

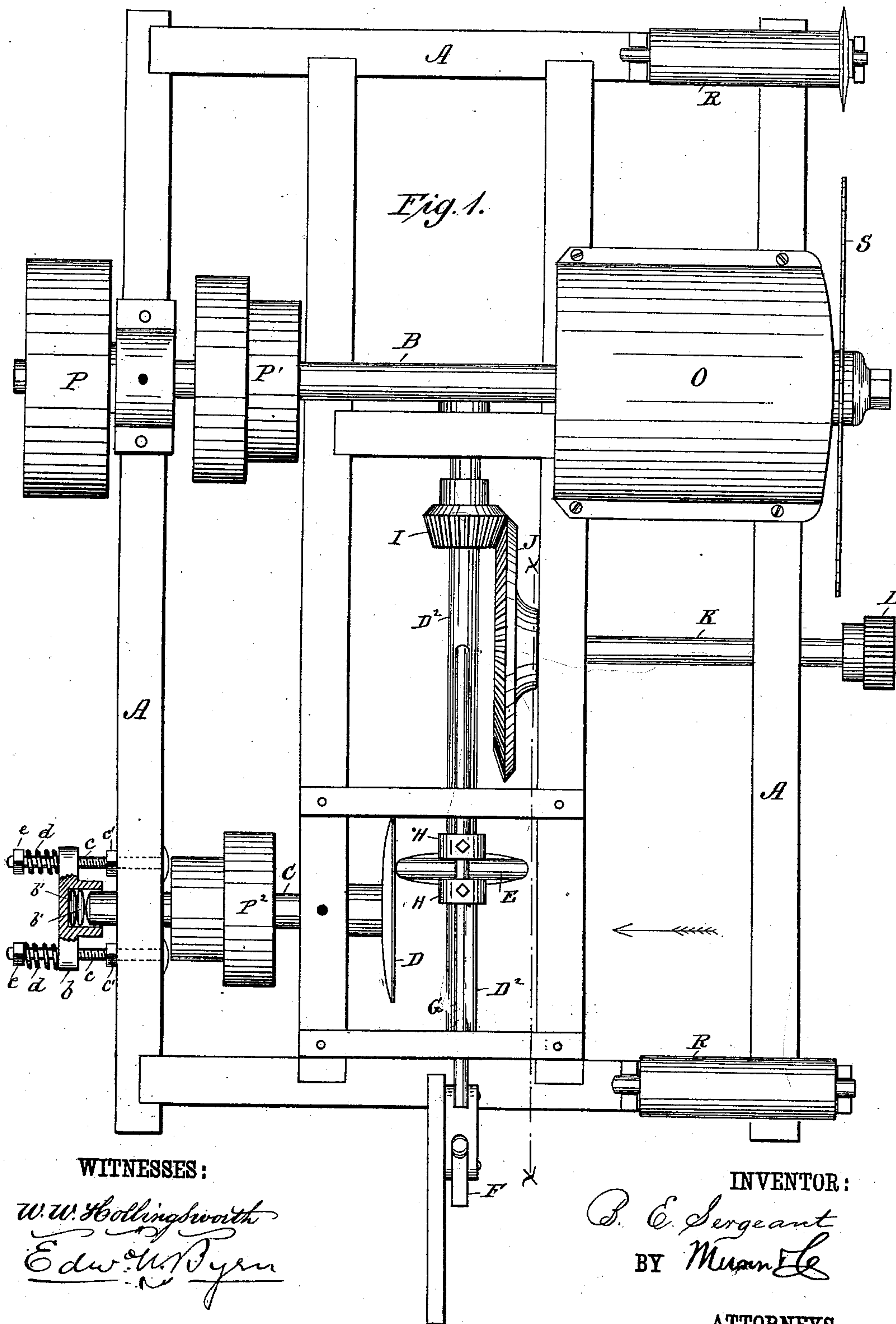
(No Model.)

2 Sheets—Sheet 1.

B. E. SERGEANT.  
FEED WORK FOR SAW MILLS.

No. 349,180.

Patented Sept. 14, 1886.



