

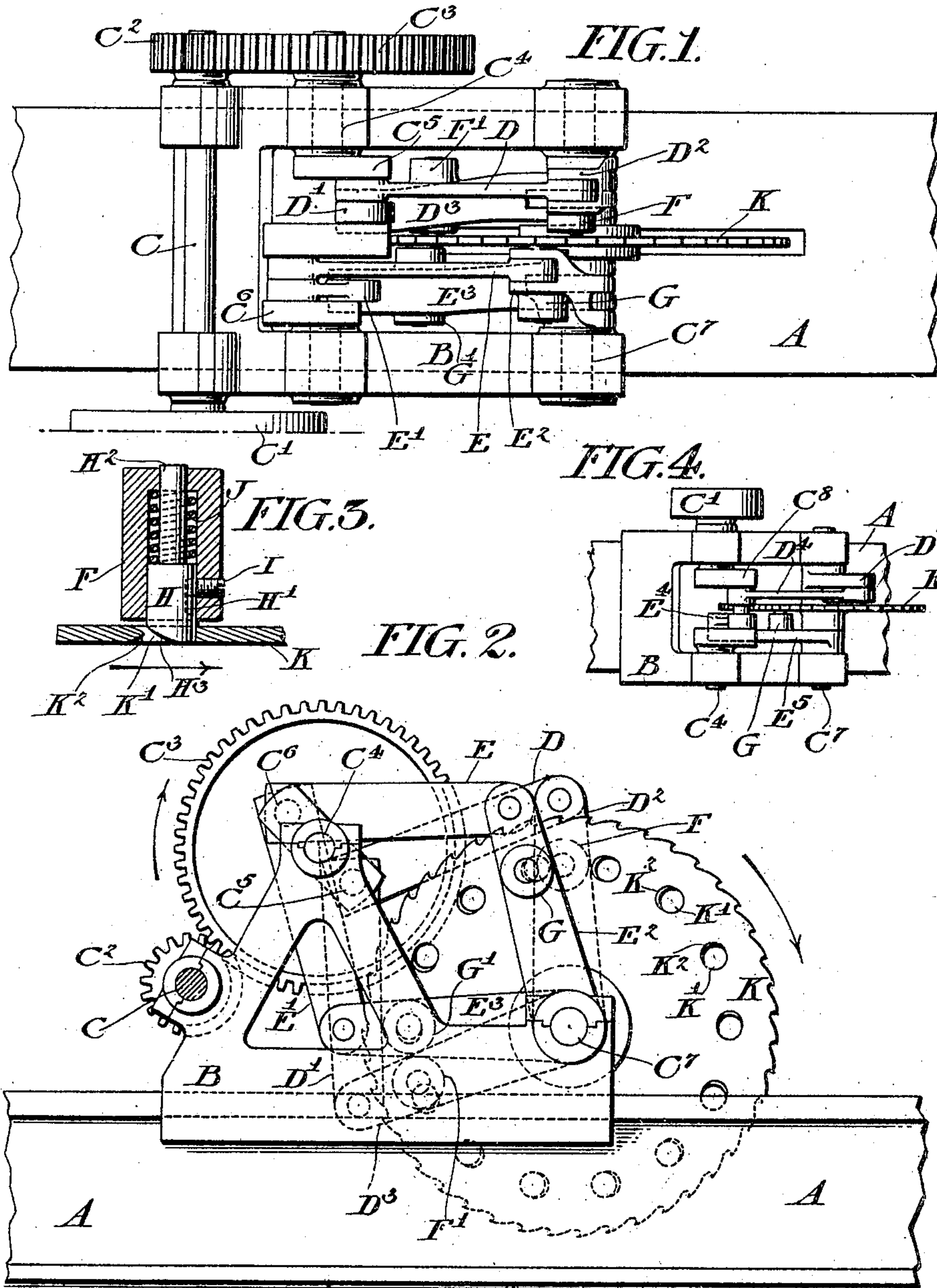
No. 812,853.

PATENTED FEB. 20, 1906.

