

No. 741,035.

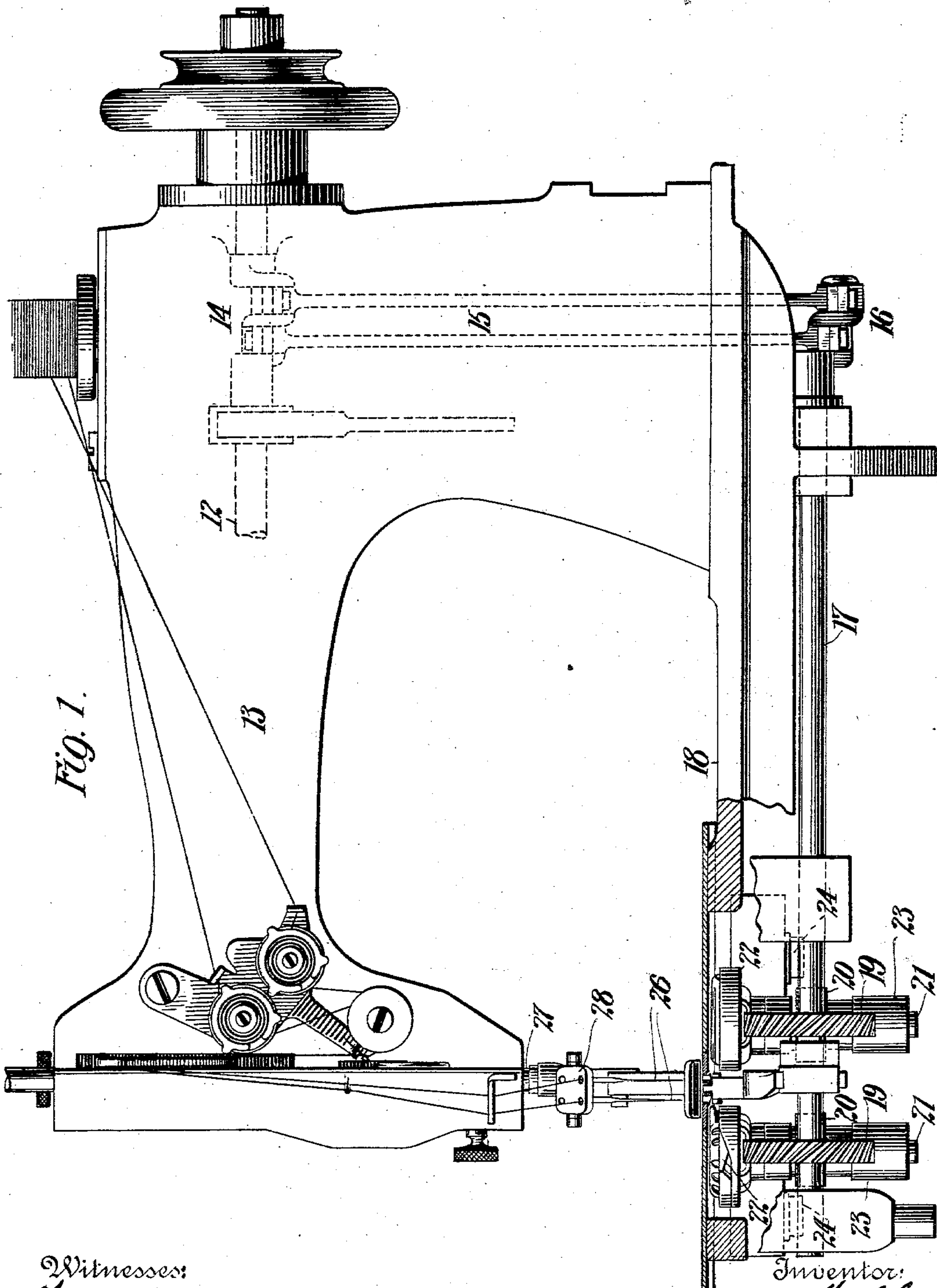
PATENTED OCT. 13, 1903.

