

No. 705,604.

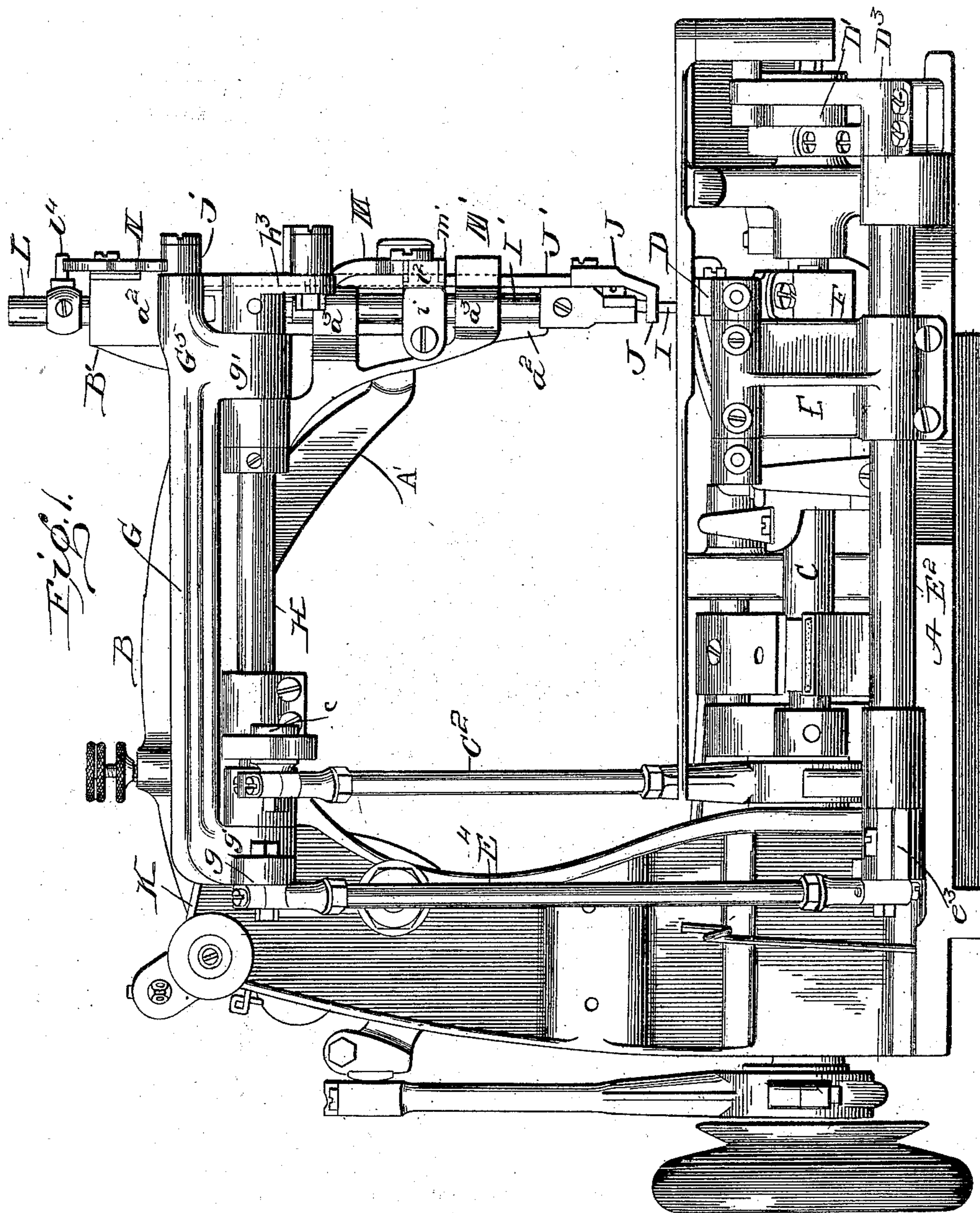
Patented July 29, 1902.

L. ONDERDONK & A. A. MERRITT.
FEEDING MECHANISM FOR SEWING MACHINES.

(Application filed Nov. 9, 1901.)

(No Model.)

