

No. 639,726.

Patented Dec. 26, 1899.

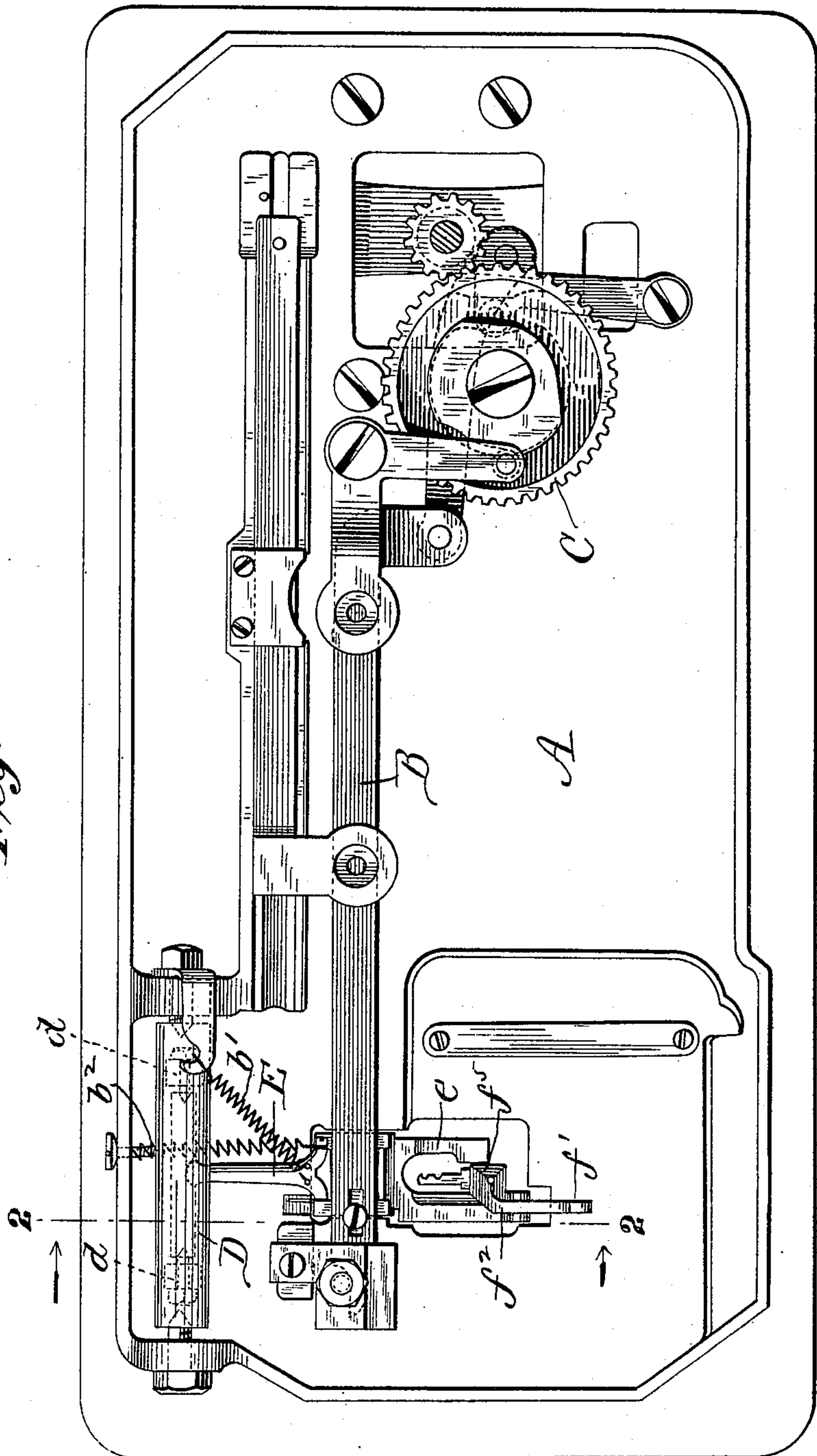
A. GRIEB.  
HEMSTITCH SEWING MACHINE.

(No Model.)

(Application filed Apr. 12, 1899.)

2 Sheets—Sheet 1.

*Fig. 1.*



Witnesses;  
C. W. Benjamin.  
C. M. Sweeney.

Inventor;  
Alfred Grieb  
by Henry L. Loeber  
Att'y.

No. 639,726.