M. HEMLEB.
SEWING MACHINE.

APPLICATION FILED JUNE 2, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:
Paul S. Ober
C. M. Sweeney.

Inventor:
Martin Hemleb,
By His Attorney

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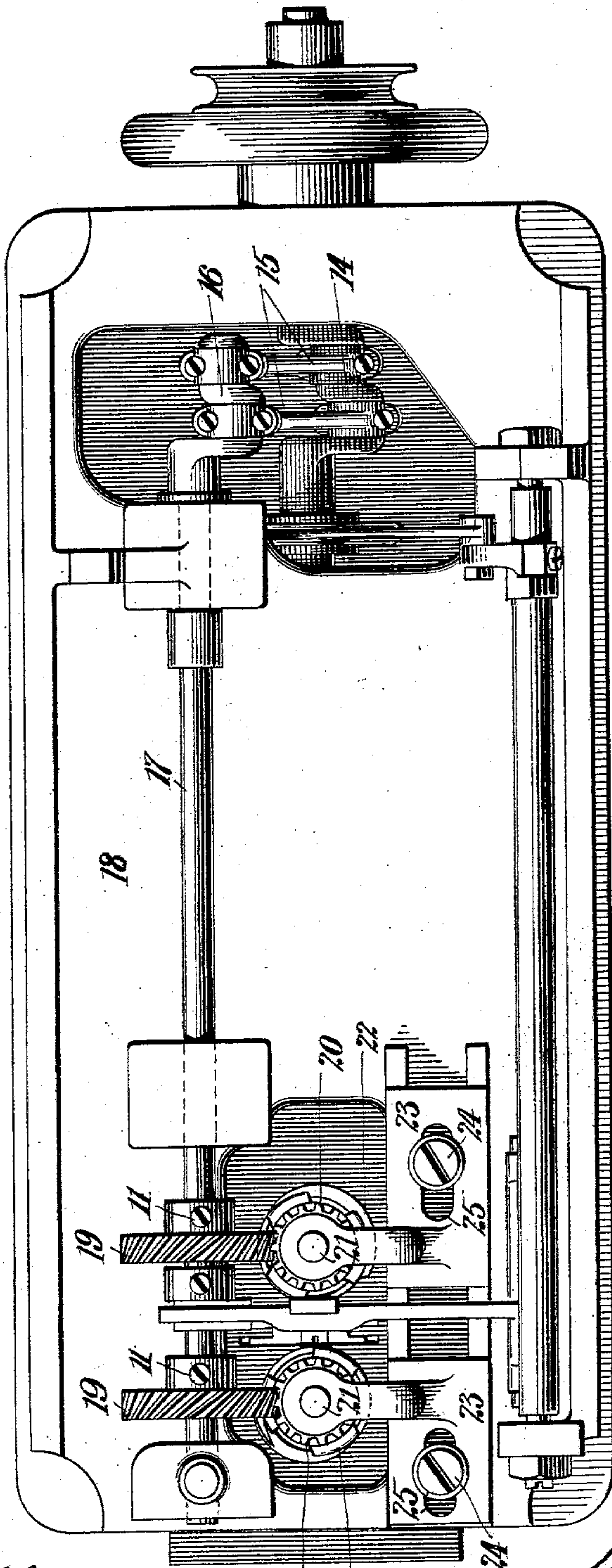
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SEWING MACHINE.

APPLICATION FILED JUNE 2, 1903.

NO MODEL.

3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 4.

