

(No Model.)

2 Sheets—Sheet 1.

E. D. CUMMINGS.
FEEDING MECHANISM FOR SEWING MACHINES.

No. 427,556.

Patented May 13, 1890.

Fig. 1.

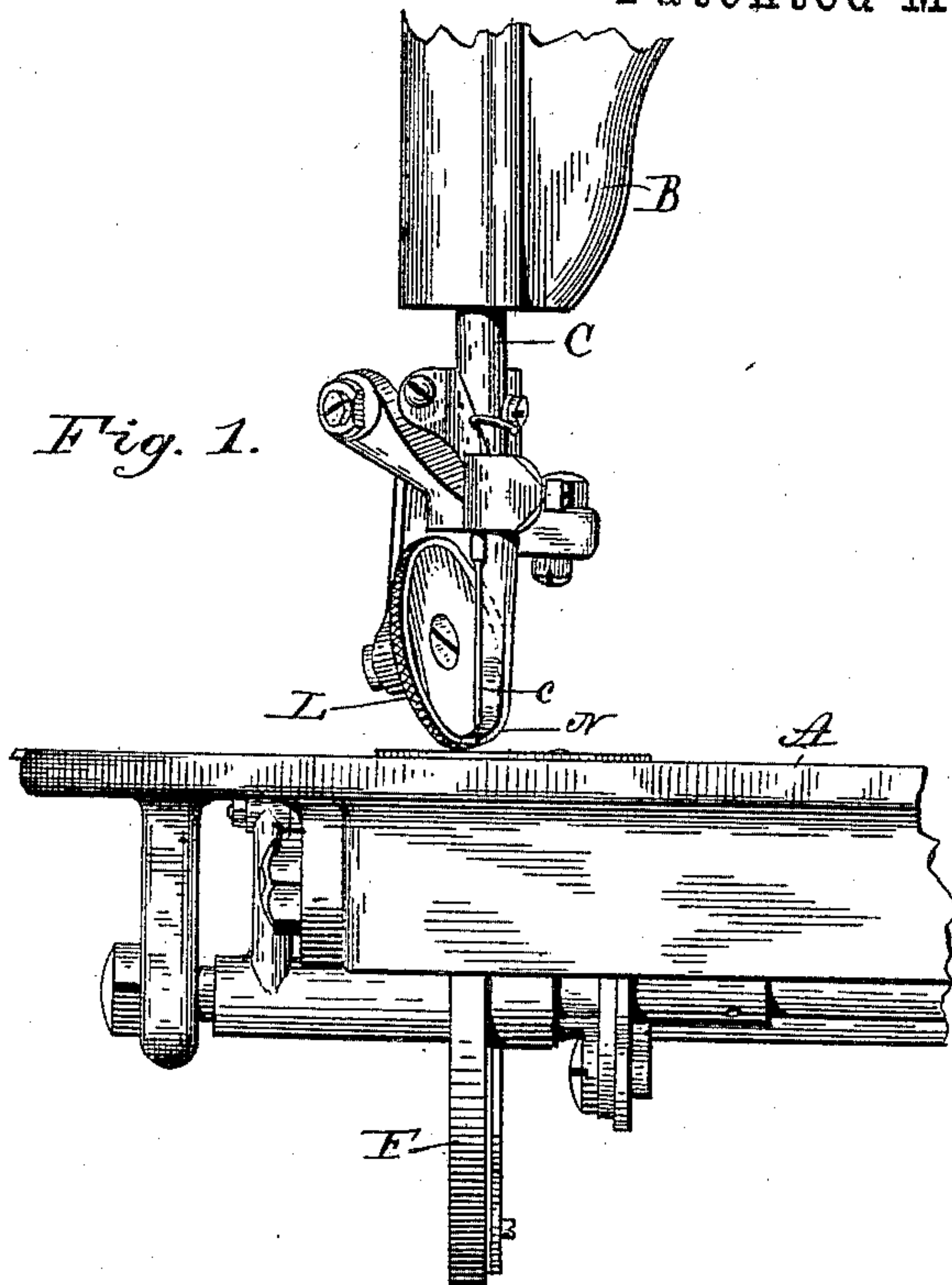
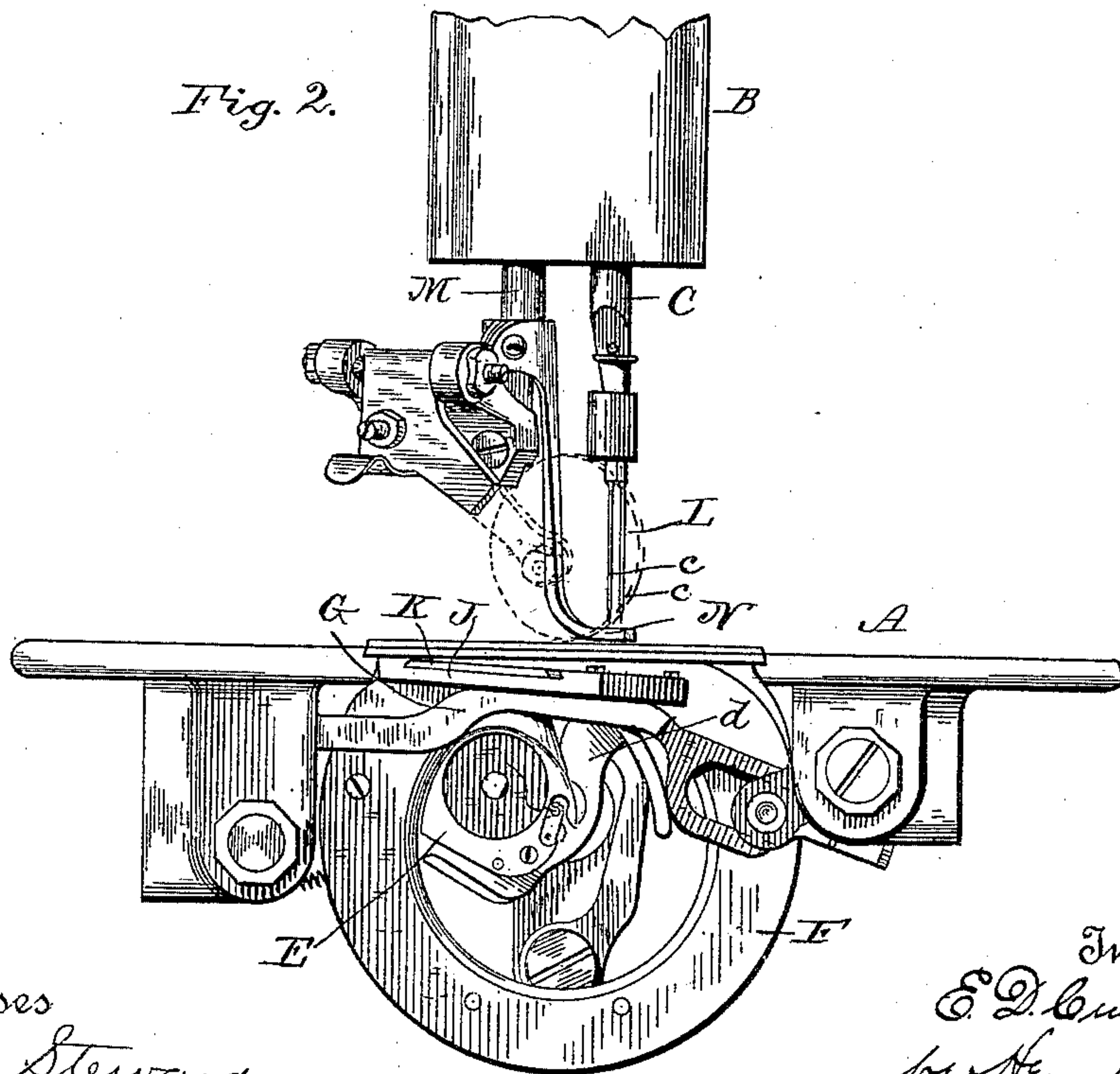


Fig. 2.