3 Sheets—Sheet 1.



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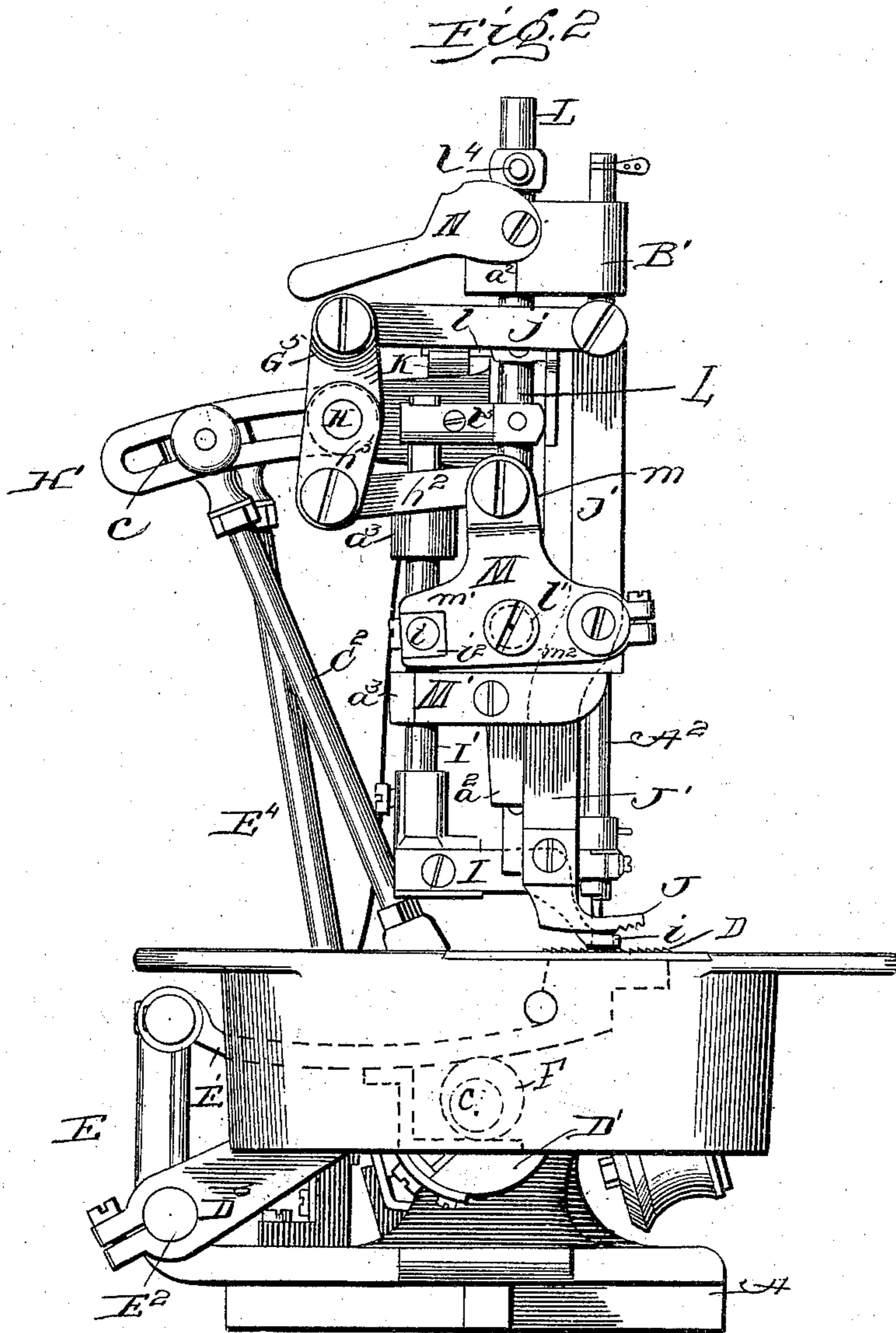
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3 Sheets—Sheet 2.