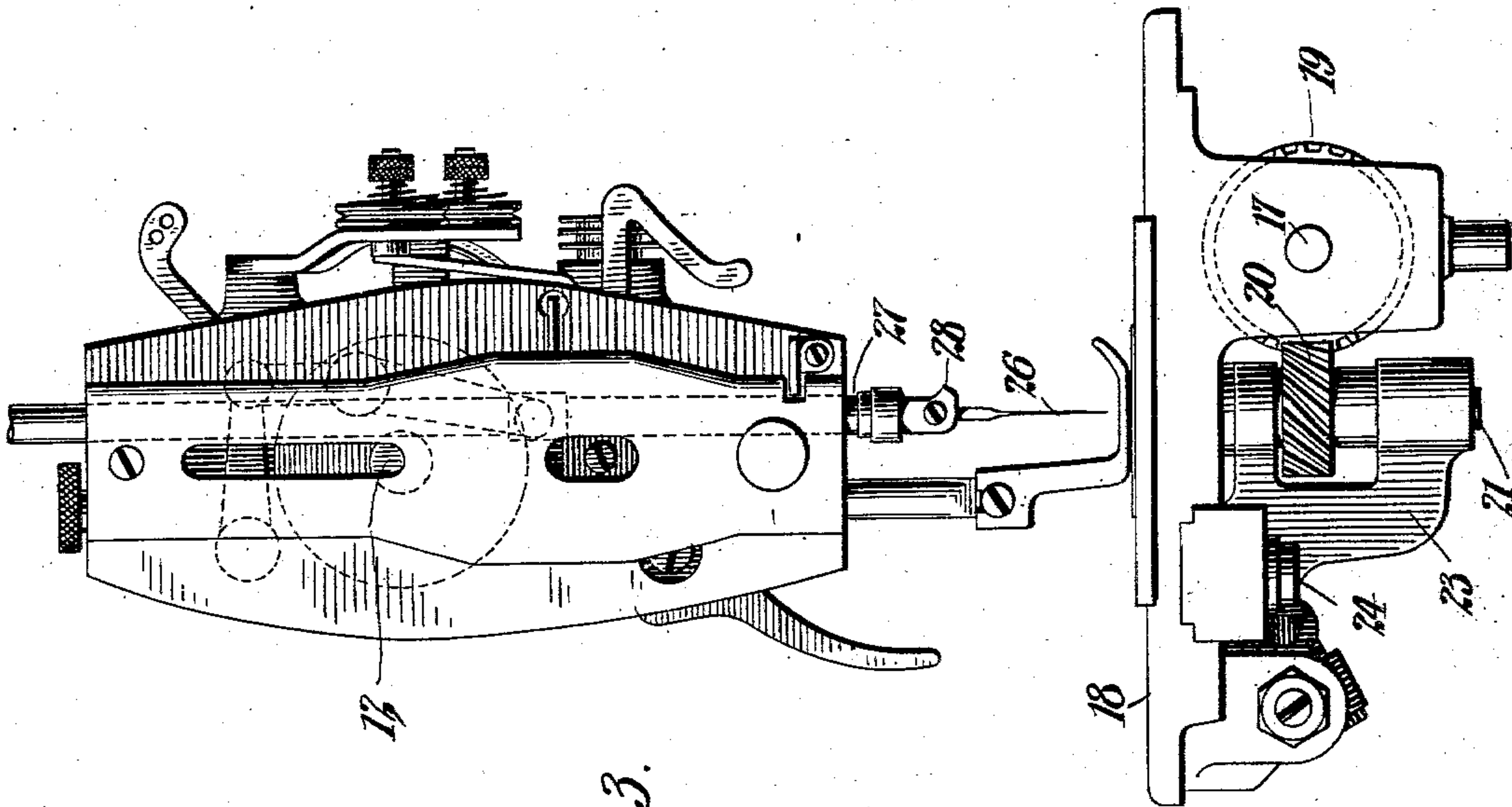
