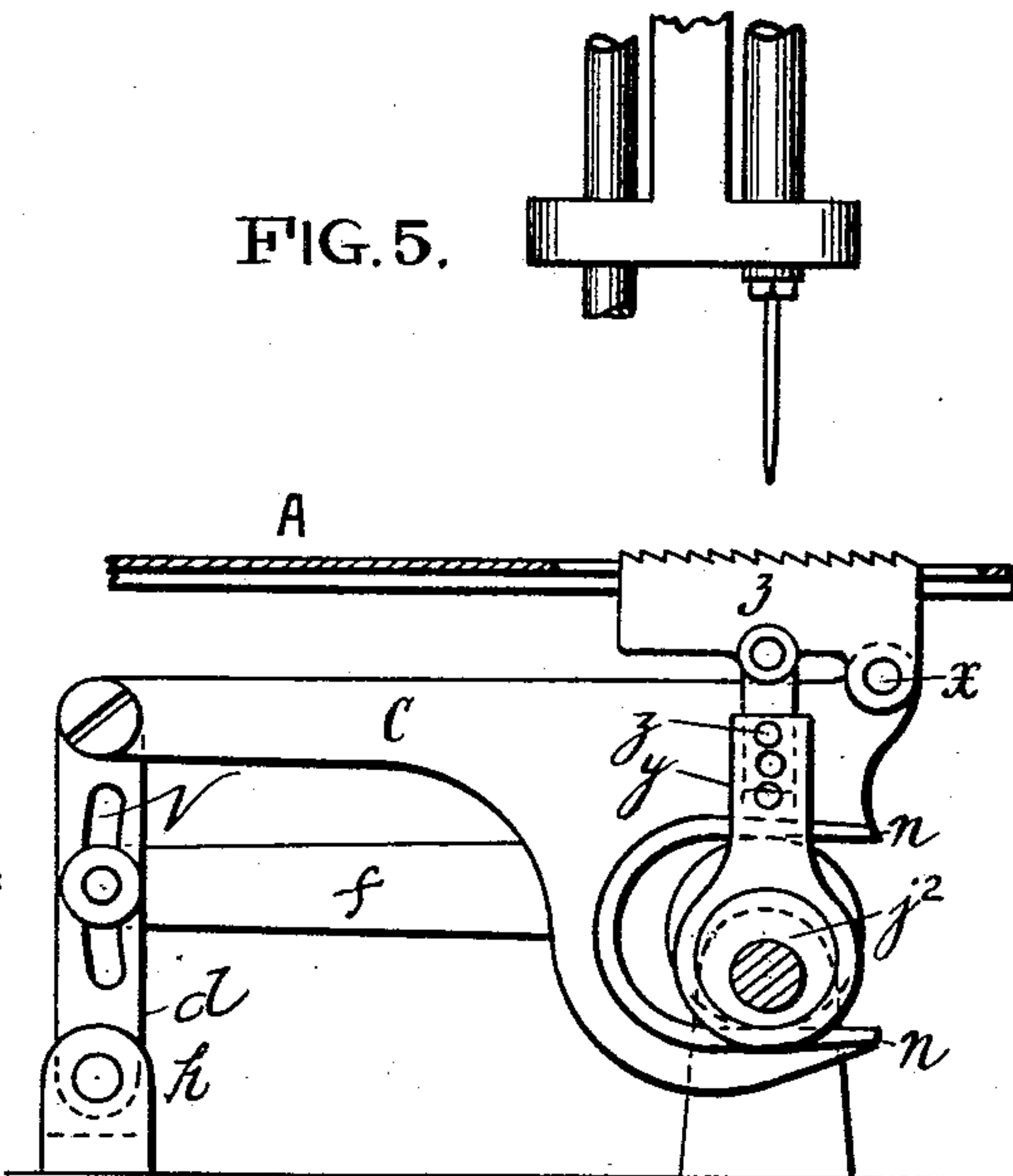


FIG. 6.

