

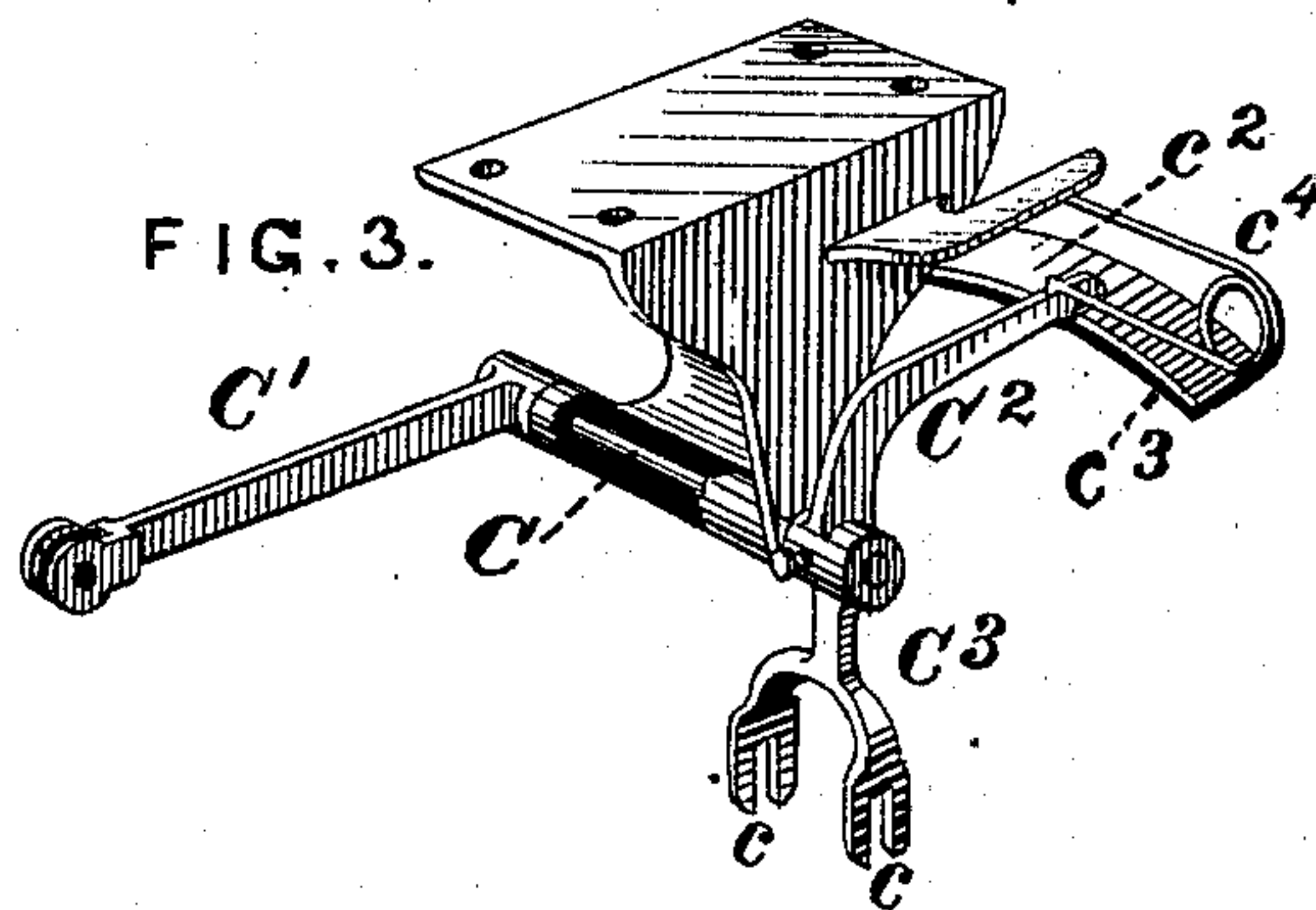
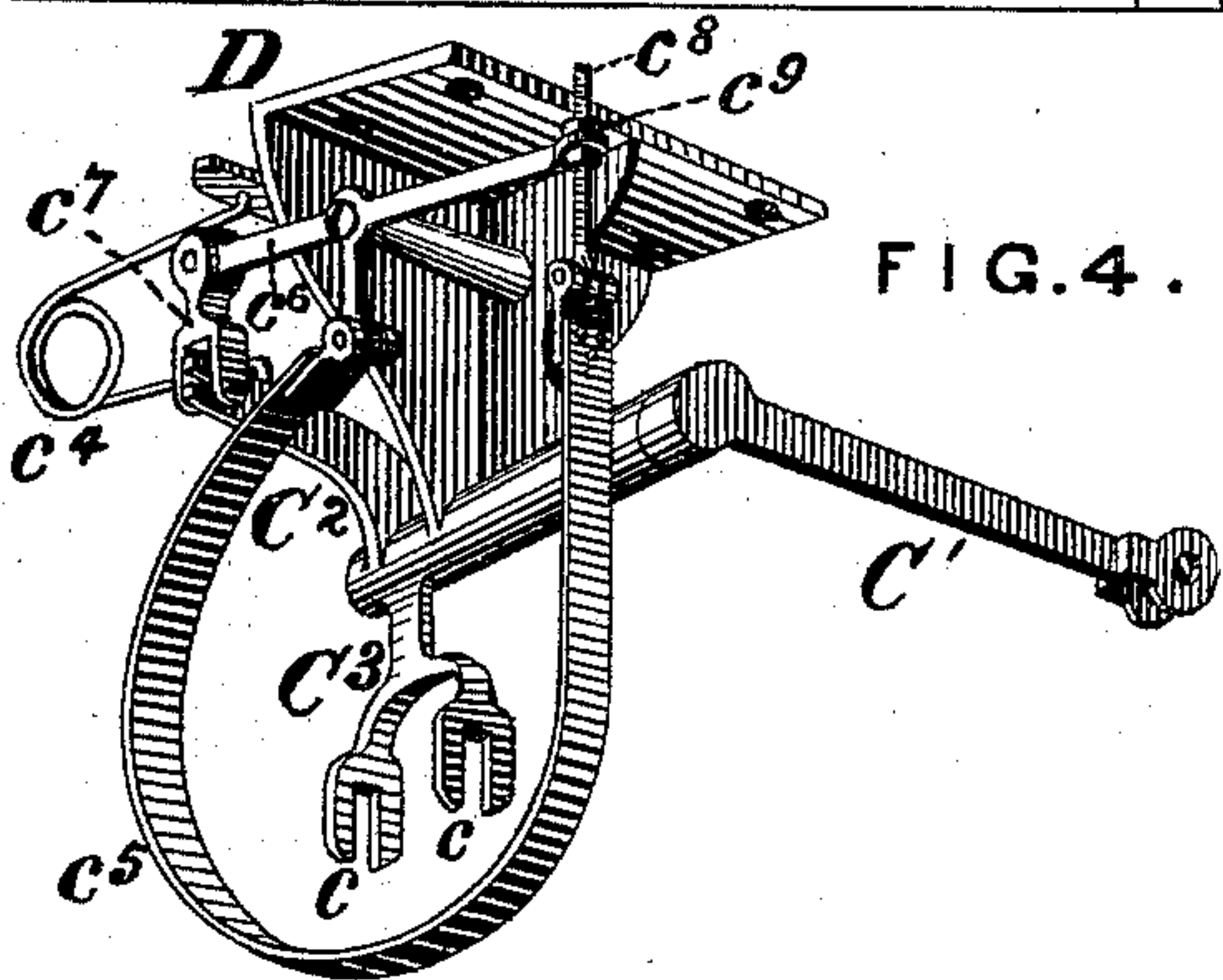
