

No. 693,656.

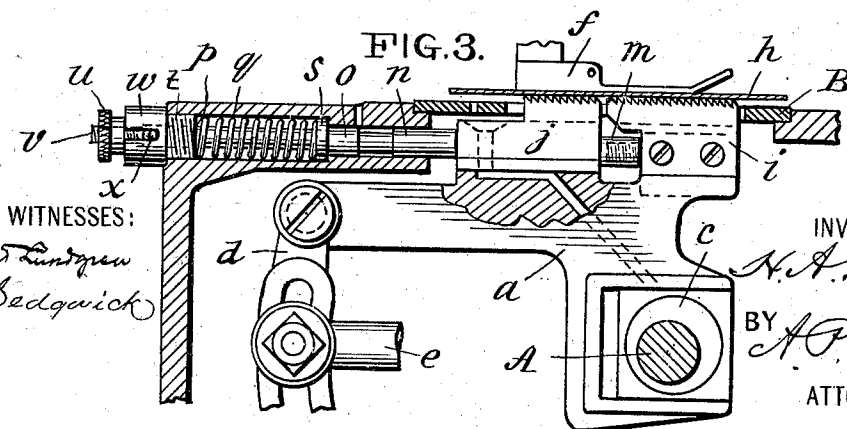
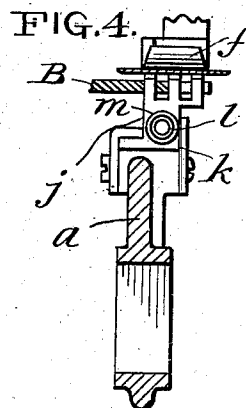
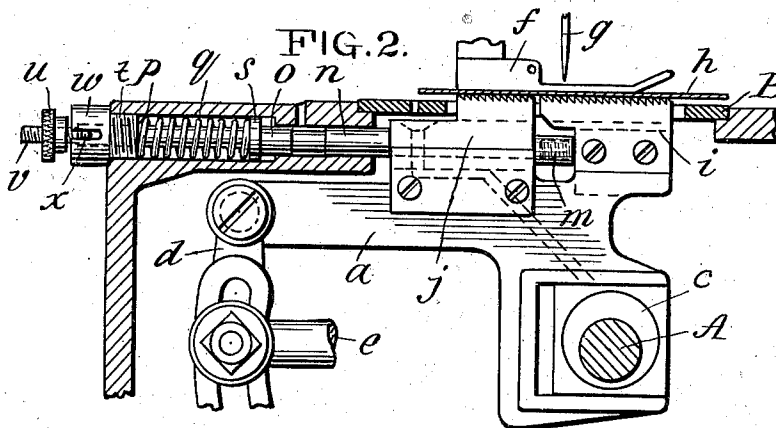
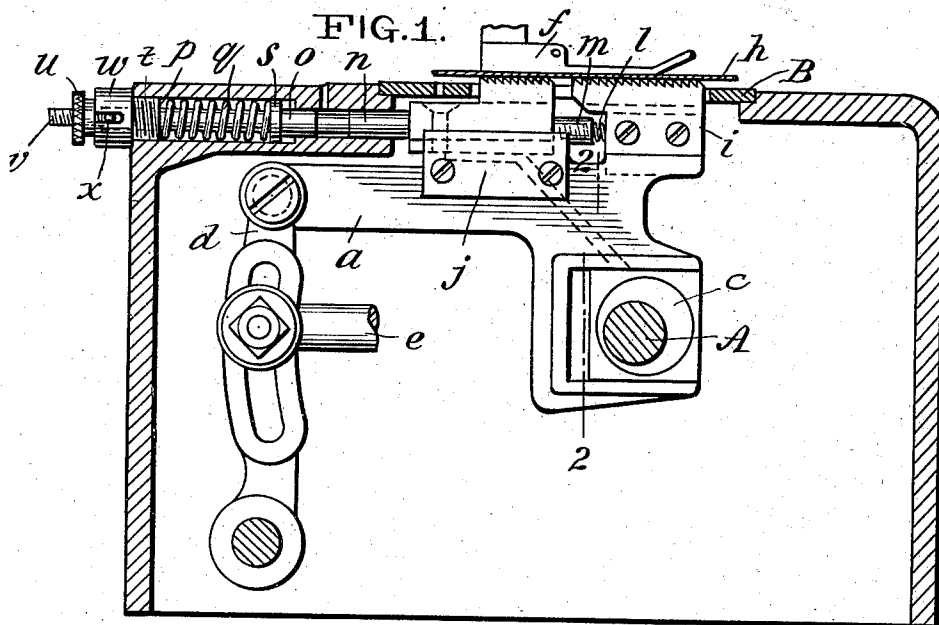
Patented Feb. 18, 1902.

H. A. KLEMM.

FEED MECHANISM FOR SEWING MACHINES.

(Application filed Sept. 9, 1901.)

(No Model.)