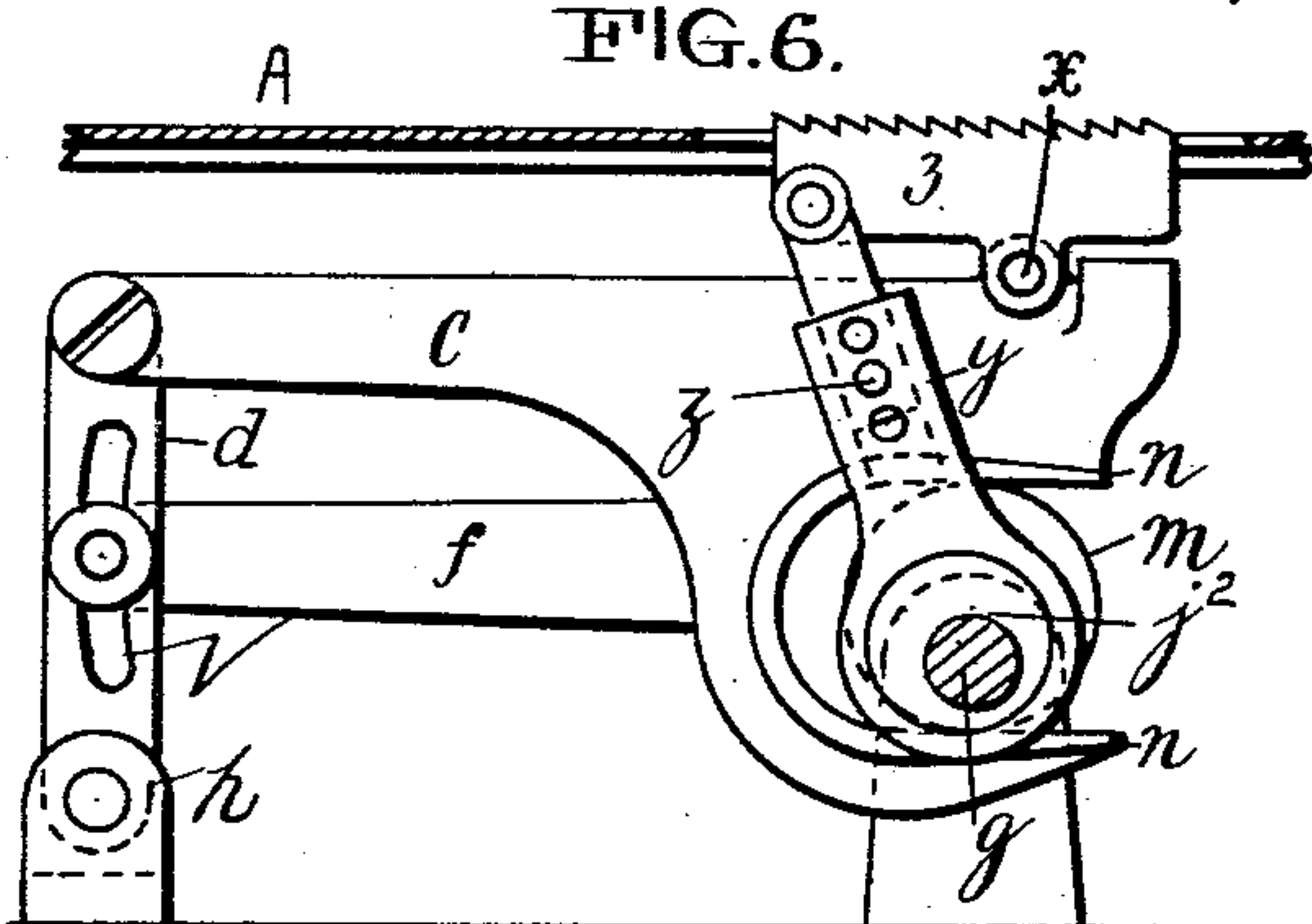


FIG. 7.