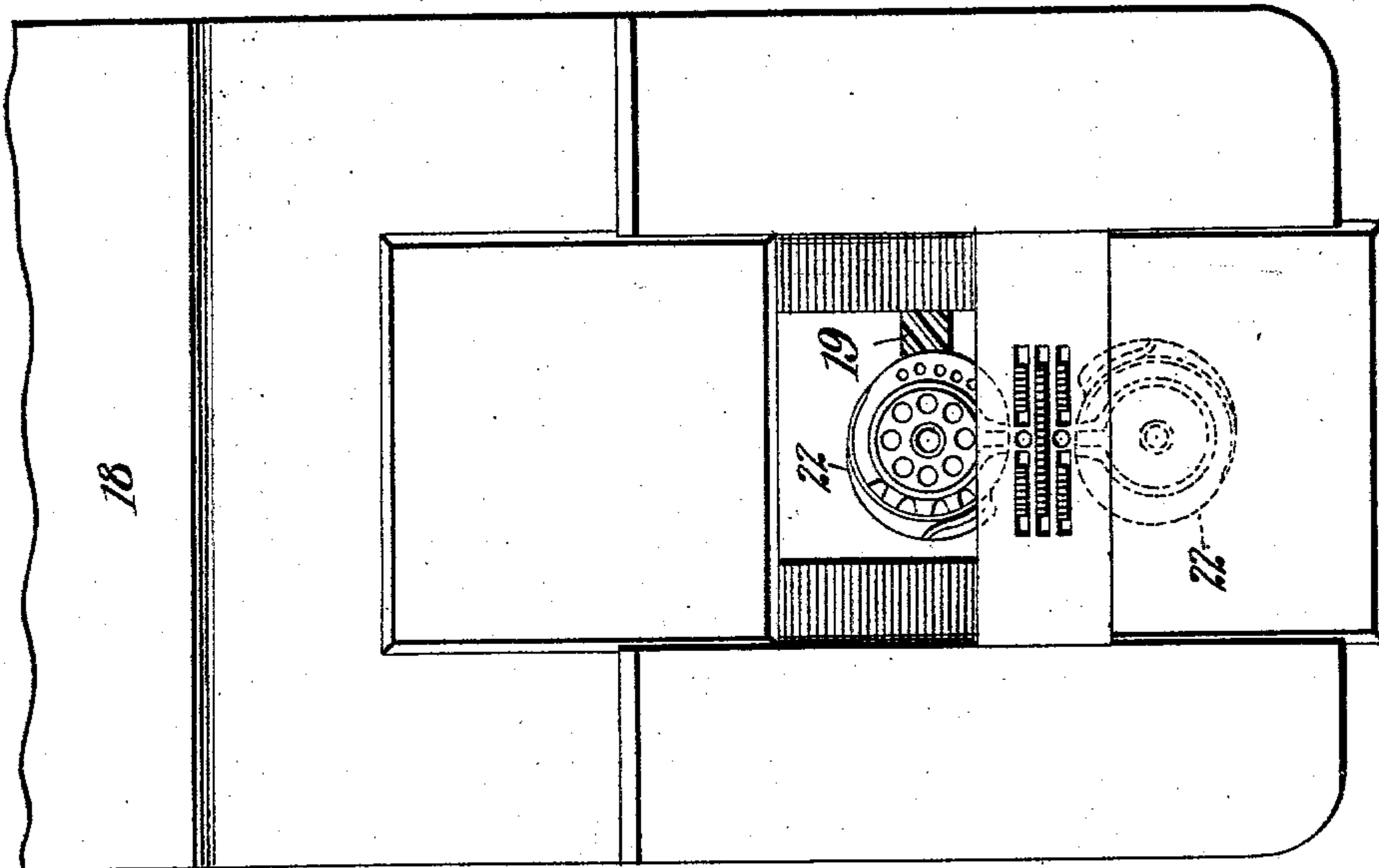