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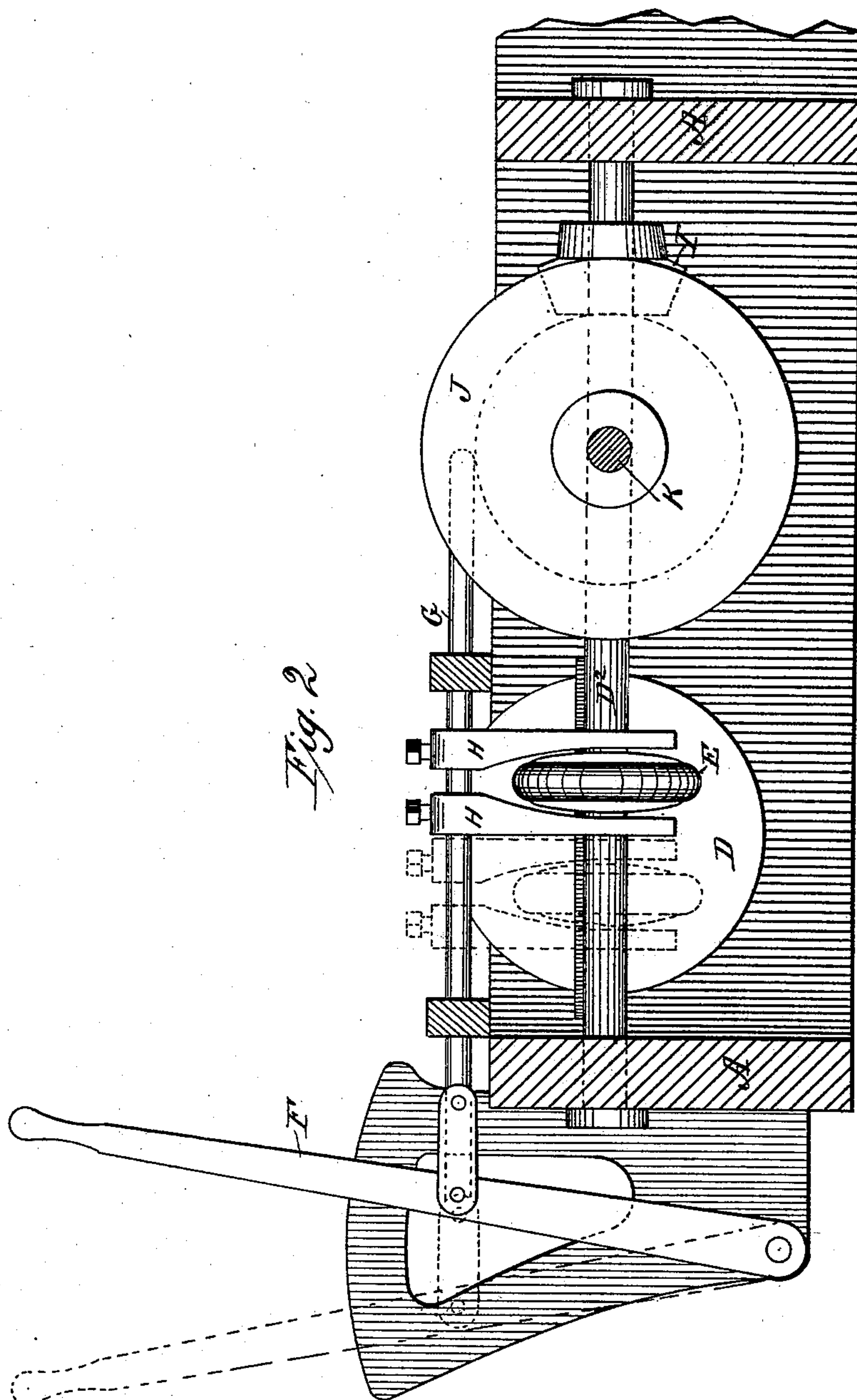
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WITNESSES:

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# UNITED STATES PATENT OFFICE.

BENJAMIN E. SERGEANT, OF GREENSBOROUGH, NORTH CAROLINA.

## FEED-WORK FOR SAW-MILLS.

SPECIFICATION forming part of Letters Patent No. 349,180, dated September 14, 1886.

Application filed April 9, 1886. Serial No. 198,387. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN E. SERGEANT, a citizen of the United States, residing at Greensborough, in the county of Guilford and State of North Carolina, have invented a new and useful Improvement in Variable Friction-Feed for Saw-Mills, of which the following is a description.