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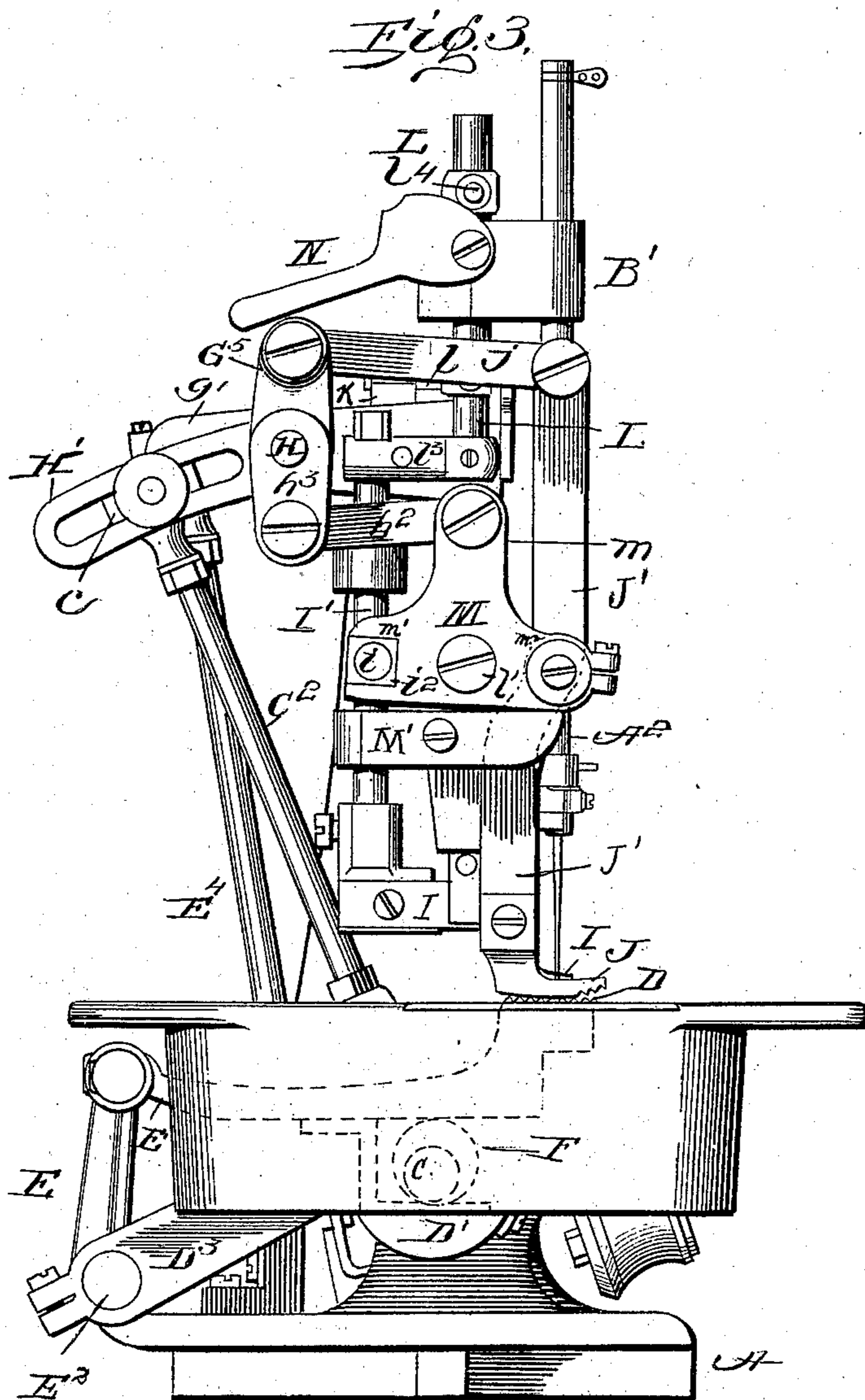
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(Application filed Nov. 9, 1901.)

(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

LANSING ONDERDONK AND ARTHUR AUGUSTUS MERRITT, OF NEW YORK, N. Y., ASSIGNORS TO THE UNION SPECIAL SEWING MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 705,604, dated July 29, 1902.

Application filed November 9, 1901. Serial No. 81,759. (No model.)