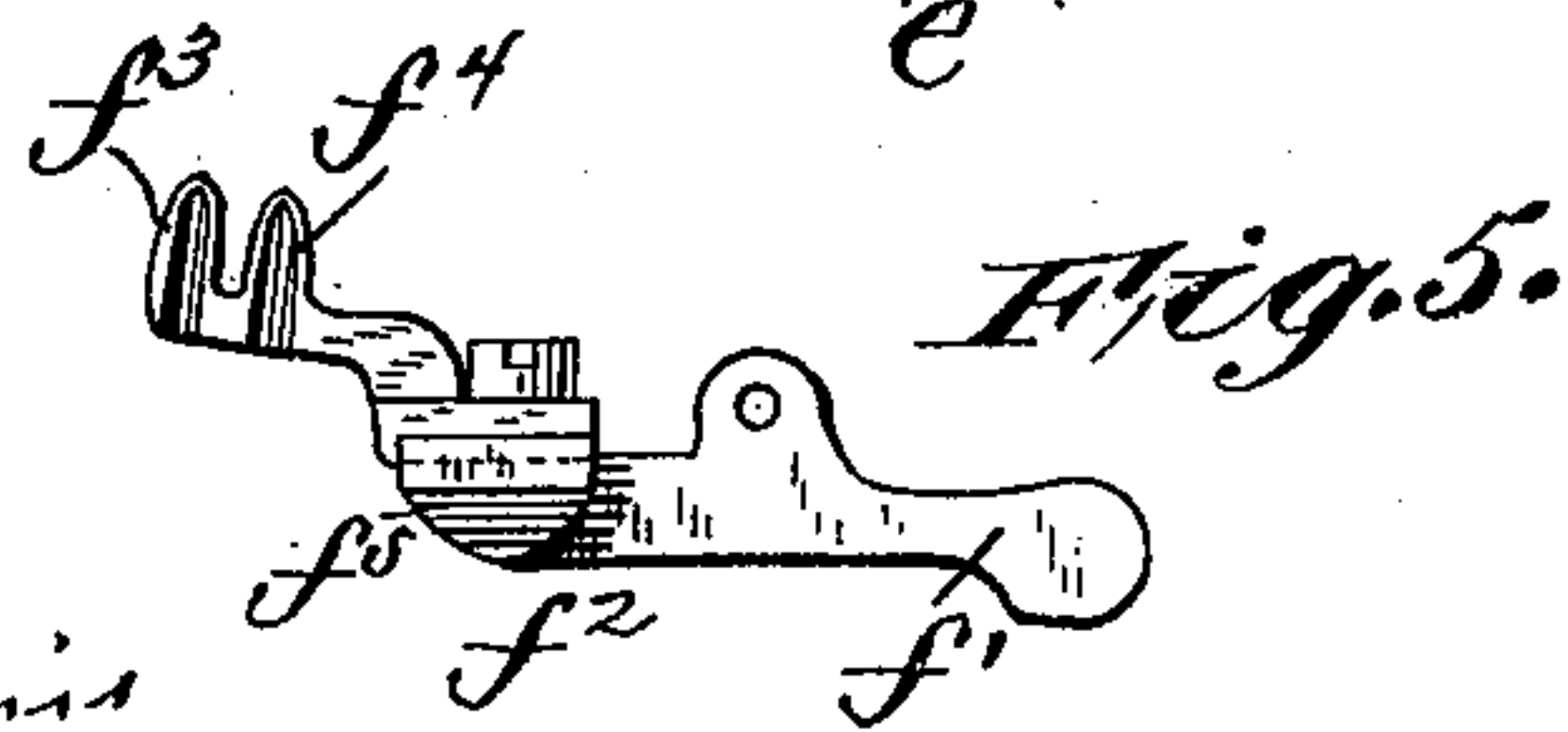
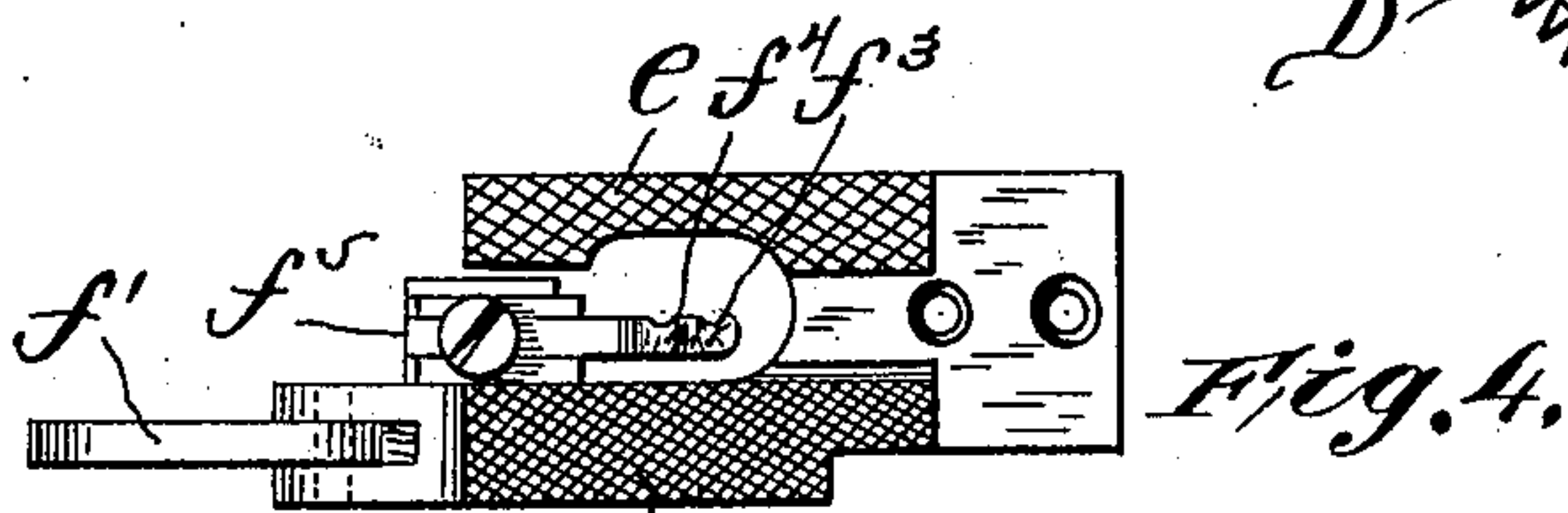