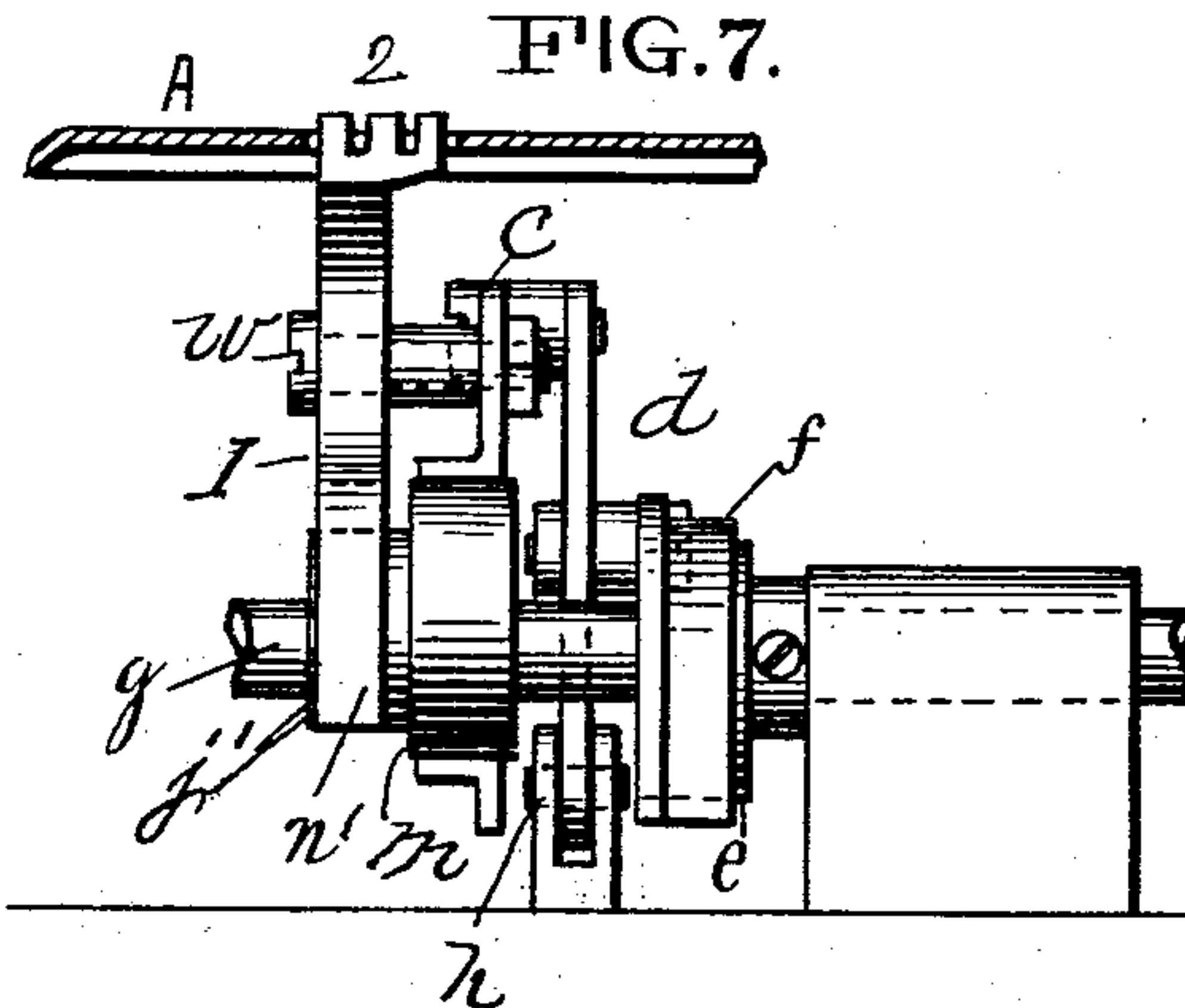


FIG. 8.

