

L. ONDERDONK.
 LOOPER OPERATING MECHANISM FOR SEWING MACHINES.
 APPLICATION FILED JUNE 21, 1904.

903,226.

Patented Nov. 10, 1908.

2 SHEETS—SHEET 1.

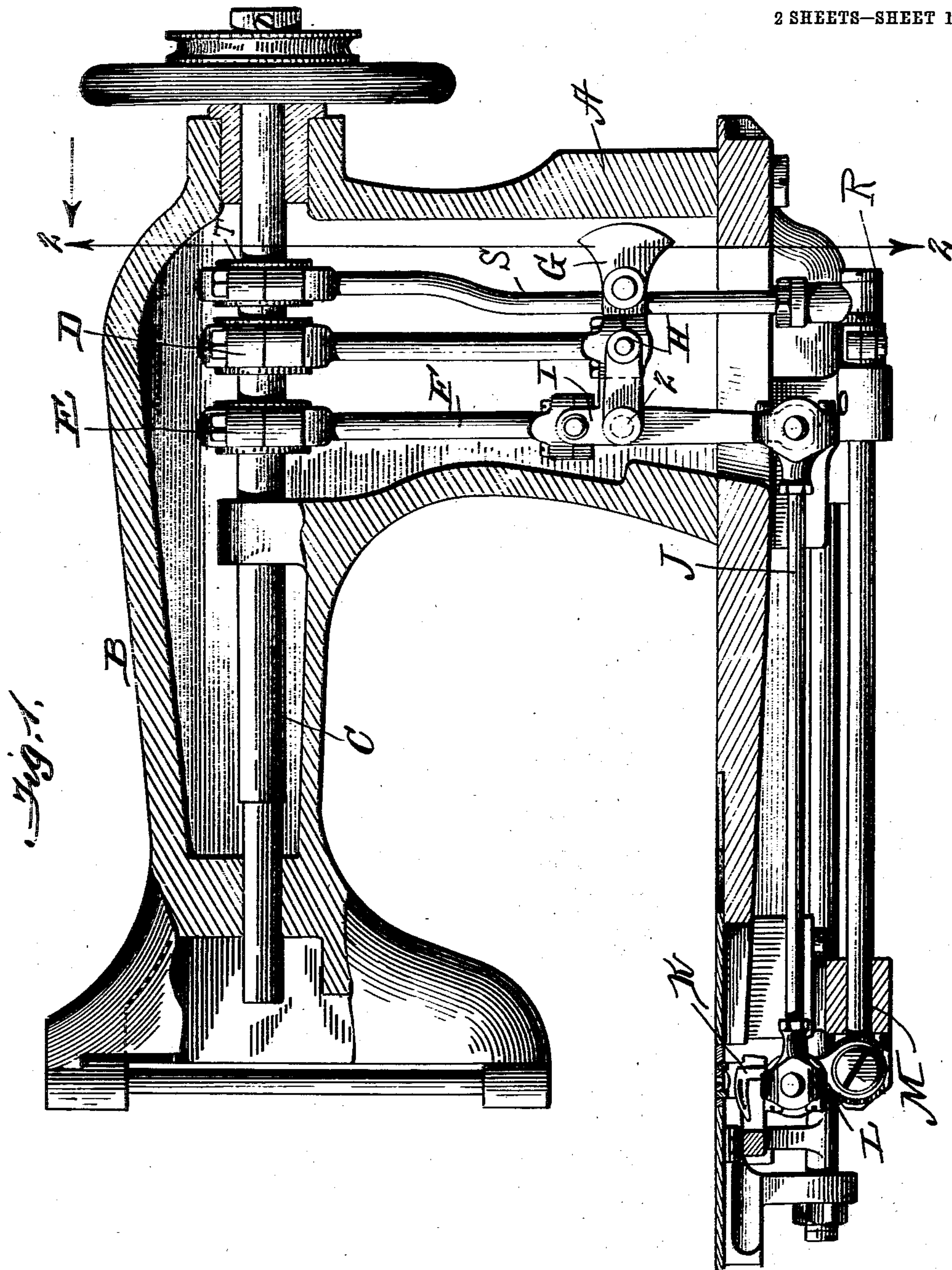


Fig. 1.