W. LEWIS.
SAW DRIVE.

APPLICATION FILED DEC. 17, 1904.

2 SHEETS—SHEET 1.



WITNESSES:

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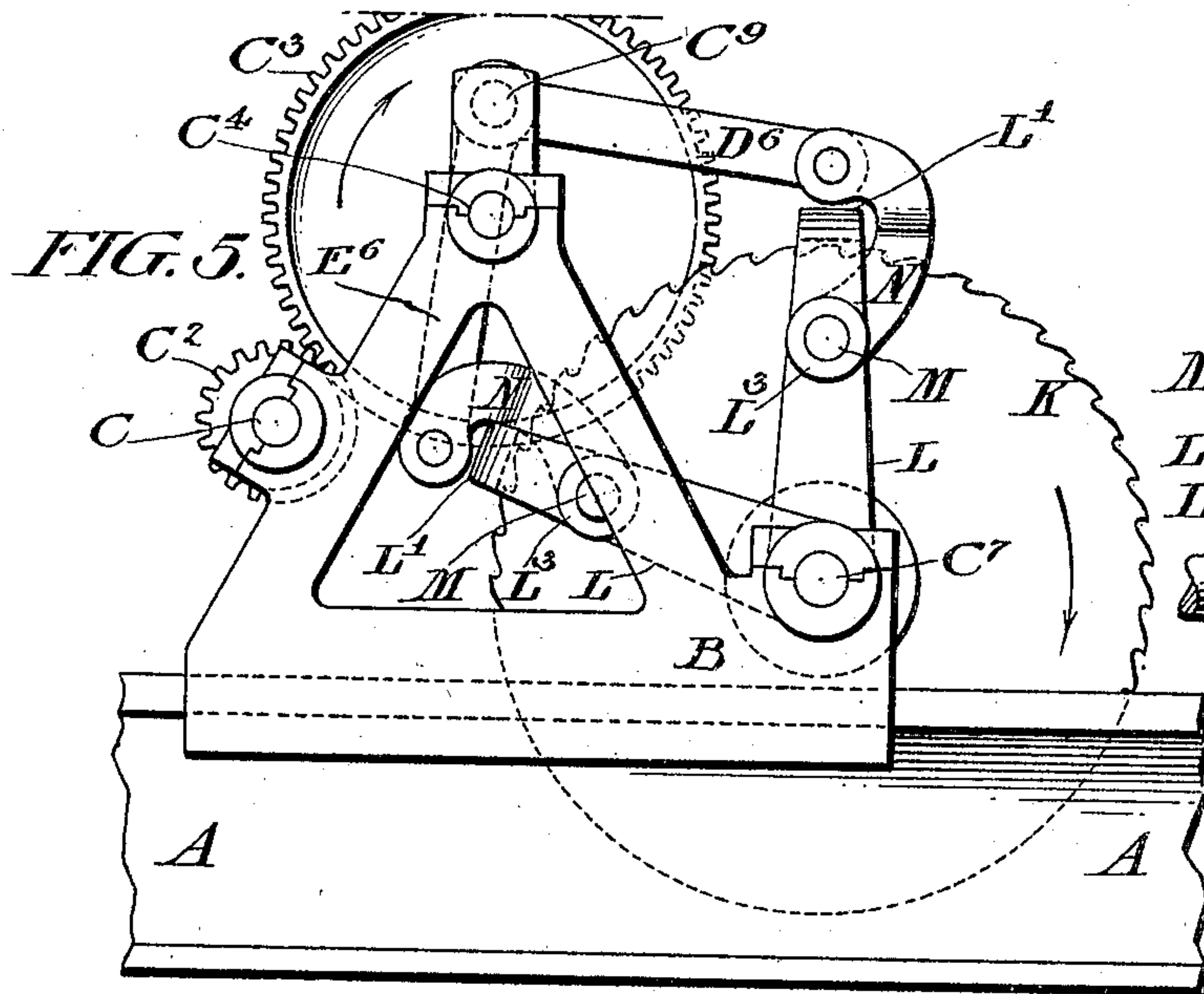