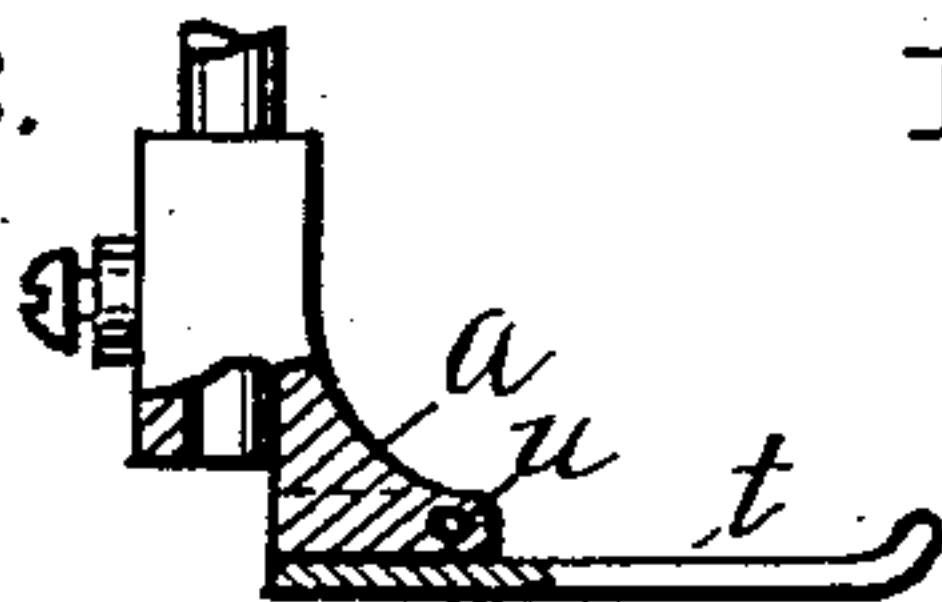


FIG. 9.