Fig. 3.

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UNITED STATES PATENT OFFICE.

MARTIN HEMLEB, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 741,035, dated October 13, 1903.

Application filed June 2, 1903. Serial No. 159,737. (No model.)

To all whom it may concern:

Be it known that I, MARTIN HEMLEB, 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 Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to that class of two-needle sewing-machines employing two revolving hooks or loop-takers carried by vertical shafts geared to a rotating operating-shaft beneath the work-plate of the machine; and the invention has for its object to provide a machine of the class referred to in which the power is so applied to the vertical loop-taker shafts (which preferably run at double the speed of the shaft from which they are driven) in such a manner that they will run smoothly and evenly and so that side thrust will be avoided as far as possible, thereby particularly adapting the machine for high speeds.

In the accompanying drawings, Figure 1 is a side view, partly broken out, of a sewing-machine embodying the present invention. Fig. 2 is a bottom view, and Fig. 3 a front end view, of the same. Fig. 4 is a partial plan view of the work-plate, with one of the cover-slides partly withdrawn from working position.

The machine herein illustrated so far as concerns the feeding, take-up, and needle-bar mechanisms, is of a well-known type of Singer machine, said mechanisms being operated, as heretofore, from a driving-shaft 12, journaled in the upper part of the arm 13. The shaft 12 is provided with twin cranks 14, connected by pitmen 15 with similar twin cranks 16 at the rear end of a rotating shaft 17, journaled in suitable bearings beneath the work-plate or bed 18 and provided near its forward end with spiral gears 19, meshing with smaller spiral gears 20 on the vertical shafts 21, carrying the revolving hooks 22.

The vertical shafts 21 are journaled in brackets 23, which are preferably adjustably attached to the work-plate or bed 18 by means of screws 24, passing through slots 25 in the horizontal portions of said brackets, so that

one or both of said brackets may be adjusted horizontally to vary the distance apart of the two seams or lines of stitching being made with the machine. The gears 19 are adjustably secured to the shaft 17 by screws 11, with which the collars of said gears are provided, so that said gears 19 may be moved as required when the positions of the vertical hook-carrying shafts are changed. The two needles 26, cooperating with the two revolving hooks, are carried in the usual manner by a needle-bar 27, and in varying the distance apart of the seams or rows of stitches the needles may be adjusted toward or from each other in any well-known manner, or interchangeable needle-clamps 28 with needle-holes at varying distances apart may be provided.

By the employment of spiral gears on the shafts 17 and 21 in the manner shown and described the two vertical hook-shafts 21 may both be driven in the same direction from the shaft 17 and at any desired relative speed, the said hook-shafts in the present instance performing two rotations to each rotation of the actuating-shaft 17 and of the driving-shaft 12. Furthermore, the employment of the spiral gears in the manner shown and described enables the driven gears to be located in the middle portions or between the ends of the vertical shafts 21, so that bearings for said shafts, both above and below the spiral gears 20 on said shafts, may be provided in the brackets 23. In other words, bearings for each of the said vertical hook-carrying shafts are provided both above and below the spiral gears 20, where the power is applied to said shafts, and there will thus be less uneven side thrust on the shafts than would be the case were the power applied to the lower ends of the hook-shafts, and the use of the spiral gears not only admits of the direct connection of the shafts 17 and 21 above mentioned, but also permits the actuating-shaft 17 to be arranged at one side of the driven shafts 21 and comparatively close to the work-plate or bed of the machine instead of requiring said actuating-shaft to be located below the hook-carrying shafts, as would be necessary were bevel-gears employed.

For high-speed sewing-machines it is neces-

sary that the mechanism should be as simple as possible and that the parts should run smoothly to avoid wear, and these results in the loop-taking mechanism of the present machine are largely contributed to by the employment of spiral gearing in the manner hereinbefore set forth.

Having thus described my invention, I claim and desire to secure by Letters Patent—
10 In a two-needle sewing-machine, the combination with the needles and their operating mechanism, of a rotating shaft located beneath the work-plate of the machine and provided with two spiral gears adjustably attached thereto so that their positions length-
15 wise of said shaft may be varied, two brackets also beneath said work-plate and one or both of which are adjustably attached there-

to so that their distance apart may be changed, two vertical hook-carrying or loop-taker shafts provided, between their ends, with spiral gears meshing with the spiral gears on the said first-named shaft, said vertical shafts having bearings in said brackets both above and below the gears with which they are provided, and said spiral gears being so proportioned that said hook-carrying shafts will perform two rotations to each rotation of the shaft from which they are driven.

In testimony whereof I affix my signature 30 in presence of two witnesses.

MARTIN HEMLEB.

Witnesses:

ALFRED GRIEB,
HENRY J. MILLER.