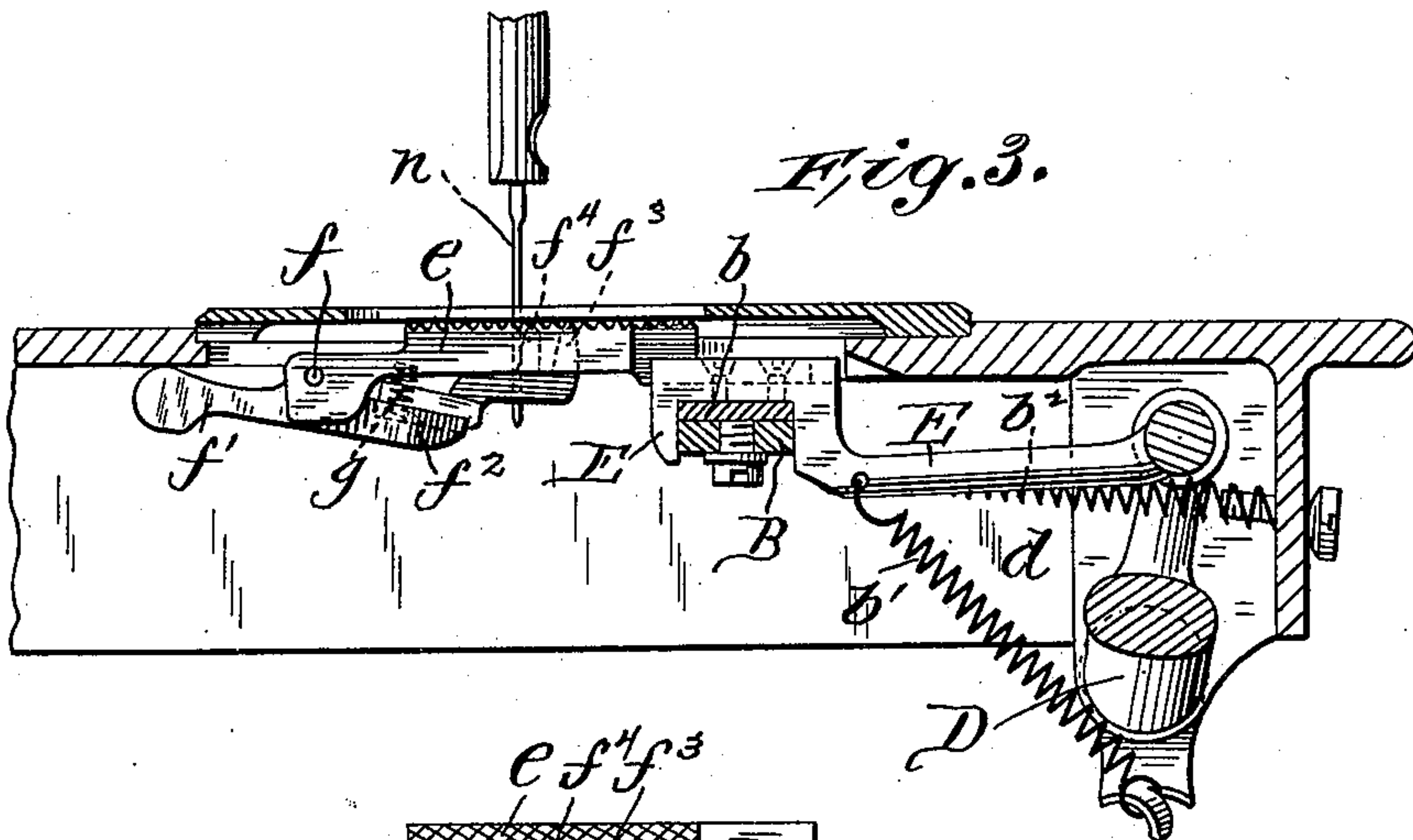