WITNESSES:

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

FEED MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 693,656, dated February 18, 1902.

Application filed September 9, 1901. Serial No. 74,726. (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 relates to differential-feed mechanism of the character used for feeding knit and other like loosely-intermeshed elastic fabrics in sewing-machines to prevent stretching the fabrics by the action of the feed-dog, and thus to avoid the puckering common in such goods when positive-feed devices are employed, the said improvements consisting of the constructions, combinations, and arrangements of mechanism adapted for both differential and positive operation, as herein-after described, reference being made to the accompanying drawings, in which—

Figure 1 is a vertical section of part of a sewing-machine provided with my improved feed mechanism, the section being taken in a plane of the feed-line and the parts being represented as adjusted for the differential feed with the feed-dog in the position for beginning the forward movement. Fig. 2 is a similar section with the parts adjusted for differential feed and with the feed-dog in the middle of the forward movement. Fig. 3 is also a similar section with the parts adjusted for positive feed and in the position for beginning the forward movement. Fig. 4 is a detail in vertical section on line 2 2 of Fig. 1.

A represents the main shaft; *a*, the feed-dog-carrying bar, said bar being mounted on the eccentric *c*, carried by the main shaft, for imparting the vertical movements of the feed-dog and said bar being connected to the rock-lever *d* for being reciprocated, and said rock-lever is connected by a rod *e* to another eccentric (not shown) on the shaft A. Said rock-lever and rod *e* are coupled together adjustably, as usual, for varying the length of the feed movements.

B represents the throat-plate; *f*, the presser-foot.

g indicates the needle, and *h* a piece of fabric to be sewed.

The feed-dog consists of two independent parts placed one in advance of the other in

the feed-line, the forward part *i* being fixedly attached to the upper side of the forward part of the feed-bar *a*, and the part *j* has limited sliding movement on said bar toward and from part *i*, being mounted in a slideway *k*, and it also has forward-and-backward movement with said bar. A spirally-coiled spring *l* is interposed between the two parts of the feed-dog, tending to separate them, as shown in Fig. 1, said spring being located in a socket *m* of one of the parts as the means of mounting said spring and also to enable the spring to be compressed entirely within the socket to permit the two parts of the dog to have positive contact with each other, as shown in Figs. 2 and 3, when they are to be used for positively feeding the fabric.

A plunger *n*, located in a bored slideway *o* of the bed-plate *p* of the machine, bears at one end against the rear end of the sliding part *j* of the feed-dog, and a spirally-coiled spring *q*, suitably fitted on the plunger between a collar *s* and a plug *t* in an enlarged section of the slideway, normally presses the plunger against the rear end of the part *j* of the feed-dog. An adjusting-nut *u* on a screw-threaded extension of the plunger through plug *t* controls the action of the plunger. The plug has a slotted head *w*, in which a radially-projecting pin *x* of the plunger holds the plunger against turning while the adjusting-nut *u* is being turned. The power of the spring *q* is sufficiently greater than the power of spring *l* to maintain positive contact of part *j* of the feed-dog with part *i* of said dog when adjusting-nut *u* is set forward sufficiently for free action of spring *q*. The two parts of the dog then act together as one and feed positively as if constructed in one piece. This adjustment is shown in Fig. 3 of the drawings.

For the differential operation of the feed-dog the adjusting-nut *u* is set back, as in Figs. 1 and 2, so as to relieve the part *j* of the feed-dog of the full effect or throw of spring *q*, allowing spring *l* to shift part *j* ahead of part *i* in the first part of the forward stroke against the end of plunger *n*, as shown in Fig. 1, where it will rest during the first part of the forward stroke of part *i*, which at the same time feeds the part of the fabric subject to it. Part *i* of the feed-dog then compresses

spring *l* and positive contact of the two parts of the feed-dog occurs. The two parts act in unison during the rest of the stroke, pushing plunger *n* back against spring *q*, the adjusting-nut *u* being free to be shifted along with the plunger in that direction. Thus with a feed-dog adapted for positive feed in the usual way the machine is also equipped with a differential feed mechanism, such as is found useful in feeding knit and other elastic goods, by overfeeding at the forward part of the feed-dog to compensate for the stretching to which such goods are liable in the common non-compensating feed mechanisms and which results in unsatisfactory buckered seams.

What I claim as my invention is—

The combination with the positively-moving part and the variably-moving part of the

feed-dog, and with the spring intermediate of said parts for causing the variable movement, of the plunger acting on said movable part in opposition to the action of the intermediate spring, the plunger-actuating spring, said spring having greater power than the intermediate spring, and the adjusting-nut, said nut adapted to limit the action of the plunger on the variably-moving part of the feed-dog, also to allow positive connection of the two parts of the feed-dog by the plunger, and also to allow positive unlimited movements of the two parts together.

Signed at New York city this 20th day of August, 1901.

HERMANN A. KLEMM.

Witnesses:

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