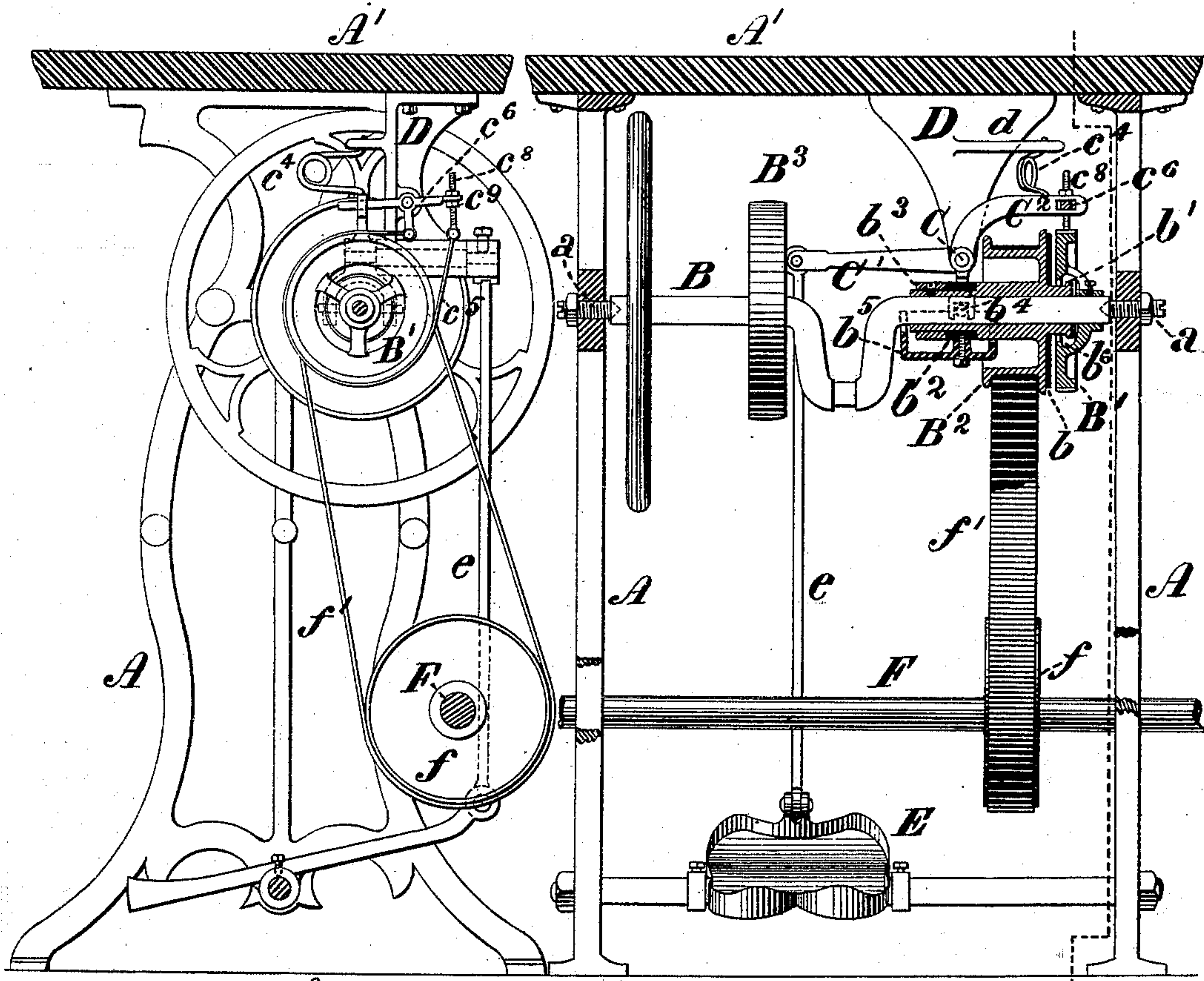
L. STERNBERGER.
Clutching and Braking Device for Power-Driven
Sewing-Machines.