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Attorney

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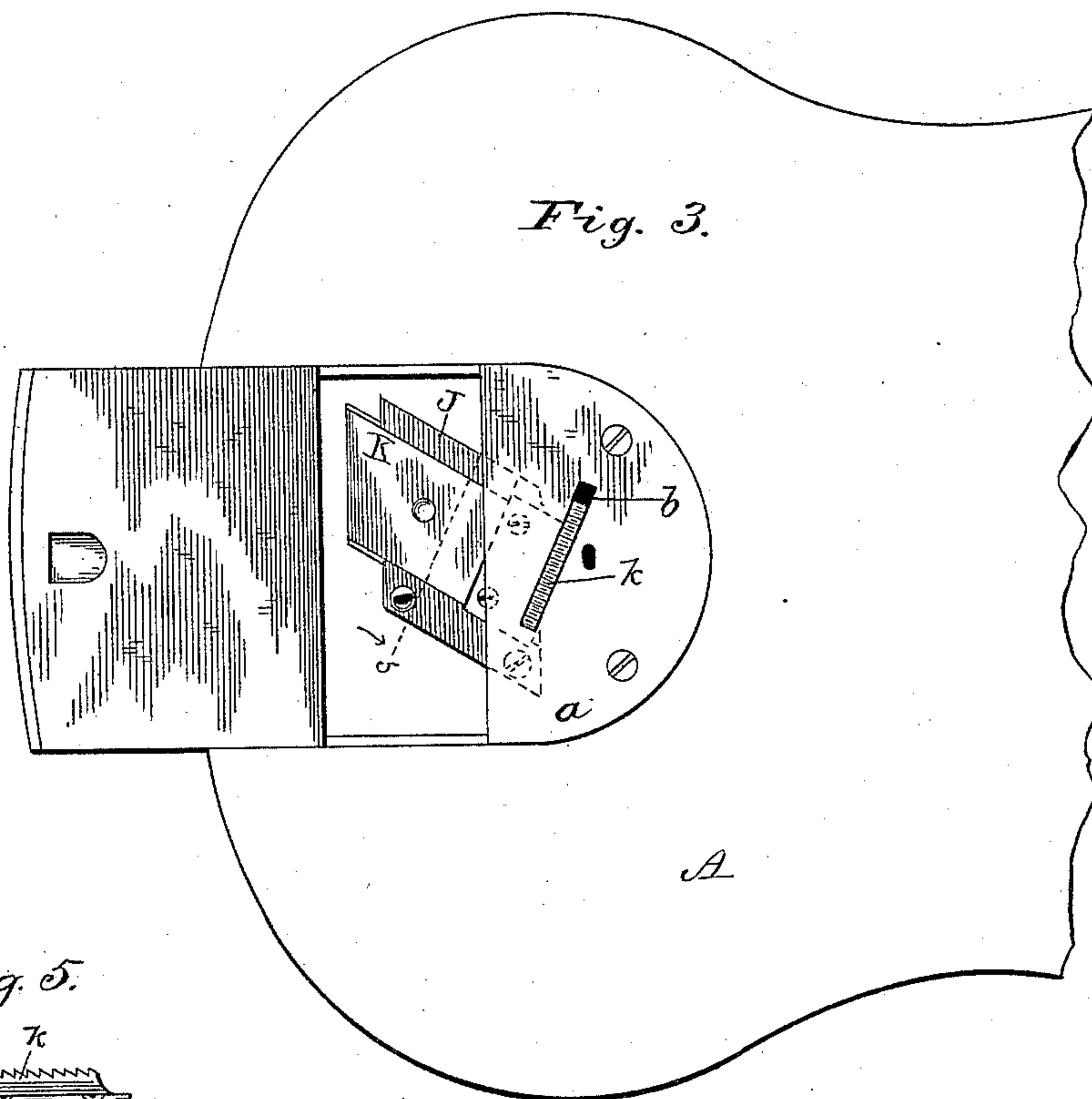


Fig. 5.

