

No. 606,731.

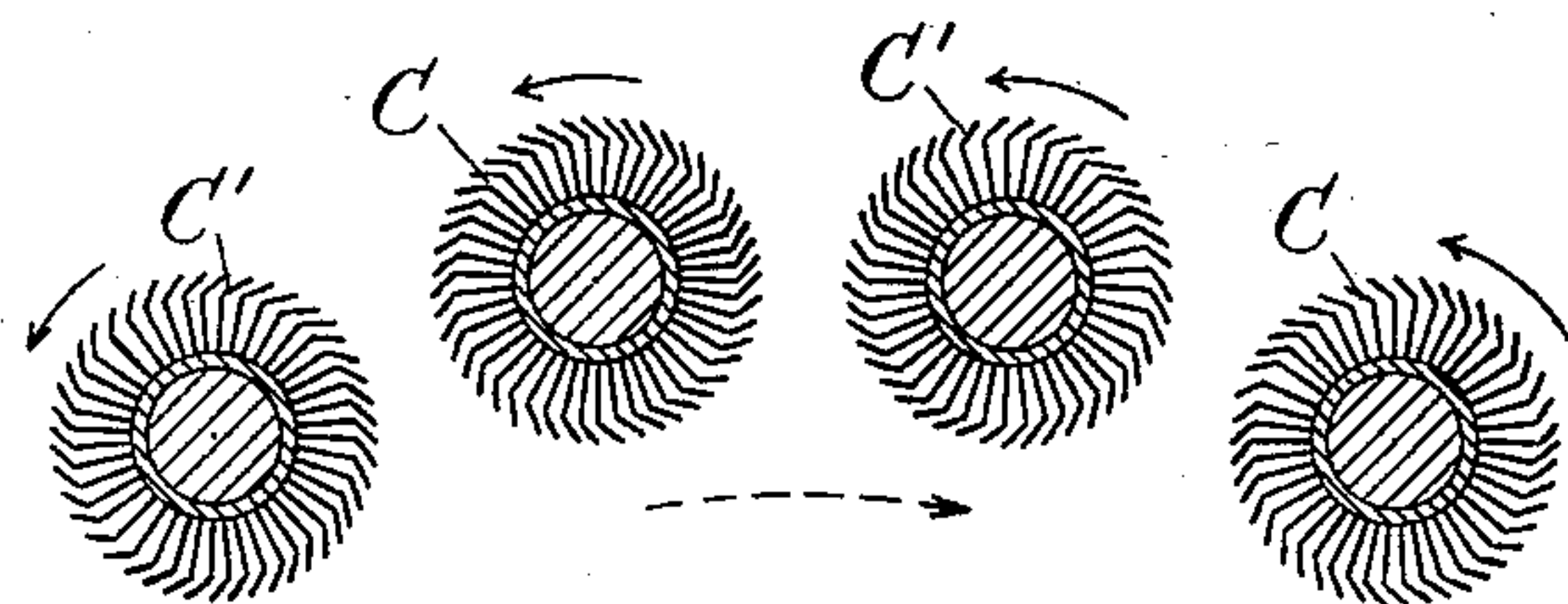
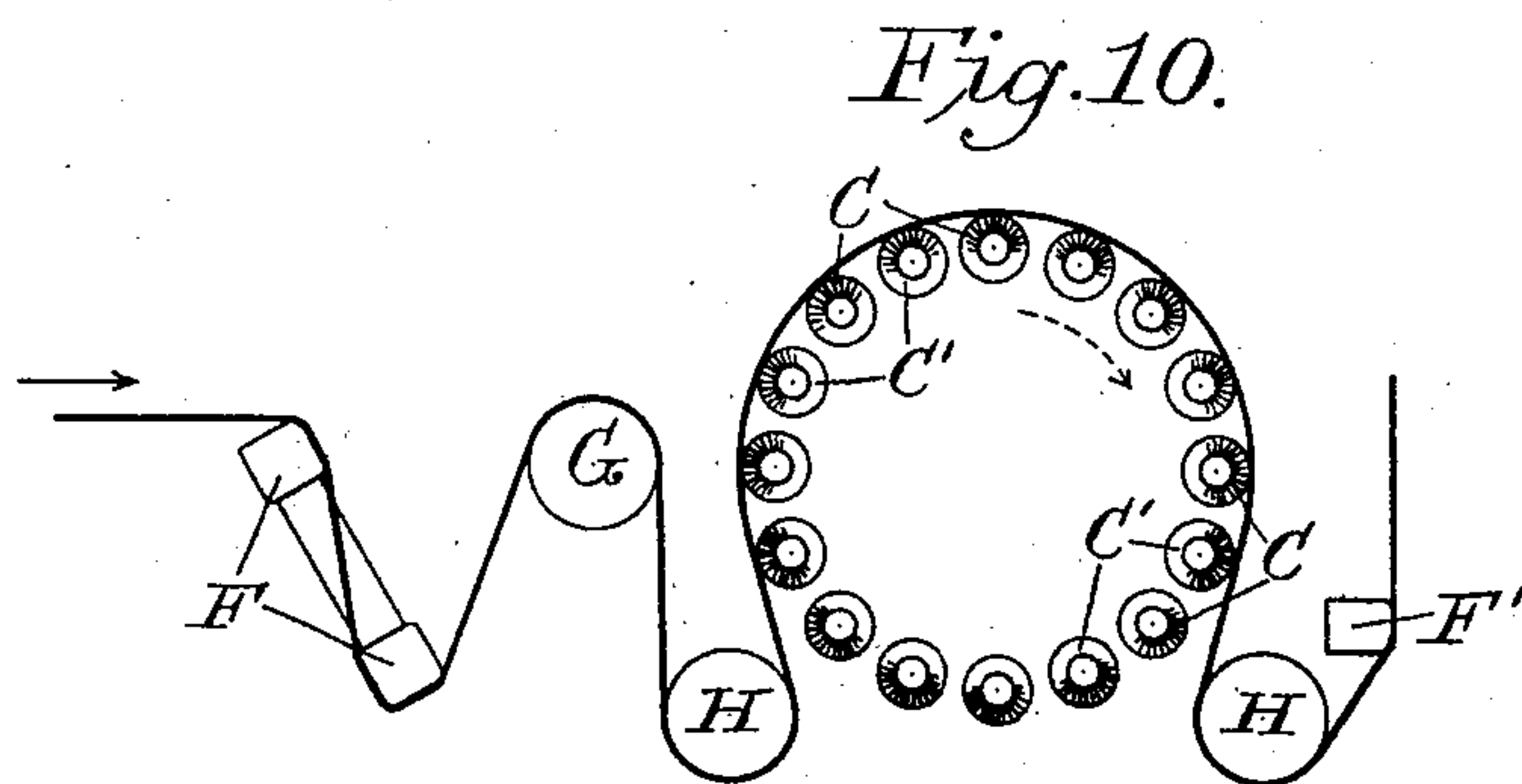