No. 223,656.

Patented Jan. 20, 1880.

FIG. 2.

FIG. 1.



WITNESSES.

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CLUTCHING AND BRAKING DEVICE FOR POWER-DRIVEN SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 223,656, dated January 20, 1880.

Application filed September 24, 1879.

To all whom it may concern :

Be it known that I, LEOPOLD STERNBERGER, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Clutching and Braking Devices for Power-Driven Sewing-Machines, of which improvements the following is a specification.

My invention relates to mechanism of the class in which a friction-clutch and a brake are coincidentally operated so as to impart rotation to or arrest the rotation of a shaft at desired intervals, and is an improvement upon that for which Letters Patent of the United States No. 213,704 were granted and issued to me under date of March 25, 1879.

The object of my present invention is to simplify and cheapen the construction of mechanism of this description and the application thereof to power-driven sewing-machines; to which end my improvements consist in the combination, with a sewing-machine shaft having a loose driving-pulley and a fast frictional disk mounted upon it, of a hanger depending from the table of the machine and supporting a triple-armed rock-shaft, one of the arms of which carries or is connected to a brake-shoe, another a device for shifting the loose pulley, and the third a connection to an operating-treadle, these members being so constructed and relatively arranged as to avoid the necessity of intermediate or supplementary connections, to be within small compass, and to be conveniently applicable to the shaft of a sewing-machine of the ordinary construction.

My improvements further consist in combining a driving-shaft, a frictional disk having a swelled hub with an inwardly-projecting flange, and a loose pulley having an elongated hub flanged at its end and projecting into the hub of the fixed frictional disk, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side view, partly in section, of a sewing-machine stand having my improvements applied; Fig. 2, a transverse section of the same; and Figs. 3 and 4 are views, in perspective and on an enlarged scale, of the rock-shaft and its supporting-hanger, the brake-arm being shown, respectively, as operating a segmental shoe and a friction-band.

My invention is shown as applied upon the frame of one of a series of sewing-machines arranged adjacent to and operated by a continuously-rotating power-driven shaft, F. The legs or end frames, A, of the machine support the table A', upon which the sewing mechanism is mounted, and also support the bearings of the main shaft B of the machine, which bearings, in this instance, are shown as consisting of conical pivots formed upon the ends of screws a.

The shaft B may be either a straight shaft or the ordinary cranked driving-shaft of the machine, the latter being preferable, as in the event of stoppage of the motive power the machine may be operated by making the usual connection of the treadle with the crank-shaft for the application of foot-power; and the shaft B has an ordinary pulley, B², secured upon it, from which pulley motion is imparted to the sewing mechanism.

A wheel or frictional disk, B', is secured firmly upon the shaft B, and a driving-pulley, B², around which passes a belt, f', from a pulley, f, on the line or counter-shaft F, from which power is communicated, is mounted loosely upon the shaft B adjacent to the wheel B'. A frictional ring, b, of leather or analogous material, is secured upon the side of the pulley B² adjoining the wheel B', and the hub of the pulley B² is prolonged at both ends, so as at one side to enter the recess of the dished or swelled hub of the wheel B', within which it is provided with an end flange, b', and at the other side to afford space for a collar, b², which is mounted loosely upon it and held in position longitudinally by a fast-collar, b³.

A drip-cup, b⁵, to receive any oil that may drop from the shaft, is secured upon the collar b², and a flange, b⁶, the inner diameter of which is slightly greater than that of the flange b', is formed upon the hub of the wheel B', the object of the flanges b' and b⁶ being to prevent the access of oil to the frictional ring b during the rotation of the shaft.

A horizontal rock-shaft, C, is mounted transversely to the shaft B in a bearing in the lower end of a hanger, D, secured to and depending from the lower side of the table A'. The rock-shaft C has three arms, C' C² C³, formed upon or secured to its ends, a construction which I

have found desirable being to cast the arm C' in one piece with and upon one end of the shaft, and to cast the arms C² and C³ in a single piece, which is secured upon the opposite end of the shaft. The arms C' and C² extend in opposite directions from the two ends of the shaft, and the arm C³, which is forked and provided with recesses *c* in its ends, is located substantially at right angles to the arms C' and C². The brake-arm C² is connected by a spring, *c*⁴, with an arm, *d*, on the hanger D, the tension of the spring *c*⁴ acting to apply the brake against the periphery of the wheel B' whenever the pressure of the operator's foot upon the treadle is released, and the brake may consist either of a segmental shoe, *e*², formed upon the end of the brake-arm C², and faced with a strip, *e*³, of leather or similar material, as shown in Fig. 3, or of a friction-band shoe, *e*⁵, which surrounds the wheel B' and is connected at its ends to a lever, *e*⁶, pivoted to the hanger D, said lever being, in turn, connected to the brake-arm C², as in Figs. 1, 2, and 4.