L. Onderdonk ^{Inventor}

Witnesses

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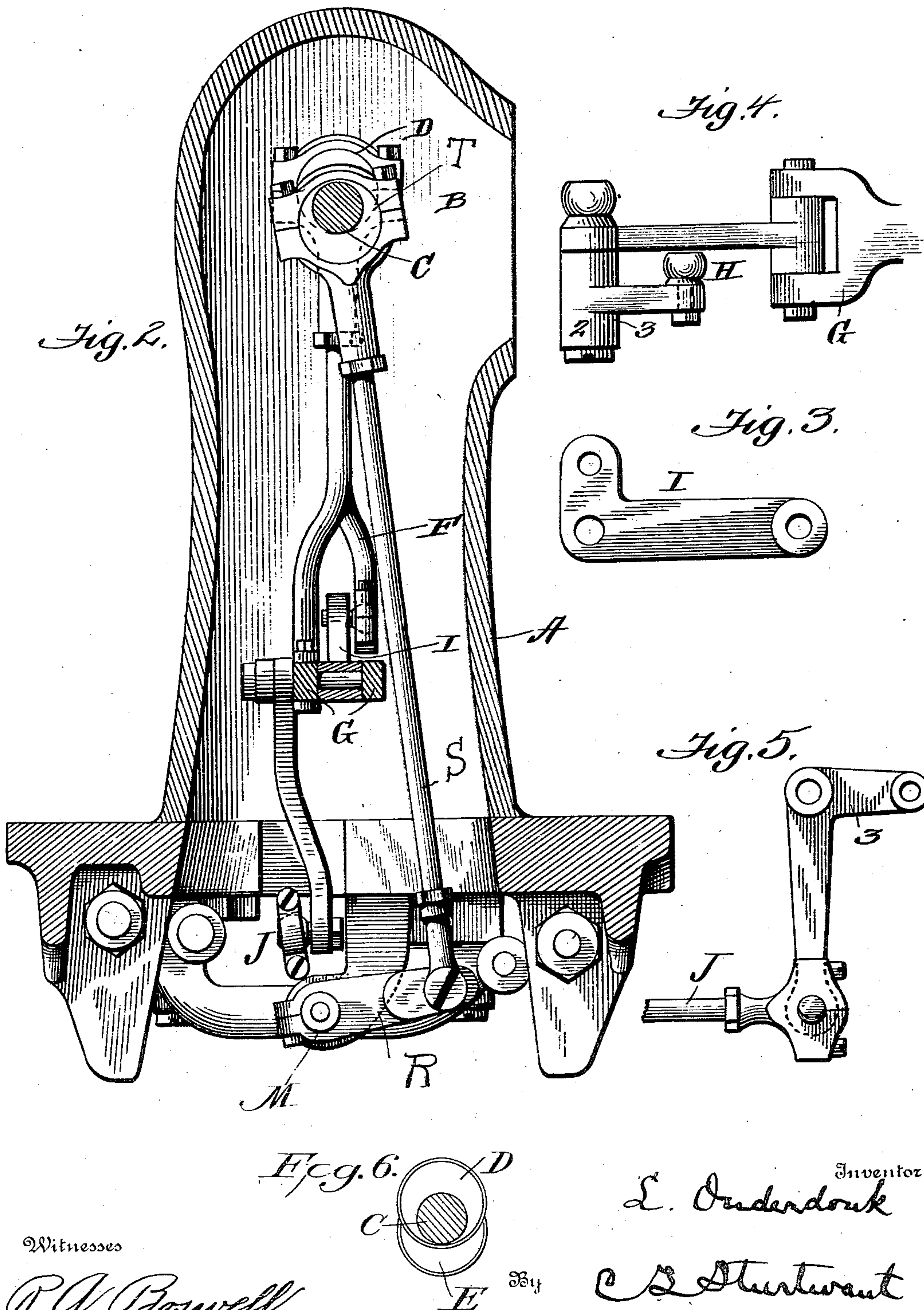
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UNITED STATES PATENT OFFICE.

LANSING ONDERDONK, OF NEW YORK, N. Y., ASSIGNOR TO UNION SPECIAL SEWING MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

LOOPER-OPERATING MECHANISM FOR SEWING-MACHINES.

No. 903,226.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed June 21, 1904. Serial No. 213,516.

To all whom it may concern:

Be it known that I, LANSING ONDERDONK, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Looper-Operating Mechanism for Sewing-Machines, of which the following is a description, reference being had to the accompanying drawing, and to the letters and figures of reference marked thereon.

My invention relates to an improvement in sewing machines, and particularly to a looper-operating mechanism for chain stitch sewing machines, employing a rotating driving shaft, arranged in the gooseneck or overhanging arm of the machine.

The object is to provide a looper-operating mechanism, capable of high speed, and which shall be so well balanced in its operating parts that at the maximum speed there will be no perceptible vibration.

The invention consists in the matters hereinafter described and referred to in the appended claims.

The invention is illustrated in the accompanying drawings, in which,

Figure 1 is a front view, partly in section, with those parts of the sewing mechanism omitted which do not relate to the looper-operating mechanism; Fig. 2 is a vertical section of the machine on line 2—2 of Fig. 1; Fig. 3 is a detail side view of the swinging lever or bracket; Fig. 4 is a top plan view in detail of the swinging lever and bell crank lever; and Fig. 5 is a detail side view of the bell crank lever. Fig. 6 is a detail view showing the relative positions of the eccentrics for operating the looper in the direction of its length.