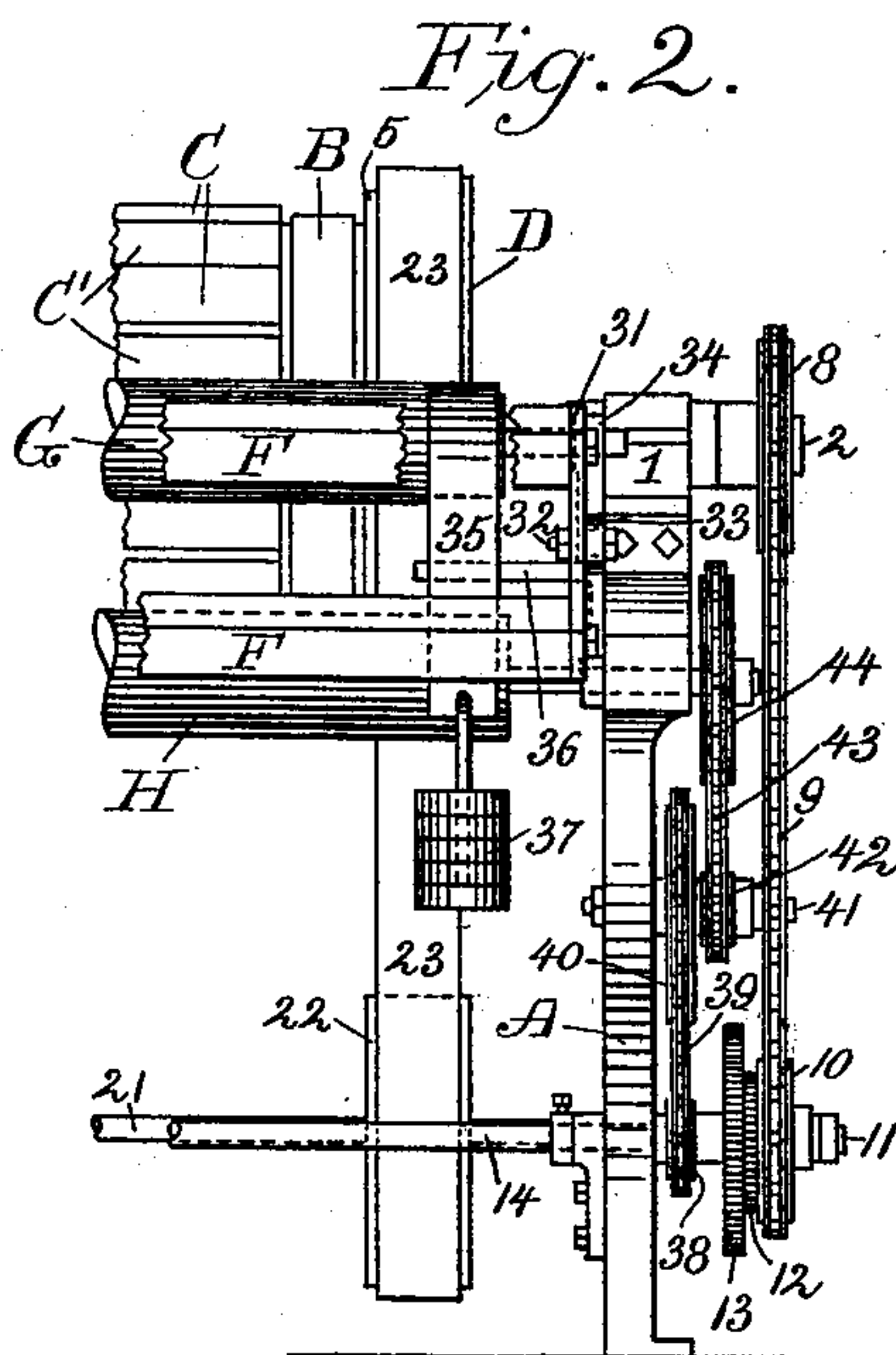
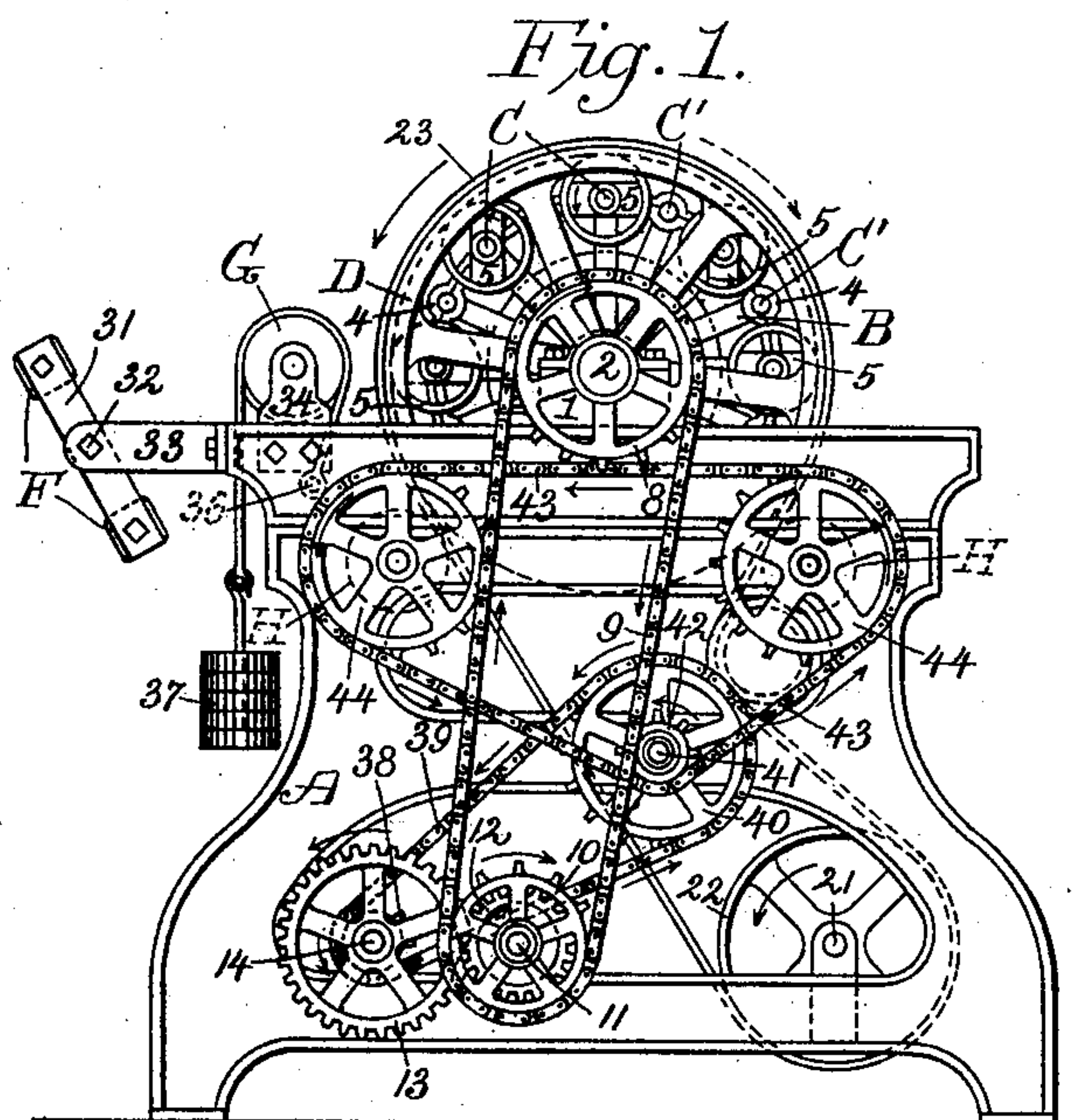
Patented July 5, 1898.