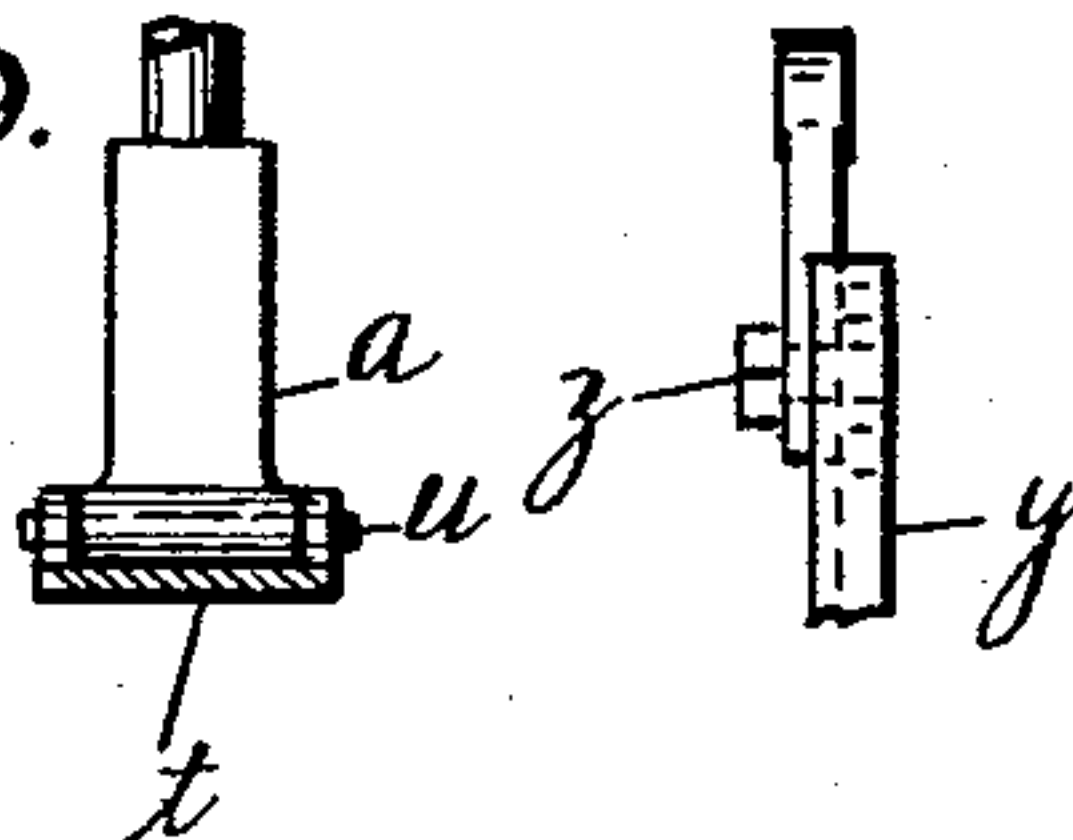


FIG. 10.

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HERMANN A. KLEMM, OF NEW YORK, N. Y.

## FEED MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 684,266, dated October 8, 1901.

Application filed February 15, 1901. Serial No. 47,466. (No model.)

*To all whom it may concern:*

Be it known that I, HERMANN A. KLEMM, a citizen of the United States of America, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Feed Mechanism for Sewing-Machines, of which the following is a specification.

My invention consists of improvements in differentiating feed apparatus, the object of which is to feed knit or other elastic goods that are liable to stretch under the action of the feed devices and pucker after leaving said devices, so that such result will be avoided, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved feed apparatus in the preferred form of construction with the work-plate, main shaft, and pivot of the rocking lever in section. Fig. 2 is a plan view of the apparatus of Fig. 1, except the presser and work-plate. Fig. 3 is a detail showing some of the parts of Figs. 1 and 2 in side elevation and a section of the main shaft. Figs. 4, 5, and 6 represent side elevations of the feed apparatus with modifications. Fig. 7 is an elevation of the apparatus of Fig. 4 as seen looking in the direction indicated by the arrow pointing toward said figure. Fig. 8 is a side elevation of the presser with a part in section. Fig. 9 is a front elevation of the presser, and Fig. 10 is a detail of a connecting-rod shown in Figs. 5 and 6.

A represents the work-plate; *a*, the presser, *b*, the feed-dog; *c*, the bar for imparting the reciprocating movements to the feed-dog; *d*, the rock-lever for operating the reciprocating bar; *e*, the eccentric, and *f* the connecting-rod for operating the rock-lever. The eccentric *e* is mounted on the main shaft *g*, and the rock-lever *d* is supported on a stationary pivot *h*, back of and parallel with the main shaft. The feed-dog *b* is attached to a bearer *i*, riding on an eccentric *j*, mounted on the main shaft *g* near the eccentric *e*, that operates the rock-lever *d*, said bearer having a yoke *k* and the eccentric having a box *l*, working in said yoke for better effect in respect of wear. The reciprocating bar *c* also rides at the front end on an eccentric *m* by means of