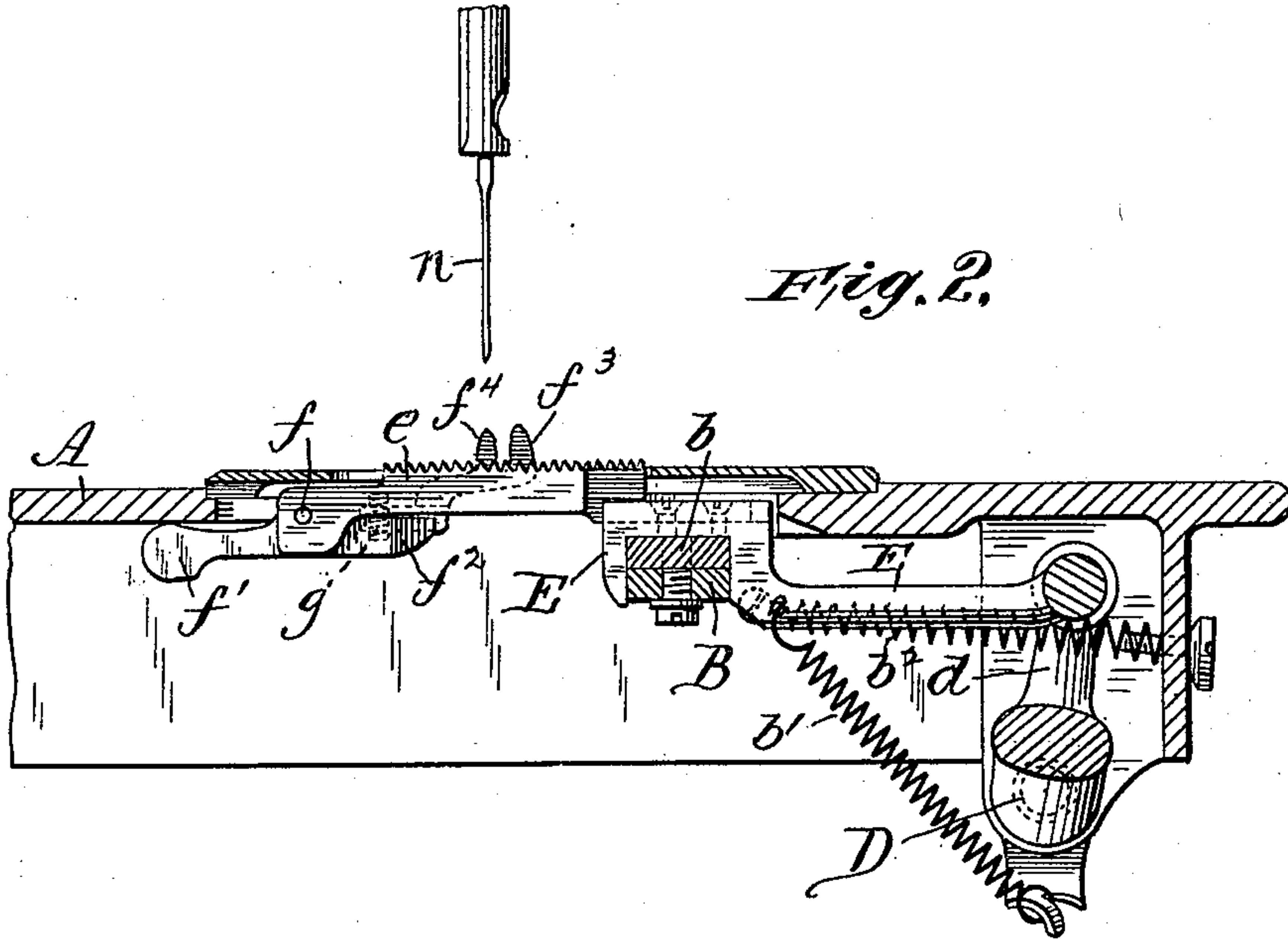
Patented Dec. 26, 1899.