E. McCREARY.
NAPPING MACHINE.

(Application filed Dec. 21, 1897.)

(No Model.)

3 Sheets—Sheet 1.



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Fig. 3.

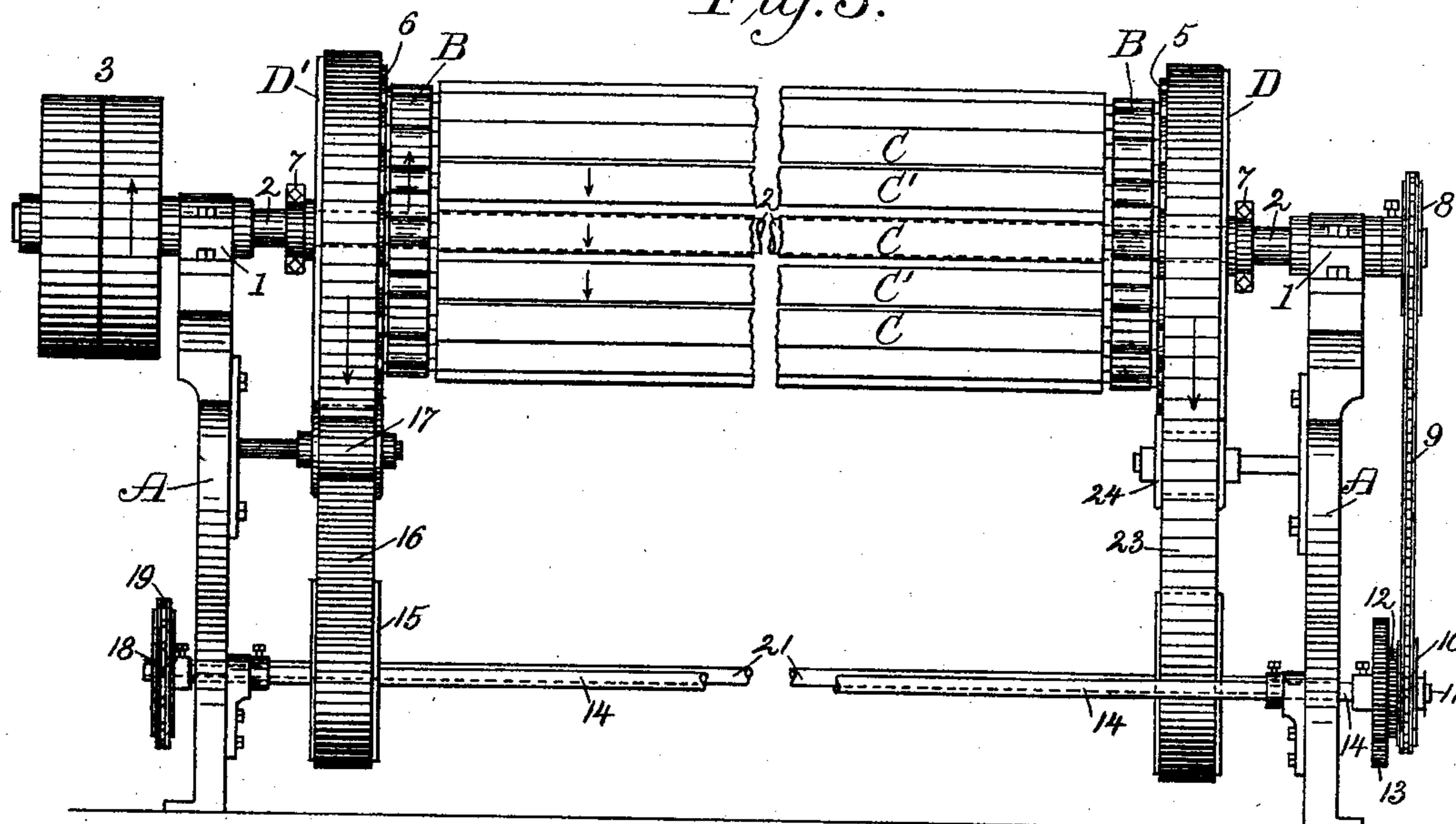


Fig. 4.