a yoke *n* and a box *o*. The feed-dog *b* has a short extension *p* along the feed-line, which is pivoted at *q* to jaws *s*, extending upward from the upper edge of the bar *c*. The jaws *s* may be adjustable vertically in their connection with the bar *c*, as indicated at 9 and 10, Figs. 1 and 3. The main shaft turns in the direction indicated by the arrow under Fig. 1. The eccentric *m* is set slightly in advance of the eccentric *j* on the main shaft, so that when the feed-dog, having been raised by the two eccentrics *m* and *j* to grip the work against the presser, begins its descending motion the part of the feed-dog under the heel of the presser first moves downward, and the other part rises slightly by the rocking of the bearer *i* on the eccentric *j*, whereby the grip of the presser is slightly relaxed forward, considering the direction of the feed movement, and increased rearward, whereby the stretching of such goods common in the case of feed-dogs having like positive grip throughout their length is compensated in this arrangement by the slight overfeed of the hinder part of the dog relatively to the feed of the forward part in consequence of the slip of the dog on the work where the grip is relaxed. In connection with this differentiating action of the feed-dog I prefer to pivot the presser-plate *t* to the toe of the presser-foot *a* at *u*, so that it will bear flat on the face of the feed-dog when so rocking during the time the face of the feed-dog is higher than the throat-plate. The presser-plate is wider than the slot in the throat-plate in which the dog works, and this is prevented from continuing the pressure after the forward part of the dog falls below the surface of the work-plate. The yoke-bearings of the feed-dog bearer and the dog-reciprocating bar permit the necessary reciprocating movements for effecting the feed of the work along the needle. The rod *f* is connected to the rock-lever *d* in a slot *v* for the requisite adjustments for varying the lengths of the stitches. In Figs. 4 to 7, inclusive, practically the same means are represented for so operating the feed-dog, though modified in some of the details—that is, the feed-dog has a pivot connection *x* with the feed-bar and a connection with an eccentric on the main shaft, whereby together with



said connection of the feed-bar both the feed motions and the differentiating-grip motions are effected. In all these figures there is the same feed-bar *c*, having a yoke *n* embracing an eccentric *m* on the main shaft *g* and connected with the rock-lever *d*, operated by the eccentric *e* and connecting-rod *f*. In Fig. 4 the feed-dog 2 is carried on a bearer pivoted at *w* to one side of the bar *c*, so as to rock in the plane of the feed-line, and having a yoke extension *n'* below the pivot and embracing an eccentric *j'* on the main shaft *g*, which rocks the dog and effects relaxation of the grip on the work at the same time relatively to the feed movement as the apparatus of Figs. 1 and 3 does. In Figs. 5 and 8 the feed-dog 3 has its bearing-support on the feed-bar *c* by a pivot-joint *x*, at or near its hind end relatively to the feed movement, on which said dog turns slightly up and down for effecting the differentiating grip, said dog being connected forward of the pivot *x* by a rod *y* with an eccentric *j''* on the main shaft *g* to swing the dog. The eccentric-rods *y* may be adjustable as to length as indicated at *z* or in any other approved way for adjusting the dog as may be required. When the pivot *x* connecting the dog with bar *c* is located forward of the rear end of the dog, as in Fig. 6, the said end has slight rising motion when the forward end descends, same as in Figs. 1 to 4, inclusive, thus increasing the hinder grip for more positively overfeeding the part of the work there gripped, while the relaxation of the grip forward allows the part of the work there gripped to advance less positively, and thus the stretching of the goods as when fed by a dog not having such differentiating action is avoided.

What I claim as my invention is—

1. The combination with the main shaft, of the feed-dog-operating bar, yoke of said bar and the eccentric coupling it with the main shaft for effecting the rising and falling movements of the bar, a feed-dog having a pivoted connection with said feed-bar, and an eccentric on the main shaft coupled with the dog for differentiating the movements of the feed-dog vertically, the eccentric on the main shaft, its connecting-rod, and the rock-lever therewith connected and having the rear end of said bar connected with it for reciprocating said feed-bar.

2. The combination with the main shaft, of the feed-dog-reciprocating bar, yoke of said bar and the eccentric coupling it with the main shaft for effecting the rising and falling movements of the bar, a feed-dog, a bearer for said dog, an eccentric on the main shaft, with which said bearer is coupled by a yoke, a pivot connection of a forward extension of the dog with the dog-reciprocating bar forward of the dog, a rock-lever with which the forward end of the dog-reciprocating bar is connected, and the eccentric on the main shaft, and rod connecting it with the rock-lever for reciprocating the feed-dog, said feed-bar, eccentric, and feed-dog-controlling eccentric being set relatively to each other for relaxing the grip of the forward part of the dog relatively to the grip of the hinder part of said dog.

Signed at New York city this 11th day of February, 1901.

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Witnesses:

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