A. GRIEB.  
HEMSTITCH SEWING MACHINE.

(Application filed Apr. 12, 1899.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses,  
C. W. Benjamin  
C. M. Sweeney

Inventor,  
Alfred Grieb  
by Henry L. Lutz  
att'y.



# UNITED STATES PATENT OFFICE.

ALFRED GRIEB, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE SINGER  
MANUFACTURING COMPANY, OF NEW JERSEY.

## HEMSTITCH SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 639,726, dated December 26, 1899.

Application filed April 12, 1899. Serial No. 712,723. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED GRIEB, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Hemstitch Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 In the use of that class of hemstitching sewing-machines more particularly adapted for "drawn" work, from which some of the threads of the woven fabrics have been drawn out (or omitted in the weaving) to form the open-work hem, it is desirable that the divided groups of threads when once separated from each other should be held apart until they have been secured in their divided positions by the sewing-threads. In the present invention this result is effectively accomplished by providing one or more piercers or thread-dividing spurs which are connected with the feed-dog of the machine so as to reciprocate back and forth therewith or so as to partake of the feeding movements thereof and also so constructed, arranged, and timed as to have proper vertical thread dividing and disengaging movements. These vertical movements of the thread dividing spur or spurs connected with the feed-dog are preferably considerably greater than the vertical movements of said feed-dog, although preferably timed to occur in unison with said vertical movements of said feed-dog.

35 The present invention is more particularly adapted for use in that class of machines in which the hemstitching is effected by a single vertically and horizontally reciprocating needle and in which the feed-dog has imparted to it two forward and one backward feeding movements for each three-stitch hemstitch figure or pattern, as in forming this hemstitch figure or pattern the thread-dividing spur or spurs will when once engaged with the fabric to divide the threads thereof remain in the fabric and hold the divided threads apart until the figure has been completed and will then be disengaged from the fabric with the feed-dog after the last forward

ward feeding movement has taken place prior to the commencement of a new hemstitch figure.

In the accompanying drawings, Figure 1 is a bottom view, with the shuttle mechanism removed, of a well-known form of Singer hemstitch sewing-machine embodying the present invention. Fig. 2 is a cross-section through the lower part of the same on line 2 2, Fig. 1, with the feed-dog and thread-dividing spurs in raised positions; and Fig. 3 is a similar view with the feed-dog and spurs in lowered positions. Fig. 4 is a detail plan view of the feed-dog and attached spur-carrying lever, and Fig. 5 is a detail view of the spur-carrying lever detached.

A denotes the bed-plate of the machine, beneath which is arranged a vibrating and longitudinally-reciprocating feed-lever B, operated in the usual or a well-known manner from the cam-wheel C.

D is a rocker pivoted to the bed-plate and having upwardly-projecting arms *d*, between which is hinged the feed-bar E, to which is attached the feed-dog *e*. The feed-lever is provided, as usual, with a wedge or incline *b*, which reciprocates beneath the feed-bar as said lever is moved longitudinally and which wedge or incline governs the vertical movements of said feed-bar. In the present instance the feed-bar is lowered and retracted by springs *b' b*<sup>2</sup>.