The lever *e*⁶ may be either connected directly to the brake-arm by passing one of its ends through a slot therein, Figs. 1 and 2, or be coupled thereto by a link, *e*⁷, Fig. 4, and for the purpose of regulating the tension of the friction-band *e*⁵ from time to time, as may be required, one of its ends is connected to the lever *e*⁶ by a screw, *e*⁸, passing through an opening in the end of the lever and having nuts *e*⁹ above and below the latter. A rod or link, *e*, connects the arm C' with the treadle E of the machine, and the recesses *c* of the arm C³ engage pins *b*⁴ upon the loose collar *b*³ of the pulley B².

The length of the arm C² and its position relative to the wheel B' are such as to enable the facing-strip of the brake-shoe or the friction-band, as the case may be, to be applied against the periphery of the wheel B' for the purpose of arresting the movements of the sewing mechanism operated by the shaft B whenever required.

In the operation of my improvements a downward pressure by the operator upon the toe of the treadle E will depress the outer end of the arm C' of the rock-shaft, correspondingly elevate the brake-arm C², and swing the forked shipping-arm C³ toward the right. The recesses in the arm C³ engaging the pins *b*⁴ on the collar of the hub of the loose pulley B² move the pulley into frictional contact with the fixed wheel B', and thereby rotation is imparted to the shaft B, while the facing-strip *c*³ of the brake-shoe *e*² or the friction-band *e*⁵ is simultaneously withdrawn from contact with the periphery of the wheel B' by the elevation of the brake-arm C². Upon the release of the pressure upon the treadle the spring *c*⁴ draws the brake-arm downward, thereby applying the brake-shoe or friction-band, and the shipping-arm C³ draws the pulley B² away from

the wheel B'. The rotary movement of said wheel and its shaft is thereby arrested, and the sewing mechanism will be and remain at rest during the rotation of the shaft F, except when actuated from time to time, as may be required and as above described.

My improvements are readily adaptable to sewing-machines of the ordinary patterns, and in their application I have, while utilizing the same general principle of operation as is embodied in my Patent No. 213,704, aforesaid, effected such simplification of mechanism and consequent reduction of the first cost and the expense of maintenance of the apparatus relatively to that set forth in said patent as to entail a material economy in manufacturing operations where any considerable number of power-driven sewing-machines is made use of.

I claim as my invention and desire to secure by Letters Patent—

1. The combination, with a sewing-machine shaft having a loose driving-pulley and a fast frictional disk mounted upon it, of a triple-armed rock-shaft having two arms carrying, respectively, the shoe of a spring-brake and a forked shipping-lever, and a third arm connected with the treadle of the machine, and a hanger depending from the machine-table, said hanger providing a bearing for the rock-shaft and an abutment for the brake-spring, substantially as set forth.

2. The combination of the depending hanger, the triple-armed rock-shaft, and the brake-spring, substantially as set forth.

3. The triple-armed rock-shaft having a brake-shoe upon one of its arms, a forked shipping-lever upon another, and an eye or socket for a treadle-rod upon the third, the construction being such as to permit direct application of the clutching and braking members without the use of intermediate links or connections, substantially as set forth.

4. The combination, with the triple-armed rock-shaft, of the friction-band brake-shoe, the pivoted lever, to which the ends of the friction-band are connected, and the brake-spring, substantially as set forth.

5. The combination of the triple-armed rock-shaft, the friction-band brake-shoe, the pivoted lever, to which the ends of the friction-band are connected, and a device for varying the tension of the friction-band, substantially as set forth.

6. The combination of a sewing-machine driving-shaft, a wheel fixed thereon and having a swelled hub and inwardly-projecting flange, and a pulley mounted loosely upon the driving-shaft and having an elongated hub, with a flanged end projecting into the recessed hub of the fixed wheel, substantially as set forth.

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Witnesses:

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