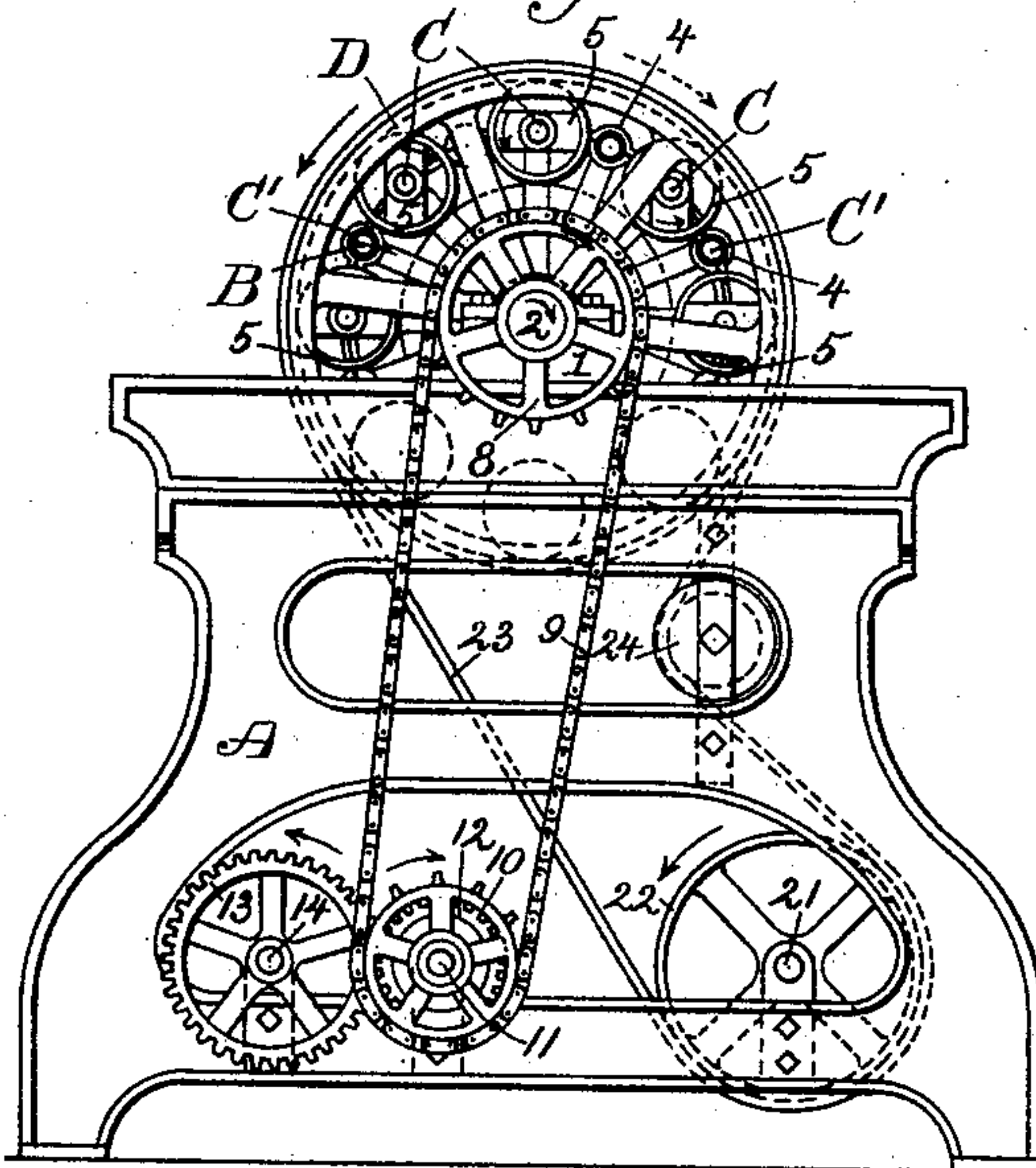
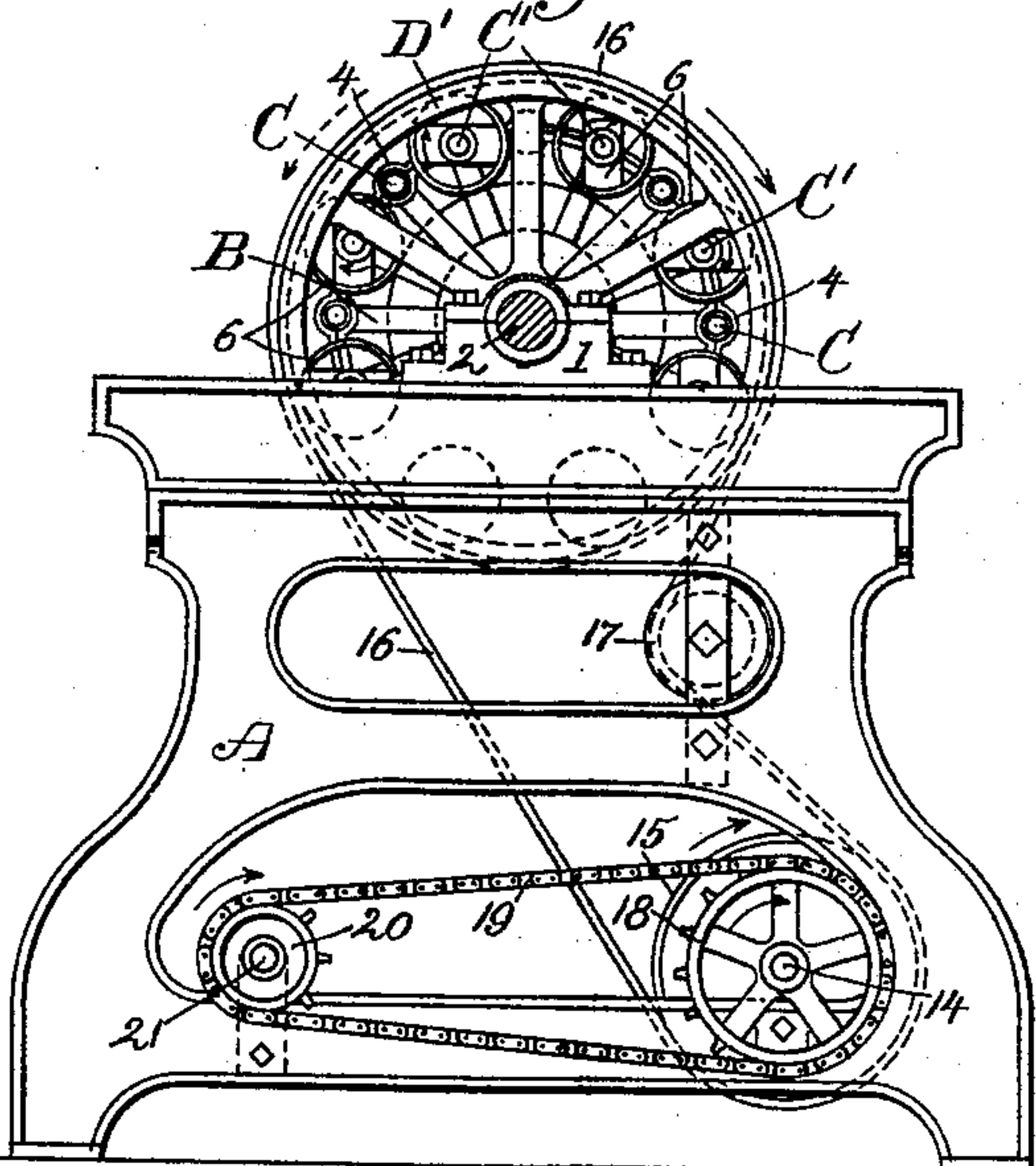


Fig. 5.