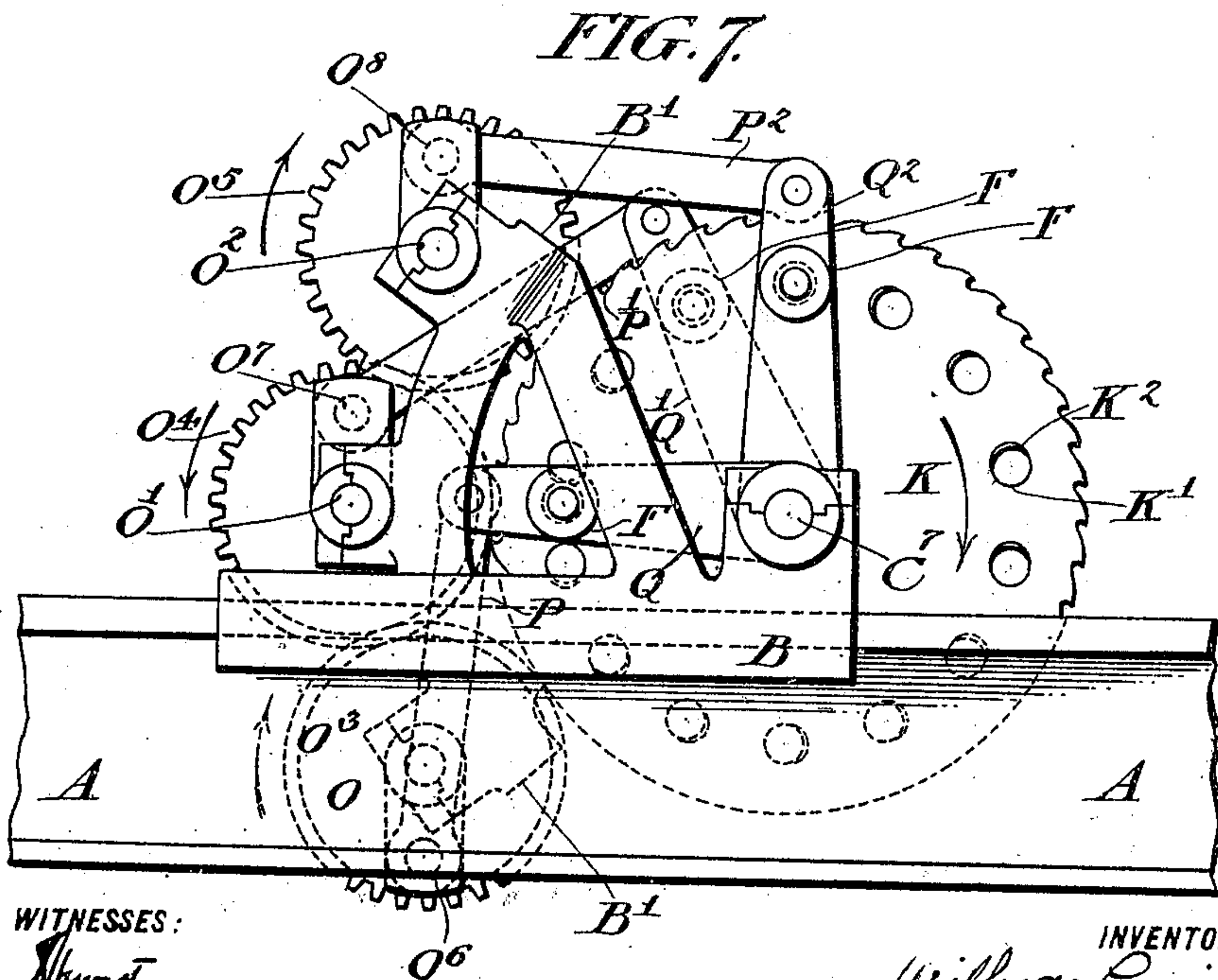
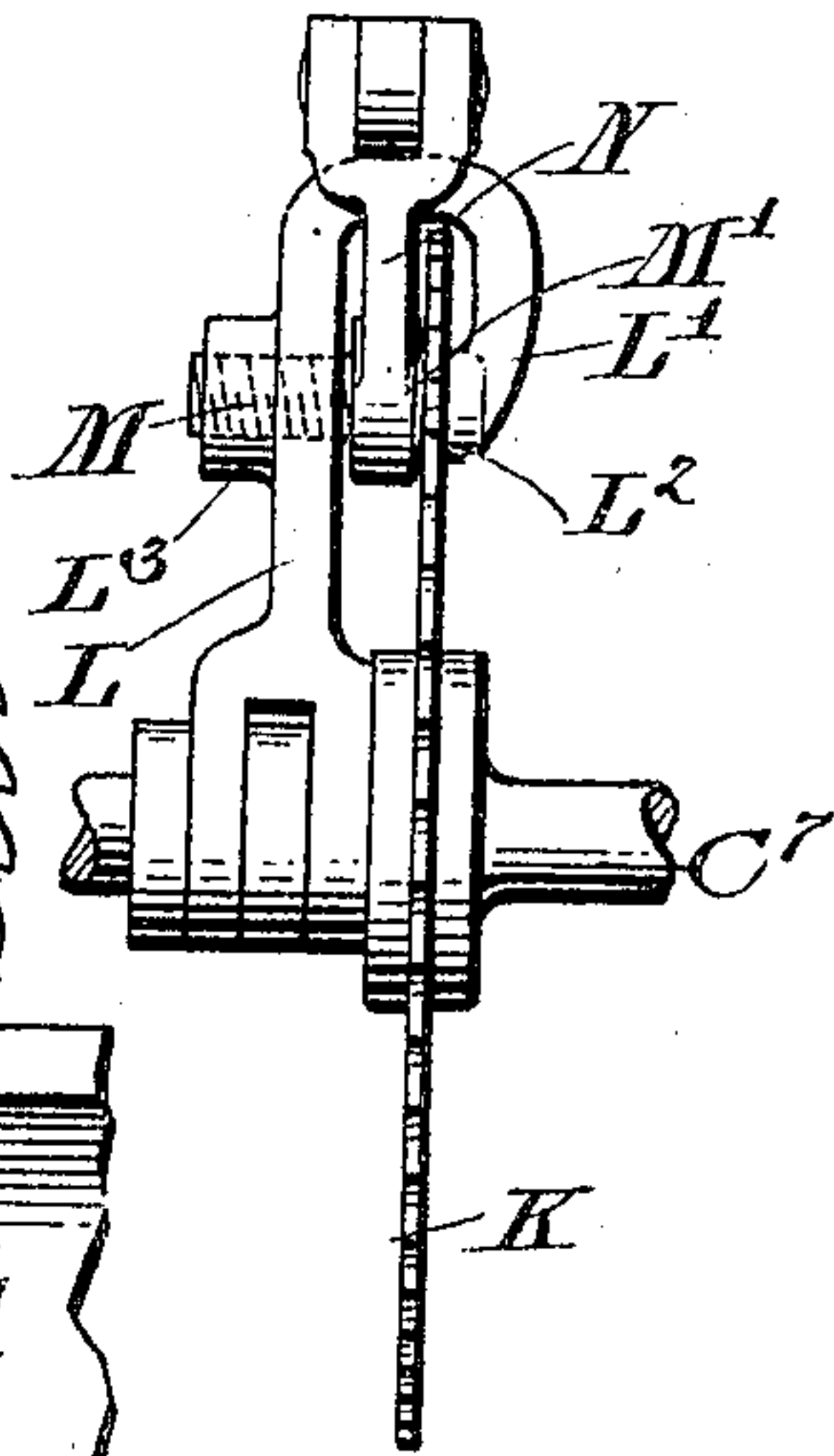