In these drawings, A represents the machine standard, and B the gooseneck or overhanging arm, and C the rotary driving shaft journaled in bearings in the gooseneck of the machine. Upon the rotary shaft are two oppositely placed eccentrics D, E. Upon the eccentric E is one end of a connecting rod F, which at its lower end has a ball and stud free connection with one end of the swinging lever I, which at its opposite end is pivoted to a stationary part of the machine frame, preferably by being sleeved upon the short shaft carried by the bracket G. The other eccentric D is connected by an eccentric connecting rod, by a ball and

stud connection H, to one arm of a bell crank lever 3, pivoted at 2 to the swinging lever or bracket I. The lower arm of this bell crank lever 3, is attached by the usual ball joint to the looper-operating pitman J, which imparts the forward and backward movement in the direction of its length to the looper K, which is attached to the usual looper rocker L on the looper-supporting shaft M, which is oscillated by suitable connections to the driving shaft to impart the needle-avoiding movement.

As shown in Figs. 1 and 2, said looper-supporting shaft M is provided with a crank R, which is connected by a link S to an eccentric T on the main shaft C.

In the rotation of the driving shaft, it will be noticed that the eccentric E, is drawing upwardly the end of the swinging lever and the bell crank lever, bodily, while the eccentric D is forcing down one arm of the bell crank lever 3, and, therefore, swinging the looper forward, and vice versa, thus compounding the motion without excessive throw of the eccentrics, that is giving full motion to the looper with slight movement of the eccentrics, that is, with less throw than it would be necessary to give to one eccentric if only one were used.

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

1. In a sewing machine, an oscillating looper, a driving shaft, two oppositely disposed eccentrics mounted thereon, with connection rods on said eccentrics, a swinging lever, connected to one of said eccentrics, a bell crank lever mounted on the swinging lever and connected to the other eccentric, means independent of said levers for supporting said looper, and means for connecting the bell crank lever to the looper for oscillating the latter; substantially as described.

2. In a sewing machine, an oscillating looper, a driving shaft, two oppositely disposed eccentrics mounted thereon, a swinging lever pivotally secured to the machine frame and operatively connected to one of said eccentrics, a bell crank lever fulcrumed on said swinging lever, and having one of its arms in operative engagement with the other eccentric and operative connections between the other arm of said bell crank lever and the looper and means independent of said

levers for supporting said looper; substantially as described.

3. A looper-operating mechanism for sewing machines, comprising a driving shaft, an oscillating looper, and connections between the driving shaft and the looper, comprising a swinging lever, and means for swinging it, a bell crank lever fulcrumed thereon, and means for swinging it on its fulcrum as said fulcrum is raised and lowered, and operative connections between the bell crank lever and the looper whereby said looper is oscillated in the direction of its length and means independent of said connections between the driving shaft and the looper for giving said looper a needle avoiding movement, substantially as described.

4. A sewing machine including in combination a rotary shaft, eccentrics disposed on substantially opposite sides of the longitudinal axis of said shaft, a thread taking device, means interposed between said eccentrics and the thread taking device, for compounding the movement of said eccentrics and oscillating said thread taking device in the direction of its length, said thread taking device being mounted independently of said operating means.

5. In a sewing machine having a suitable frame, a rotary shaft having bearings in the upper part of said frame, two oppositely disposed eccentrics mounted on said rotary shaft, a lower thread-taking device and intermediate connections between said oppositely disposed eccentrics and the thread taking device for oscillating said thread-taking device in the direction of its length, said thread-taking device being supported independently of said intermediate connections.

6. In a sewing machine having a suitable frame, a rotary shaft mounted in the upper part or gooseneck of said frame, two oppositely disposed eccentrics mounted on said rotary shaft, means for compounding the motion derived from said oppositely disposed eccentrics, a lower thread-taking device, intermediate connections between the

means for compounding the motion and the loop taker for oscillating said lower thread taking device in the direction of its length; substantially as described.

7. In a sewing machine having a suitable frame, and having a vertical and overhanging portion, a rotary shaft, a plurality of oppositely disposed eccentrics, connection rods on said eccentrics extending into the vertical portion of said frame, means for compounding the movement derived from said eccentrics and transmitted by the connection rods, a lower thread-taking device, and connections between the means for compounding the motion and the loop taker, to move it forward and backward in the direction of its length; substantially as described.

8. In a sewing machine, an upper driving shaft, eccentrics on said shaft, vertically arranged eccentric rods, at their upper ends embracing said eccentrics, a lever pivoted on the machine frame, and connected to the lower end of one of said eccentric rods, a bell crank lever pivoted to said swinging lever and having one of its arms connected to the lower end of the other of said eccentric rods, an oscillating looper and connections between the other arm of the bell crank lever and the looper for oscillating said looper in the direction of its length; substantially as described.

9. A sewing machine including in combination a rotary shaft, a needle, means for operating said needle, oppositely disposed eccentrics mounted on said shaft, a looper, means interposed between said eccentrics and the looper for oscillating said looper in the direction of its length, said looper being mounted independently of said operating means, and a third eccentric mounted on said rotary shaft, for giving said looper a needle avoiding movement.

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

LANSING ONDERDONK.

Witnesses:

W. L. SWIFT,
E. T. ALLAN.