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Fig. 7.

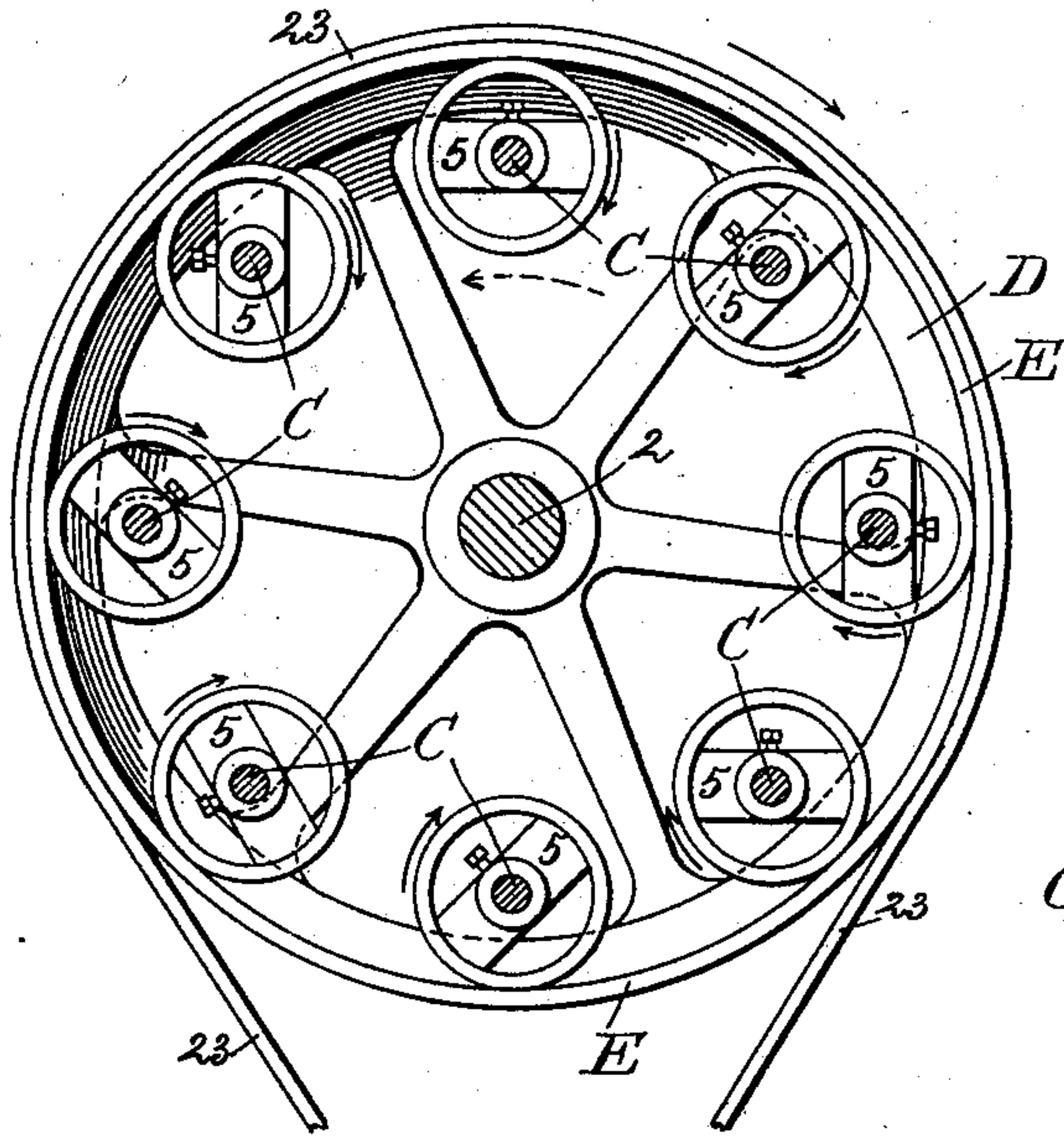


Fig. 6.