FIG. 6.



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SAW-DRIVE.

No. 812,853.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed December 17, 1904. Serial No. 237,221.

To all whom it may concern:

Be it known that I, WILFRED LEWIS, a citizen of the United States of America, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Saw-Drives, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to driving mechanism for rotary saws, and has for its object to provide for driving such saw-blades by a series of progressive impulses communicated to the blade at or near its periphery and in such manner as to avoid lateral thrust against the saw-blade which would tend to press it out of alinement.

The nature of my improvements will be best understood as described in connection with the drawings in which they are illustrated, and in which—

Figure 1 is a plan view of a saw-drive embodying my invention in what I consider to be its best and most efficient form. Fig. 2 is a side elevation of the same mechanism; Fig. 3, a transverse section through a portion of the blade and through the latch and latch-holding mechanism, as shown in Figs. 1 and 2. Fig. 4 is a plan view illustrating a modification of my invention; Fig. 5, a side elevation illustrating another modification; Fig. 6, a front elevation of a portion of the mechanism shown in Fig. 5, and Fig. 7 a side elevation illustrating still another modification of my invention.

A indicates the base or bed plate, to which the frame proper of the saw and saw-driving mechanism is attached.

B is the frame, and, referring first to the construction shown in Figs. 1 to 3, C is a shaft actuated through a pulley C' and communicating motion through gear-wheels C² and C³ to the driving-shaft C⁴, which has formed on or attached to it the oppositely-extending cranks, (indicated at C⁵ and C⁶.)

C⁷ is the shaft on or to which the saw-blade K is secured.

D and D' are connecting-rods secured to the crank C⁵ and extending therefrom in opposite directions, being pivotally attached at their other ends to the oscillating arms D² and D³, pivoted so as to rotate on the axis of the saw-blade and extending therefrom, so as to engage the angularly-disposed connecting-rod on the opposite side of the saw-blade.

The connecting-rods E and E', secured on the crank C⁶, connect with oscillating arms E² and E³ of substantially the same character as the arms D² and D³. The oscillating arms D² and D³ have secured to them the latch-holding bosses F and F', while the arms E² and E³ have secured to them the similar bosses G and G'. The construction of these bosses is similar and is shown in Fig. 3, each boss supporting a latch H, having a groove H' at one side and a projecting guide-pin H² extending from its rear end, its front end being beveled, as indicated at H³.

I indicates a pin extending through the side of the boss into the groove H' and serving to prevent the rotation of the latch, and also it escapes from the cavity in the boss. J indicates a spring which tends to force the latch outward.

The saw-blade K is provided near to but within its periphery with an annular series of perforations K' K', preferably beveled at one side, as indicated at K². It is of course obvious that as each of the oscillating arms moves forward or in the direction of the saw of Fig. 2 the latch H will enter one of the perforations K', and if the arm is moving with the same or greater speed than the saw-blade will engage and drive the blade until by reason of the reversal of motion of the arm or its decrease in speed the bevel-latch will ride up out of the perforation on the rear side thereof and move downward to again engage the saw-blade during a successive forward movement. By providing a number of oscillating arms and actuating them so that they move in the same direction at different times, as is the case in the construction described, a more or less proximation to a continuous drive can be secured, and I believe that the two-crank four-armed mechanism described in connection with Figs. 1 and 2 is especially well adapted to provide for a sufficiently even movement of the saw-blade.

It will be noticed that the described device engages and drives the saw-blade without exerting any appreciable lateral thrust upon it, and this is a feature to which I attach much importance.

In the modification shown in Fig. 4 a single crank (indicated at C⁸) is attached to the driving-shaft C⁴ and connected, through connecting-rods D⁴ and E⁴, with oscillating arms D⁵ and E⁵, situated on opposite sides of the saw-blade K and provided with latch-carrying bosses, as in the case of the oscillating

arms of the before-described construction. This is a practical modification of my drive, though less continuous and perfect in its operation than the four-armed construction.