To all whom it may concern:

Be it known that we, LANSING ONDERDONK and ARTHUR AUGUSTUS MERRITT, citizens of the United States, residing at New York city, in the county of New York, State of New York, have invented certain new and useful Improvements in Feeding Mechanism for Sewing-Machines, of which the following is a description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

This invention relates to that class of sewing-machines in which there are two independently-operating presser-feet, one having a vertical two-motion to coact with the needle and hold down the work at the needle-opening in the throat-plate and the other having a four-motion with its foot opposed to the feed-dog to clamp the work thereon and feed it therewith.

The objects of our improvements are to provide means for preventing the two presser-feet from hammering on the parts beneath them when there is no work under them, to provide a simple and effective means for operating said presser-feet. These objects we accomplish by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a rear elevation of a sewing-machine with our improvements applied. Fig. 2 is an end elevation of the same. Fig. 3 is a similar view of the parts in a different position.

A designates the bed; B, the gooseneck; C, the main shaft, and D the feed-dog mounted on the feed-bar E', which receives its four-motion movement from the cam F on the main shaft and the rocker E at the rear of the bed. The rocker-shaft E² is provided at its outer end with an arm D³, which extends forwardly to a stitch-regulating device D' on the outer end of the main shaft and from which motion is imparted to said shaft E². A' designates the needle-arm, and A² is the needle-bar mounted in guide-lugs on the front of the gooseneck-head B'. All of these parts are substantially identical with what is shown in Patent No. 299,568, granted to Muther and Dearborn June 3, 1884, except that the rocker-arm E is mounted rigidly on the rock-

shaft E², extending along the rim of the bed, and the arm D³ is affixed to said shaft instead of directly to the rocker-arm.

The rock-shaft E² is provided at its inner end with a crank-arm e³, connected by an upwardly-extending connecting-rod E⁴ with an outwardly-projecting crank-arm g at the inner or right-hand end of an upper rock shaft or bar G. The rock shaft or bar G is provided with depending bearings g' g', turning on another rock-shaft H, mounted in bearings at the rear side of the gooseneck and actuated from the main shaft C by means of a connecting-rod C², extending from an eccentric thereon up to an adjustable block c², mounted in a slot in a crank-arm H', projecting rearwardly from the inner end of the rock-shaft H.

L designates a vertically - reciprocating shaft or bar mounted in bearings a² a² on the outer side of the head B' and forced down by a strong spring K, the free end of which bears upon an adjustable pin l on said vertical shaft.

M designates an inverted-T-shape rocking lever pivoted at the juncture of its three arms on a stud l', projecting from the vertical shaft L. The upwardly-projecting arm m of this rocking lever is connected by a link h² with a crank-arm h³ on the outer or left-hand end of the rock-shaft H, so that the lever M will be rocked from said shaft.

I' is the needle presser-bar, mounted in bearings a³ a³ on head B', directly in rear of the shaft or bar L, and provided with an adjustable pin i, having a block i² turning on it and engaged by a fork or slot in the rear end of the arm m' of rocking lever M. A guide-arm l³ extends from the vertical shaft or rod L and is forked to embrace and slide on the upper flattened end of the presser-bar I'. This presser-foot I serves to hold the work down and to strip it from the needle.

J' is the feeding presser-bar, pivoted between its ends to the forward arm m² of the lever M and having a feeding presser-foot J on its lower end directly opposed to the feed-dog D and cooperating therewith to clamp the work and feed it positively. The upward movement of the presser-foot bars I J' is im-

parted to them alternately by this rocking lever M, and one presser-foot serves as the bearing-point or fulcrum for the other while being so raised.

- 5 The horizontal or feeding throw is imparted to the feeding presser-foot bar J' by means of a link j, which extends rearwardly to a crank G⁵ on the outer or left-hand end of the rocker shaft or bar G.
- 10 In order that the downward movement of the lever M may be limited to prevent the presser-feet I J from coming in contact with the throat-plate and feed-dog, respectively, we secure to the head B' a transverse stop M',
- 15 having a horizontal upper edge, on which the lower horizontal edge of lever M rests when no work is under the presser-feet, but which is held out of contact with said stop M' when the work is in place.
- 20 N is a lifting-cam pivoted to the head under a pin or projection l⁴ on the upper end of the vertical shaft or bar L and by means of which both of the presser-foot bars may be lifted simultaneously from the work through
- 25 the medium of said lever M, and the force of the spring K is exerted on both these presser-foot bars through the medium of this same lever M.