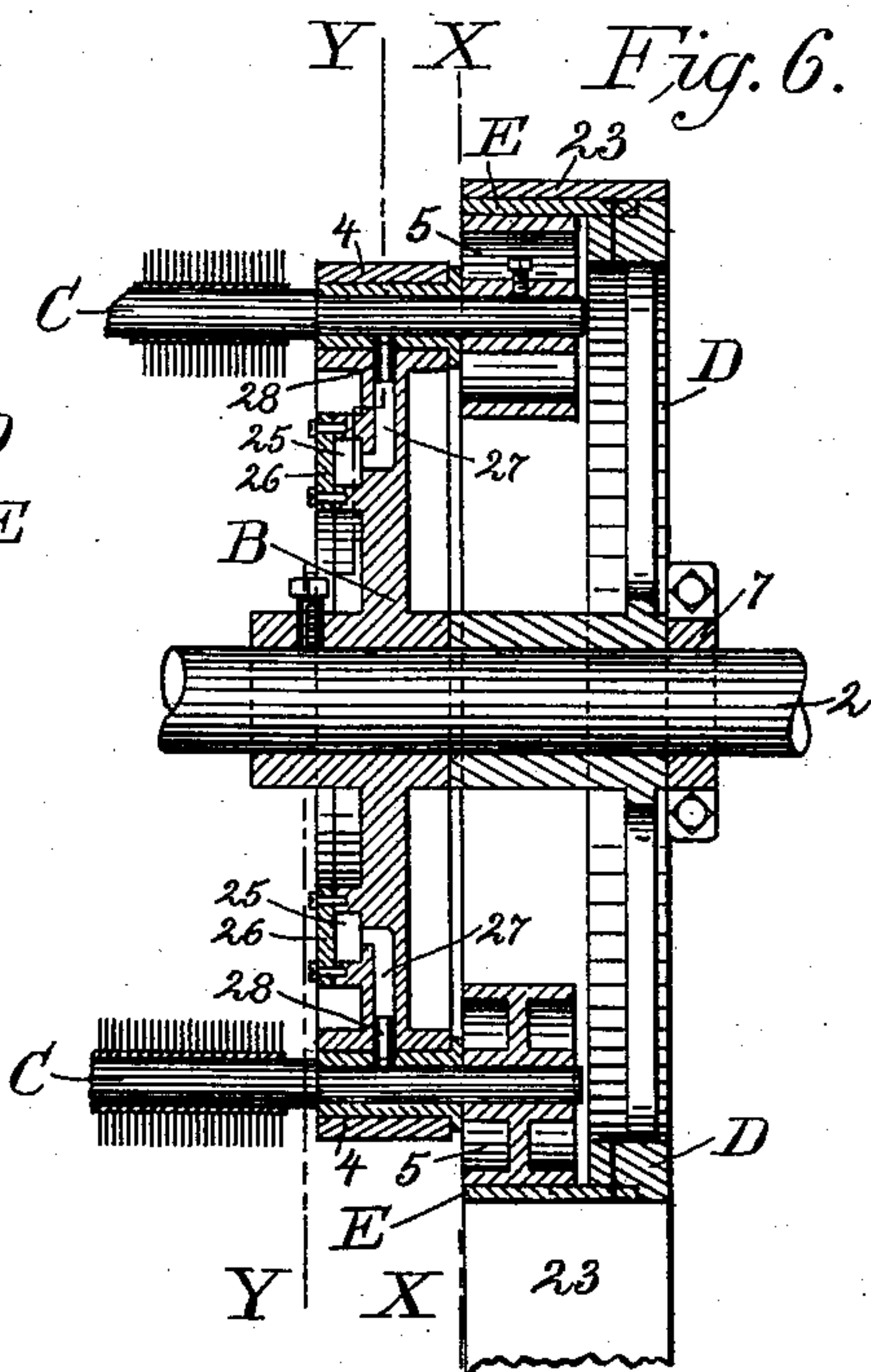


Fig. 8.

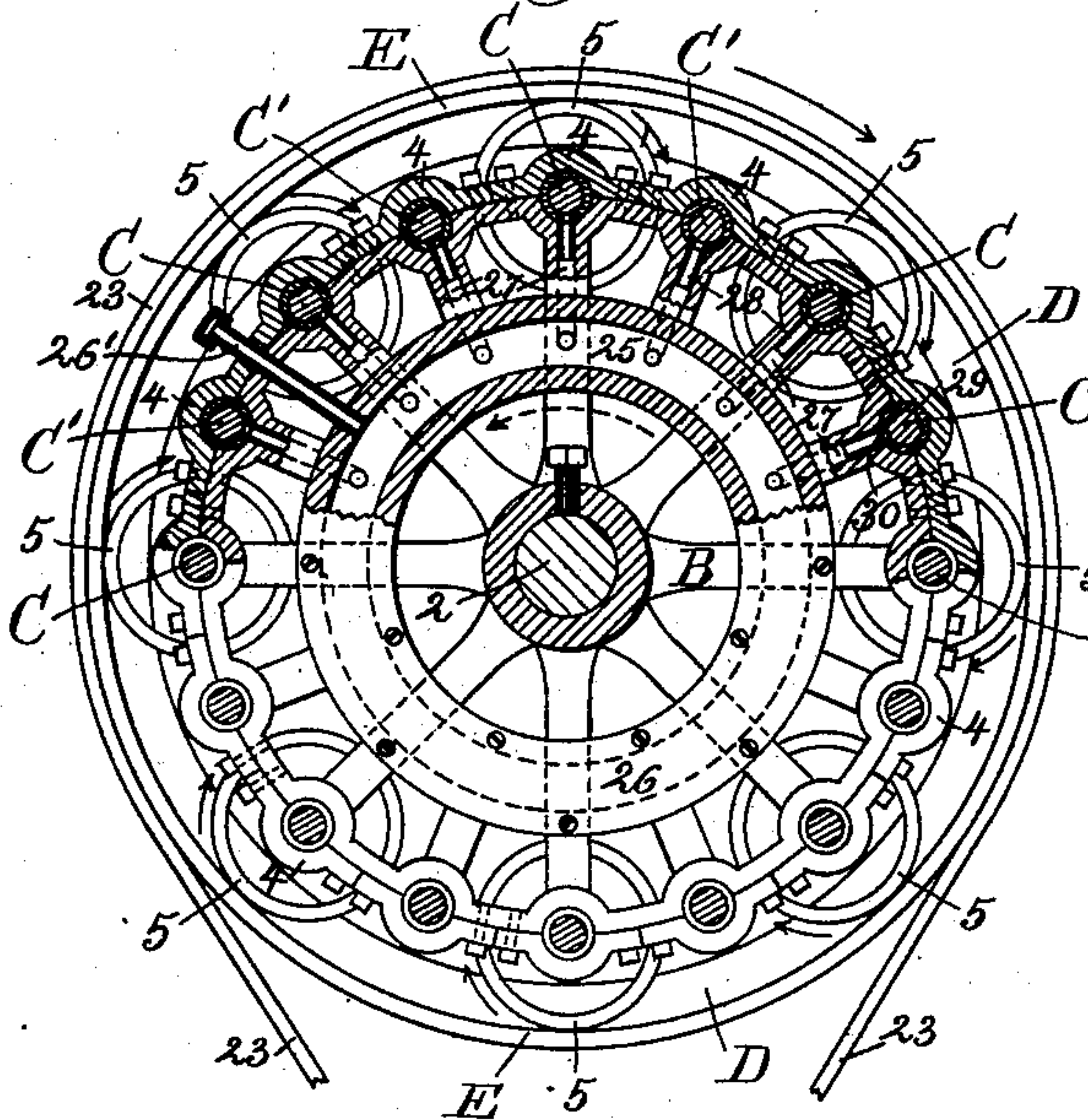
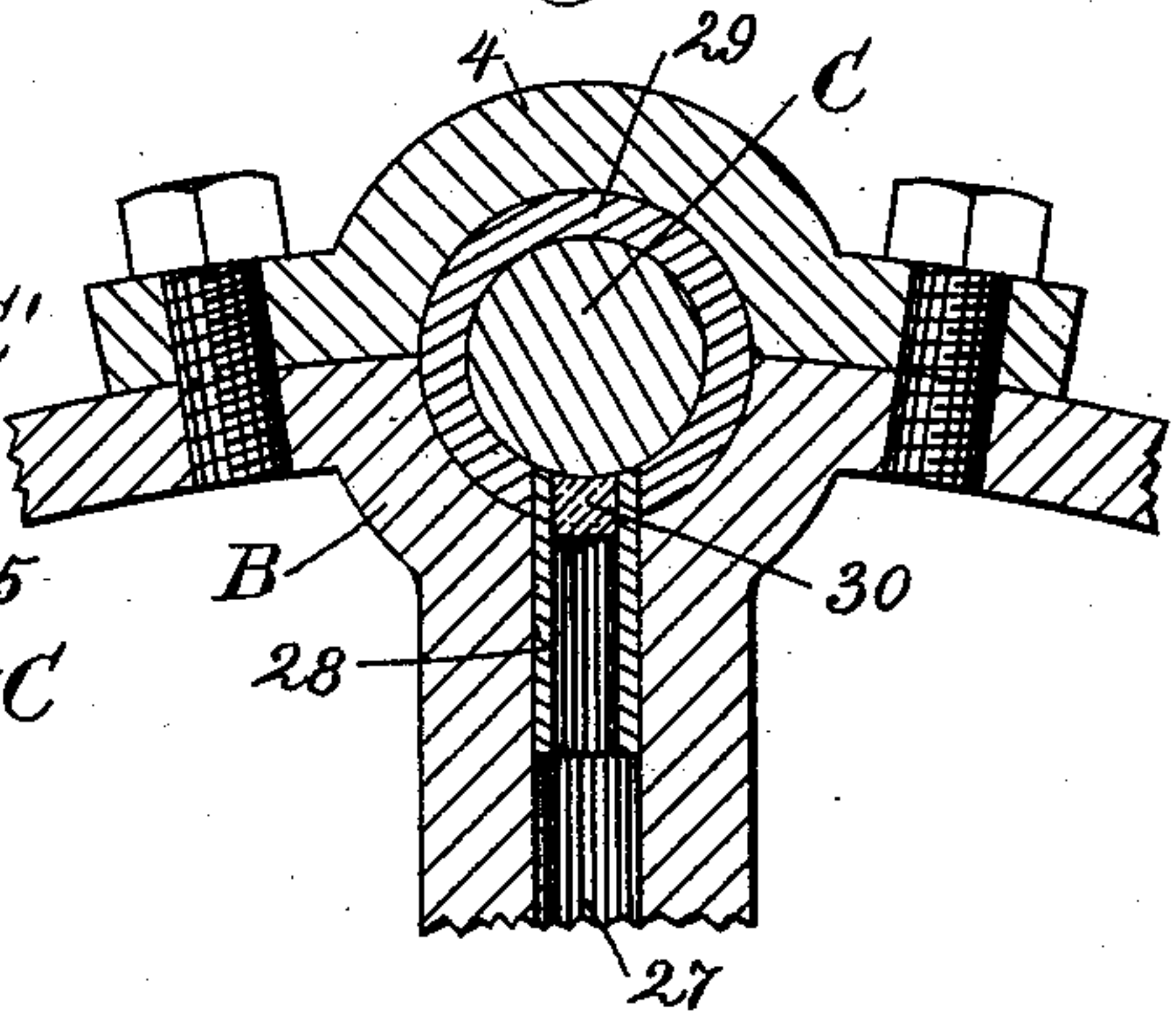