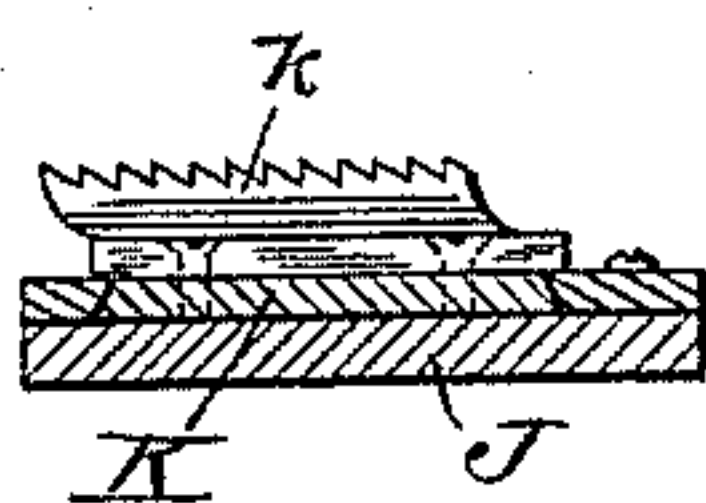
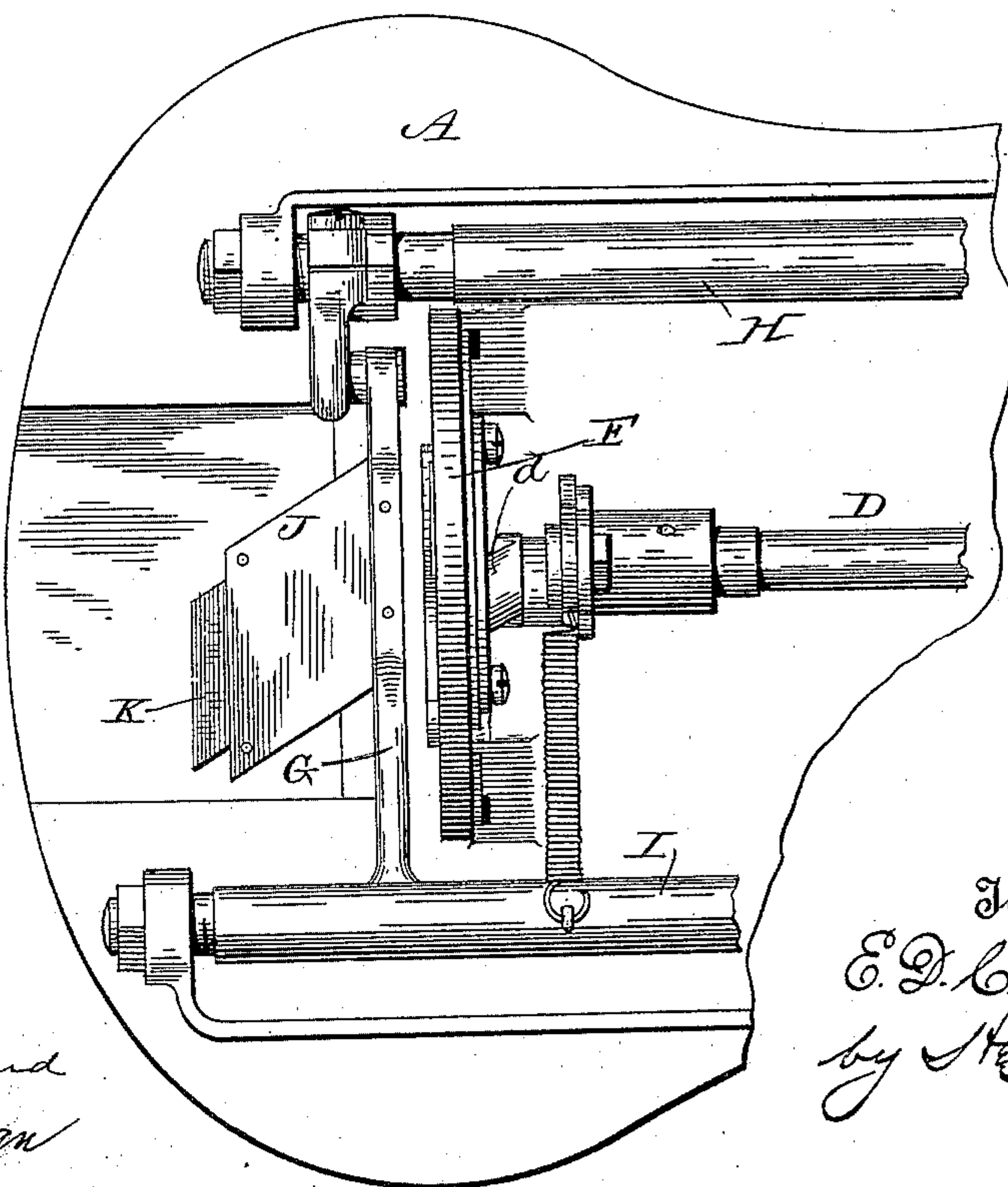