The presser-foot J is recessed to receive the smaller needle presser-foot I.

To prevent noise or pounding, the bearing-surface of one of the pieces M or M' must be slightly convex.

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

1. In a sewing-machine, the combination with the two independently-operating presser-foot bars, means for imparting vertical movement to the bars alternately in opposite directions and means for oscillating one of the bars, of a stop device to limit the downward movement of both presser-bars to prevent the presser-feet from contacting with the parts of the machine beneath them; substantially as described.
- 40 2. The combination in a sewing-machine with the four-motion feed, of a vertically-reciprocating spring-depressed shaft or rod on the machine-head, a vertically-rocking lever pivoted to the said vertically-reciprocating shaft and operatively connected above the pivot to the main shaft of the machine, a vertically-reciprocating needle presser-bar pivotally connected to said vertically-rocking lever in rear of its axis for operation thereby and provided with a presser-foot to hold the work down on the throat-plate and strip the needle, a feeding presser-bar pivoted to said
- 50 vertically-rocking lever in front of the axis thereof for vertical reciprocation thereby toward and from the feed-dog, and operative connections between the feeding presser-foot bar and the feed mechanism; substantially as described.
- 55 3. The combination in a sewing-machine with the four-motion feed, of a vertically-re-

ciprocating spring-depressed shaft or rod on the machine-head, a vertically-rocking lever pivoted to the said vertically-reciprocating shaft and operatively connected above the pivot to the main shaft of the machine, a vertically-reciprocating needle presser-bar pivotally connected to said vertically-rocking lever in rear of its axis for operation thereby and provided with a presser-foot to hold the work down on the throat-plate and strip the needle, a four-motion feeding presser-bar pivoted between its ends to said vertically-rocking lever in front of the axis thereof for vertical reciprocation thereby toward and from the feed-dog, and operative connections between the upper end of the feeding presser-foot bar and the feed mechanism; substantially as described.

4. In a sewing-machine, the combination with the four-motion feed, of a vertically-reciprocating spring-depressed shaft or bar mounted on the machine-head, a rocking lever pivoted to said shaft or bar and actuated above its axis from the main shaft, a vertically-reciprocating needle presser-foot bar pivotally connected to said rocking lever in rear of the axis thereof and provided with a presser-foot to hold the work down on the throat-plate and strip the needle, a four-motion feeding presser-foot bar pivoted between its ends to the said rocking lever in front of the axis thereof for vertical movement thereby, and provided at its lower end with a presser-foot opposed to the upper face of the feed-dog to clamp and feed the work, operative connections between the rocking lever above its axis, and the feed-dog-operating mechanism, and a horizontal stop secured to the head under the lower horizontal edge of said rocking lever to limit the downward movement of said lever and the presser-foot bars pivoted thereto; substantially as described.

5. In a sewing-machine, the combination with the four-motion feed including a rock-shaft actuated from the main shaft, and two upper rock-shafts along the rear of the gooseneck; one of said shafts being rocked from the feed rocker-shaft and the other from the main shaft, of a vertically-reciprocating spring-depressed shaft or bar on the machine-head, a vertically-rocking lever pivoted to said shaft and linked above the axis to the outer cranked end of that rock-shaft which is actuated from the main shaft, a vertically-reciprocating needle presser-foot bar pivotally connected to the vertically-rocking lever in rear of the axis thereof and provided with a presser-foot to hold the work down on the throat-plate and strip the needle, a four-motion feeding presser-foot bar pivoted between its ends to the rocking lever in front of the axis thereof and provided with a presser-foot opposed to the upper face of the feed-dog to clamp the work thereon and feed it positively, a link connecting the upper end of the feeding presser-foot bar with the cranked outer end

of the other of said two upper rock-shafts for
oscillation from the feed-dog rock-shaft, and
a lifting-cam adapted to engage a projection
on said vertically-reciprocating shaft and si-
5 multaneously raise the rocking lever and the
two presser-bars connected therewith; sub-
stantially as described.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

LANSING ONDERDONK.

ARTHUR AUGUSTUS MERRITT.

Witnesses:

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