Fig. 9.



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EDWARD McCREARY, OF COHOES, NEW YORK.

NAPPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 606,731, dated July 5, 1898.

Application filed December 21, 1897. Serial No. 662,836. (No model.)

To all whom it may concern:

Be it known that I, EDWARD McCREARY, of Cohoes, in the county of Albany and State of New York, have invented certain new and useful Improvements in Machines for Napping Cloth and other Textile Fabrics, of which the following is a specification.

My invention relates to improvements on the class of napping-machines in which a series of card-clothed napping-rollers are journaled in spiders secured to a driving-shaft deriving its motion from any suitable motive power; and it consists of the novel mechanism herein described for effecting the rotations of the napping-rollers around their own axes independently of the rotations of the spiders; and it also consists of a novel construction of lubricator for automatically lubricating the journals of the napping-rollers.

In the accompanying drawings, which form part of this specification and are herein referred to, Figure 1 is an end elevation of my napping-machine as viewed from the right-hand end of the same; Fig. 2, a partial front elevation of the right-hand end of said machine; Fig. 3, a front elevation of my napping-machine, the same being broken apart and having portions removed to expose underlying parts; Figs. 4 and 5, elevations of the two different ends of the machine with certain portions removed therefrom; Fig. 6, an enlarged vertical longitudinal section of portions of my napping-machine, showing construction of a flexible-rimmed pulley for rotating the napping-rollers and of the automatic lubricator for lubricating the journals of the napping-rollers; Fig. 7, a vertical section of Fig. 6 at the line X X; Fig. 8, a vertical section of Fig. 6 at the line Y Y; Fig. 9, an enlarged and detached vertical section of a portion of one of the spiders, showing a journal-bearing for one of the napping-rollers and part of a lubricant-duct of my automatic lubricator; Fig. 10, a skeleton diagram showing the course of the goods through my napping-machine, and Fig. 11 a skeleton diagram showing the arrangement of the napping-rollers.

As represented in the drawings, A designates the framework of my napping-machine, which may be constructed substantially as shown or in any form suited to the purpose.

Said framework is provided with journal-boxes 1, in which a driving-shaft 2 is fitted to rotate and impart the necessary motions to the other operative parts of the machine. Upon one end of said shaft are arranged pulleys 3, one of which is secured to the shaft and the other is fitted to rotate loosely thereon. The tight pulley receives a driving-belt (not shown in the drawings) that transmits motion from a suitable source of motive power. The direction of the rotations of the shaft 2 is indicated by an arrow on Fig. 4.

B indicates spiders secured to the shaft 1 and rotating therewith. Each of said spiders is provided with a series of journal-boxes 4 for the napping-rollers C and C' to revolve in, and, as indicated by arrows in Fig. 8, the spiders revolve in one direction and all the napping-rollers in the opposite direction. It should be understood that there are two different series of the napping-rollers, all of the same diameter, and being arranged so that their axes will move in the same circular path concentrically to the center of the shaft 2, and being so arranged that the rollers of one series will alternate with those of the other series, the rollers of the two series revolving on their axes in the same direction, as indicated by arrows on Fig. 11. The rollers of the two series are driven from different ends, so that the means of rotating them will not interfere with each other—that is to say, the rollers C are each provided with a small pulley 5, secured to one end thereof, and the rollers C' are each provided with a like pulley 6, that is secured to the end of said rollers that is opposite to the end of the first-named rollers. By this arrangement provision is made for revolving the rollers C and C' at different rates of speed when such differential speeds may be desirable. The napping-rollers C, which usually effect the greater part in the operation of napping, have the points of the wires of their clothing bent forward in the direction in which said rollers are designed to travel, so as to take into the face of the goods, and they are usually rotated at a higher rate of speed than the rollers C', which have the points of their wires bent backward in a direction opposite to the angle of the wires on the roller C, and while the rollers C aid in the operation of napping the goods their prin-

cipal function is to keep the goods spread out laterally in the operation of napping.