Fig. 4.



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UNITED STATES PATENT OFFICE.

EVLYN D. CUMMINGS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
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FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 427,556, dated May 13, 1890.

Application filed January 27, 1890. Serial No. 338,256. (No model.)

To all whom it may concern:

Be it known that I, EVLYN D. CUMMINGS, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 My invention relates to that class of sewing-machines in which two or more closely-adjacent needles are employed, preferably in connection with a single shuttle, for producing simultaneously two or more closely-adjacent rows of stitches, as is desirable in stitching shoes and other kinds of work, the object of my invention being to provide a novel feeding mechanism, which by moving the work diagonally to the needles permits the latter
15 to be arranged one behind the other in the line of movement of the shuttle, thus adapting my invention to be applied to machines as ordinarily constructed with but little change.

25 In carrying the preferred form of my invention into effect I provide the usual four-motioned feed-bar with a diagonal guideway, in which is mounted a diagonally-movable slide carrying the feed-dog, the latter extending up through a diagonal guiding-slot in the throat-plate. Thus, as the feed-bar moves
30 back and forth horizontally transversely of the work-plate of the machine in its usual manner, the diagonal guiding-slot in the throat-plate will cause the feed-dog connected with said bar to move diagonally to the needles to
35 produce two closely-adjacent rows of stitches, the diagonal movements of the feed-dog being permitted by the diagonally-movable slide carrying the feed-dog and reciprocating in the diagonal guideway mounted in the said feed-bar. In connection with the diagonally-movable feed-dog I preferably employ a diagonally-arranged roller-presser.

45 In the accompanying drawings, Figure 1 is a partial elevation of a "Singer" sewing-machine embodying my invention. Fig. 2 is a partial front end view of the same. Fig. 3 is a partial plan view of the work-plate, showing the throat-plate and feed. Fig. 4 is a partial bottom view of the machine, and Fig. 5
50 is a section on line 5 of Fig. 3.

In the machine herein illustrated, A denotes the work-plate; B, a portion of the depending head above the same; C, the needle-bar; *c c*, the needles; D, the oscillating shuttle-driving shaft; *d*, the shuttle-driver; E, the shuttle; F, the race in which the latter oscillates; G, the feed-bar; H, the rocking feed-lifting shaft, and I the rocking-shaft which imparts reciprocating horizontal movements to the said
55 feed-bar, these parts being all constructed and operated as is usual in the well-known "Singer" oscillating-shuttle machine.

Attached to the feed-bar G is a diagonal guideway J, in which is mounted a slide K, to which is attached the feed-dog *k*, and as the latter is at right angles to the said diagonal guideway and to the movements of said slide it is also diagonal to the movements of the feed-bar and shuttle and to a line drawn
60 through the centers of the needles.

The throat-plate *a* is provided with a diagonal guiding-slot *b*, in which the feed-dog works and which causes it to move diagonally as it is reciprocated with the feed-bar, such diagonal movement of the said feed-dog being permitted by the diagonally-movable slide K, reciprocating diagonally in the guideway J.