5 In Figs. 5 and 6 I have indicated a modification of my driving mechanism in which the saw-blade does not require to be perforated. As shown, the driving-shaft C^4 is provided with a crank C^5 , to which are secured the angularly-extending connecting-rods D^6 and E^6 ,
 10 On the axis or shaft C^7 of the saw are pivotally secured arms $L L$, the said arms extending up alongside of the saw-blade on one side and over the edge of the saw, as indicated at
 15 L' , and terminating in abutment-surfaces L^2 , which lie close to the blade of the saw. The arms are provided with internally-threaded bosses L^3 , in which screw clamping-screws M , the nuts M' of which are adapted to come in
 20 contact with the saw-blade directly opposite to the abutment ends L^2 of the swinging arms. A link N is secured to each screw, as shown, and connected with one of the rods D^6 or E^6 . In this construction the connect-
 25 ing-rods are moving in the direction of the motion of the saw. They act first on the connecting-rods N and through them on the screws M , turning the screws until they come in contact with the saw-blade and clamp it
 30 between their ends and the abutments L^2 . Thereafter the motion of the crank communicated through the connecting-rod carries the swinging arm of the saw-blade forward until a reversal of motion occurs or until the
 35 saw-blade through other driving attachments begins to move faster than the swinging arm, when the drag of the connecting-rod results first in such shifting of the link N as will move the screws to unclamp the saw-blade
 40 and afterward in a reversed motion of the swinging arm.

In the construction shown in Fig. 7 the frame B is provided with an extension B' , which support a series of drive-shafts O , O' ,
 45 and O^2 , connected together by gear-wheels (indicated at O^3 , O^4 , and O^5) and each provided with a crank, as indicated at O^6 , O^7 , and O^8 . From these cranks connecting-rods P , P' , and P^2 extend to connections with the
 50 swinging arms Q , Q' , and Q^2 . The arms Q and Q^2 are shown on one side of the saw-blade and the arm Q' on the other side. Each arm is provided with a latch-boss F , as indicated, and it will readily be seen that in this con-
 55 struction a very similar drive action is secured to that shown and described in connection with Figs. 1 and 2.

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

60 1. Driving mechanism for rotary-saw blades having in combination an oscillating arm swinging on the axis of the saw, means for oscillating said arm and a clutch on said

arm arranged to engage the saw-blade near 65 but within its periphery when the arm moves in one direction and to disengage the saw-blade when the arm moves in the other direction.

2. Driving mechanism for rotary-saw 70 blades having in combination a plurality of oscillating arms swinging on the axis of the saw, means for oscillating said arms, as described and so that they move in the same direction at different times, and a clutch on each 75 said arm arranged to engage the saw-blade near but within its periphery when the arm moves in one direction and to disengage the saw-blade when the arm moves in the other direction. 80

3. Driving mechanism for rotary-saw blades having in combination an oscillating arm swinging on the axis of the saw, means for oscillating said arm, and a clutch on said arm arranged to engage the saw-blade with- 85 out lateral thrust and near but within its periphery when the arm moves in one direction and to disengage the saw-blade when the arm moves in the other direction.

4. Driving mechanism for rotary-saw 90 blades having in combination a saw-blade having near its periphery an annular series of transverse perforations, an oscillating arm swinging on the axis of the saw-blades, means for oscillating said arm and a spring-latch H , 95 carried by the arm in position to register with and engage the perforations in the saw-blade as described.

5. Driving mechanism for rotary-saw blades having in combination a saw-blade 100 having near its periphery an annular series of transverse perforations, a plurality of oscillating arms swinging on the axis of the saw-blade, one or more of said arms being situated on one side of the saw and one or more on the 105 other side, means for oscillating said arms and a spring-latch H , carried by each arm in position to register with and engage the perforations in the saw-blade as described.

6. Driving mechanism for rotary-saw 110 blades having in combination two oscillating arms pivoted on the axis of the saw-blade on each side thereof, a driving-shaft having two oppositely-extending cranks, two connecting-rods extending in different directions from 115 each crank and connecting with the oscillating arms as described so as to move the two arms on the same side of the blade at different times in the same direction, and a clutch on each swinging arm arranged to engage and 120 drive the saw-blade when moved in one direction and to disengage the blade when moved in the opposite direction.

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Witnesses:

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