D and D' are pulleys arranged to revolve loosely on the shaft 2. Said pulleys are located near opposite ends of said shaft and are fitted to revolve between the face of an adjacent spider B and a collar 7, secured on the shaft 2. To the periphery of each of said pulleys there is secured a flexible rim E, that extends toward the middle of the machine, so that they will overlap onto the small pulleys of the napping-rollers C and C', to which the pulleys D and D' impart their motion. A sprocket-wheel 8 is secured to shaft 2, and an endless chain 9 engages with the teeth of said wheel and with those of another sprocket-wheel 10, journaled on a stud 11, secured to the framework A. A pinion 12, secured to sprocket-wheel 10, gears into a wheel 13, secured to a shaft 14, so that the shafts 2 and 14 will be rotated in opposite directions. A pulley 15, secured on the shaft 14, carries an endless belt 16, that passes over the flexible rim of the pulley D', so as to press said flexible rim into a positive frictional contact with the pulleys 6, thereby rotating the rollers C', whose wires are at the time operating on the surface of the cloth. In order to obtain proper contact of the flexible rim of the pulley D' while the rollers C' are performing their functions, the belt 16 is deflected inward by passing it over an idle-pulley 17, as shown in Fig. 5, thereby forcing the flexible rim of the pulley D' to bear upon the major part of the pulleys 6. A sprocket-wheel 18, secured to the shaft 14, carries an endless chain 19, that engages a sprocket-wheel 20, secured to a shaft 21, to which a pulley 22 is also secured. An endless belt 23 is carried by said pulley D to impart motion to the pulleys 5 and the napping-rollers C. The belt 23 is carried over an idle-pulley 24 for the purpose described in respect to belt 16. For the purpose of automatically lubricating the journals of the rollers C and C' the spiders B are each provided with an annular oil-chamber 25 for containing the lubricant. Said chamber is provided with an oil-tight closure 26, which will prevent the lubricant from wasting therefrom. A feeding-tube 26' leads into the oil-chamber and affords means for filling said chamber. Leading from the oil-chamber 25 there is a series of oil-ducts 27, one for each journal of the rollers C and C', and the outer end of each of said ducts is provided with a tube 28, which projects from the end of the duct to engage in a bushing 29 of the journal-bearings 4 for the napping-rollers, and thereby the said bushings will be positively retained in their proper places in the spiders B. The outer end of each tube 28 is provided with a porous plug 30, which bears against the journal it is designed to lubricate, and thereby a perfect lubrication of the journals will be effected and a waste of lubricant prevented. By this means a much better re-

sult is obtained than by the ordinary capillary devices commonly employed for such purposes. In practice porous leather has been found to be a good material for the porous plug.

Tension-beams F are arranged at the front of the machine for the purpose of producing a requisite degree of tension on the goods undergoing the operation of napping. Said beams are preferably carried by adjustable arms 31, pivoted, as at 32, to brackets 33, secured to the framework A. The arms 31 are preferably pivoted to allow an adjustment of the beams F to different angles in respect to a vertical line. G is a tension-roller journaled in bearings 34, over which the goods are passed after going over the tension-beams F, and in order to obtain a resistance to the rotation of said roller, which is rotated by the goods, a friction-band 35 is passed over it. One end of said friction-band is connected to a stationary part of the machine, as at 36, on Fig. 2, and its opposite end is provided with weights 37, which can be adjusted as occasion requires.

H designates feed-rollers by which the goods are fed to the action of the napping-rollers of the machine. Said feed-rollers are rotated in the following manner: A sprocket-wheel 38 is secured to the shaft 14 and an endless chain 39, which engages with teeth of the last-named sprocket-wheel and also engages the teeth of a sprocket-wheel 40, fitted to rotate on a stud 41, that is stationary in the framework A. Secured to the sprocket-wheel 40 there is another sprocket-wheel 42, that engages an endless chain 43, that also engages with the teeth of a pair of sprocket-wheels 44, secured to the protruding ends of the shafts of the feed-rollers H. The diagram shown in Fig. 10 illustrates the course of the goods through the machine. The goods indicated by a heavy line first passes over the tension-beams F, from thence over the tension-roller G, and, after passing under the foremost feed-roller H, over the cylinder of napping-rollers C and C', whereby the goods are subjected to the operation of napping under the second feed-roller H, and usually against a tension-beam F', from which the goods may lead over a series of rollers (not shown in the drawings) to be delivered into receptacles prepared for that purpose or disposed of in any other manner that may be preferred.

Having thus described my napping-machine, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a napping-machine, the combination, with a napping-cylinder provided with two independent series of napping-rollers—the rollers of one series alternating with the rollers of the other series and the rollers of one series having pulleys secured to one end of the rollers and the rollers of the other series having pulleys secured to the opposite end, of driving-pulleys arranged at opposite ends of the napping-cylinder and fitted to rotate

loosely on the shaft of the latter; each driving-pulley having a flexible rim extending therefrom so as to overlap onto and take in frictional contact with the corresponding roller-pulleys, as specified.

2. In a napping-machine, the combination of a series of napping-rollers each having a pulley on one of its outer ends, a driving-pulley provided with a flexible rim extending therefrom and adapted to overlap onto and take in frictional contact with each roller-pulley of the series of napping-rollers, and a driving-belt arranged to bear upon the outer face of the flexible rim of the driving-pulley so as to force down said flexible rim into positive frictional contact with the roller-pulleys, as specified.

3. In a napping-machine the combination of a spider provided with journal-bearings for the napping-rollers, and having an annular oil-chamber, a series of sleeves which form said journal-bearings, a series of oil-ducts leading from said oil-chamber to said journal-bearings, tubular extensions from said oil-ducts adapted to engage with the sleeves of the journal-bearings, and a porous plug secured to the outer end of the said tubular extensions and adapted to bear upon the journals of the napping-rollers, as and for the purpose specified.

EDWARD McCREARY.

Witnesses:

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