Bearing on the feed-dog *k* is a diagonally-arranged roller-presser L, connected in the
80 usual manner to the presser-bar M, said presser assisting in the diagonal movement of the work passing between it and the said feed-dog. Although I prefer to use this roller-presser, other well-known forms of pressers
85 might be employed in its stead.

N denotes a needle-guide foot having two holes for the passage of the needles to steady them and prevent fouling of the needle-threads.

90 From the foregoing it will be apparent that as the work will be fed diagonally to a line passing through the centers of the needles two slightly-separated rows of stitches will be produced with two needles arranged one behind the other in the direction of the horizontal movement of the feed-bar and of the shuttle, so that with but little change in a machine as ordinarily constructed it can be adapted for double stitching.

100 It will be obvious with the use of my improved diagonal feed, permitting the use of

needles arranged one behind the other in line of movement of the shuttle, that three or more needles may be employed for simultaneously forming three or more rows of stitches, the 5 needle-threads of which may all be interlocked by a single shuttle-thread, and I do not therefore wish to be understood as limiting my invention to the use of two needles only. It will also be obvious that instead of the oscillating shuttle herein shown any other well-known form of shuttle or looper the equivalent thereof may be employed.

I am aware that it is not entirely new to employ a diagonal feed in connection with 15 two needles, and I do not therefore claim this feature, broadly; but I believe that I am the first to mount a diagonally-movable feed-dog on an ordinary feed-bar, and thus adapt a diagonal feed to machines as ordinarily constructed with but little change.

The term "diagonal" as herein employed will be understood to mean diagonal to a horizontal line extending in the direction of the movement of the feed-bar or passing through 25 the centers of the needles.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a sewing-machine, the combination, 30 with a feed-bar reciprocating horizontally transversely of the work-plate in the usual manner, of a diagonally-movable feed-dog carried by said feed-bar, a needle-bar having a plurality of needles arranged one behind the 35 other in the direction of the horizontal movements of said feed-bar, and a shuttle also moving horizontally in a direction parallel to a line drawn through the centers of said needles.

2. In a sewing-machine, the combination, 40 with a feed-bar reciprocating horizontally transversely of the work-plate in the usual manner, of a diagonally-movable feed-dog carried by said feed-bar, a needle-bar having a plurality of needles arranged one behind the 45 other in the direction of the horizontal movements of said feed-bar, a shuttle also moving

horizontally in a direction parallel to a line drawn through the centers of said needles, and a diagonally-arranged roller-presser co- 50 operating with said feed-dog.

3. In a sewing-machine, the combination, with a feed-bar reciprocating horizontally transversely of the work-plate in the usual manner, and a diagonally-movable feed-dog 55 carried by said feed-bar, of a needle-bar carrying a plurality of needles arranged one behind the other in the line of the horizontal movements of said feed-bar, a diagonal guide for causing a diagonal movement to be im- 60 parted to the said feed-dog on the said feed-bar as the latter reciprocates horizontally in its usual manner, and a shuttle co-operating with said needles.

4. In a sewing-machine, the combination, 65 with a feed-bar reciprocating horizontally transversely of the work-plate in the usual manner and provided with a diagonal guideway, of a diagonally-movable feed-dog carried by said feed-bar, a needle-bar provided with 70 a plurality of needles arranged one behind the other in the direction of the horizontal movements of said feed-bar, a throat-plate provided with a diagonal guiding-slot in which said feed-dog works, and a shuttle co-operat- 75 ing with said needles.

5. The combination, with the feed-bar G, provided with the diagonal guideway J, of the diagonally-movable slide K, mounted in said guideway and provided with the diagonal feed-dog *k*, the throat-plate *a*, having the diagonal guiding-slot *b*, in which said feed-dog works, the needle-bar C, carrying two or more needles *c*, arranged one behind the other in the direction of the horizontal movements of 85 said feed-bar, and a shuttle co-operating with said needles.

In testimony whereof I affix my signature in presence of two witnesses.

EVLYN D. CUMMINGS.

Witnesses:

F. W. DAVIS,
A. N. SMITH.