Pivotally attached to the feed-dog at *f* is a lever, one arm *f'* of which is arranged to impinge against the lower surface of the bed-plate, against which said arm is pressed by a spring *g*, interposed between the feed-dog and a part of said lever, the other arm *f*<sup>2</sup> of said lever being provided with one or more, preferably two, piercers or thread-dividing spurs *f*<sup>3</sup> *f*<sup>4</sup>, arranged a distance apart equal to the length of feed for any particular class of work for which they may be intended. The portion of the arm *f*<sup>2</sup> carrying the thread-dividing spur or spurs is preferably formed separate from and adjustably secured to the part *f*<sup>5</sup> of the spur-carrying lever. The lever *f'* *f*<sup>2</sup> *f*<sup>5</sup> being pivotally attached to the feed-dog *e* has bodily vertical movements there-



with, and as the feed-dog is raised and lowered said lever will have a vibrating movement on its fulcrum-pivot, owing to the engagement of the arm  $f'$  of said lever with the under surface of the bed-plate, against which said arm is held by the spring  $g$ . The spurs  $f^3 f^4$  are at some distance from the fulcrum of said lever, and they will have vertical movements in unison with the vertical movements of the feed-dog, but considerably greater, so as to perform their thread-dividing functions in an efficient manner when lifted and so as to be fully disengaged from the work when lowered and when they are to be moved backward with the feed-bar.

In the present machine (in which the needle-bar and needle will have the usual lateral movement of the hemstitch-machines) the feed-dog will have two forward and one backward feeding movements for each three-stitch hemstitch figure, the feed-dog being in its raised or feeding position during all of the time when this three-stitch figure is being formed, excepting after the formation of the last stitch of the figure, when said feed-dog is lowered and retracted. From this it results that the thread-dividing spurs, rising and falling with the feed-dog, will be lifted to divide the threads at the first stitch of the figure. The needle  $n$  now descends adjacent to the rear spur  $f^3$ , and as the feed-dog will be moved backward (still in its raised position) between the first and second stitches of the figure the needle at its second descent will enter the work adjacent to the forward spur  $f^4$ . Between the second and third stitches of the figure and while the feed remains lifted and with the spurs  $f^3 f^4$  in the work the needle will be moved laterally away from the said spurs, so that at its next descent it will enter the fabric of the hem, the two descents of the needle adjacent to the thread-dividing spurs being in the open-work portion of the hem, as will be understood. Thus it will be seen that when the thread-dividing spurs have once been engaged with the work to divide the threads they will remain in the work, moving backward and forward with the feed until the hemstitch figure is completed, and thus any displacement of the threads after they have once been divided will be impossible.

The details of the machine may be varied widely for different classes of work, as will be understood, as the present invention of a thread-dividing spur or spurs movable back and forth with the feed-dog of a hemstitch sewing-machine having a laterally-moving

needle and irregular feed is not confined to any particular kind of such machine. 60

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

1. In a hemstitch sewing-machine, the combination with the feeding device thereof, of one or more thread-dividing spurs which are independent of said feeding device but which are connected therewith so as to partake of the back-and-forth horizontal movements thereof. 70

2. In a hemstitch sewing-machine, the combination with the feeding device thereof, of one or more thread-dividing spurs connected with said feeding device so as to move back and forth horizontally therewith, and means for imparting to said spur or spurs vertical movements greater than the vertical movements of said feeding device. 75

3. In a hemstitch sewing-machine, the combination with a vertically and laterally moving needle and a four-motioned feeding device timed to remain lifted when the needle descends in the hem portion of the work, of one or more thread-dividing spurs connected with said feeding device so as to be raised when the latter is lifted, said spur or spurs remaining engaged with the work, to hold the divided threads apart, while the side stitch is being made in the body of the hem. 80

4. In a hemstitch sewing-machine, the combination with the feed-dog thereof, of one or more thread-dividing spurs adjustably connected with said feed-dog. 85

5. In a hemstitch sewing-machine, the combination with a four-motioned feed-dog, of a lever pivoted thereto and thus movable back and forth therewith, said lever being provided with one or more thread-dividing spurs, and means for vibrating said lever on its pivot or fulcrum as said feed-dog is raised and lowered. 90

6. In a hemstitch sewing-machine, the combination with the four-motioned feed-dog  $e$ , of a lever pivoted to said feed-dog and one arm of which lever is arranged to impinge against a fixed surface, as the under side of the bed-plate of the machine, and the other arm of which is provided with thread-dividing spurs, and a spring, as  $g$ , interposed between said feed-dog and a part of said lever. 95

In testimony whereof I affix my signature in the presence of two witnesses. 110

ALFRED GRIEB.

Witnesses:

HENRY J. MILLER,  
HAROLD W. BROWN.