Figure 1 is a plan view; and Fig. 2 is a vertical section through the line *x x* of Fig. 1, looking in the direction of the arrow.

My invention is designed for the purpose of furnishing saw-mills with a variable friction-feed for the forward and backward motion of the carriage, and to employ but one lever to give the movements, and which lever is designed to have only a forward and backward movement.

A is the saw-frame. B is the saw mandrel, mounted on boxes on frame A; and having saw S on one end and driving-pulley P on other end, and a cone-pulley, P', near driving-pulley, next to its box. This cone P' is connected to its mate P<sup>2</sup> on the counter-shaft C by a belt, and is driven by the mandrel B. One end of this counter-shaft C is hardened steel, which fits into and is pressed endwise by an adjustable box, *b*. This box has within the same two steel or chilled buttons, *b' b'*, with convex sides, against which the shaft presses endwise, and which runs in tallow to prevent heating and wear. This box is secured to frame A by two bolts, *c c*, that fasten the box to the frame by two nuts, *c' c'*, being tightened up against the frame. The ends of these bolts pass through ears on the sides of the adjustable box, and have springs *d d* bearing against the box, and outside nuts, *e e*, by which means any looseness or wear by friction may be taken up or any degree of pressure required can be had, and a vibrating or yielding pressure on face of friction-disk D is obtained in place of a rigid pressure. On the other end of counter-shaft C is the friction wheel or disk D, which has its friction-face on its side, and which side is faced with leather or other suitable material. This friction wheel or disk is fastened on the end of the counter-shaft C, which latter does not come through to the face of disk. This disk is pressed in suitable contact (by the adjustable box already described) against a leather-faced fric-

tion-wheel, E, which has its friction-surface on its edge or periphery, and which is feathered on the shaft D<sup>2</sup>, and which shaft runs lengthwise of mill or at right angles to counter-shaft C, and has suitable boxes fastened to frame of mill and set-collars to keep it from slipping endwise. This friction-wheel E is moved forward and backward on shaft D<sup>2</sup> by lever F, fulcrumed at the bottom to frame A, and to which lever is attached a rod, G, with bracket-arms H H, carrying the wheel forward and backward from center of disk, giving motion both ways to the carriage. On the other end of shaft D<sup>2</sup>, near its bearing, is fastened a pinion-wheel, I, which engages with a larger bevel-wheel, J, which is fastened on the end of the feed-shaft K, which has suitable bearings in frame A, and on the other end of which, outside of frame A, is a pinion, L, which engages with the rack on the carriage and drives the same. The advantages of this arrangement of a variable friction-feed is that by the use of a counter-shaft with cone-pulleys there is no end pressure on the saw-mandrel. Moreover, the disk, instead of being limited to the speed of mandrel by the use of counter-shaft with cones and belt, can be run to two or three times the speed of mandrel, which permits the use of a small friction-disk and a large sliding friction-wheel, giving a large amount of power for the draft of the carriage. The belt also does part of the work of the friction-wheels and gives relief where most needed.

Where but one lever is used, and the stop is made in the center of the disk, it is very desirable, in order to make a quick stop, to not have to go far from the center; hence the value of the high speed and small disk. There is also another very useful feature about this mill, and this is a hood, O, over the journal-box next to the saw. This hood is the same height as the two rollers R on each end of the frame. When the timber leaves the first roller, it cannot drop down by reason of this hood, and in running the timber back it cannot catch on the box, and if the end of the timber or plank drops below the level of the rollers it will rise up and pass over the hood by reason of the large and regular incline of this hood.

Having thus described my invention, what I claim as new is—



1. In a variable saw-mill feed mechanism, the combination of the main shaft B, bearing the saw and driving pulley P', the counter-shaft C, arranged parallel to B, and provided with a driven pulley P<sup>2</sup>, and having a friction-disk, D, on one end thereof and a spring-seated bearing at the other, a friction-wheel, E, arranged in a plane at right angles to the friction-disk, means for adjusting the same laterally, and gears for connecting the same to the carriage-pin, substantially as shown and described.

2. The combination of the saw-mandrel, the yielding counter-shaft arranged parallel thereto and connected to the mandrel by a belt, the friction-wheel arranged at right angles to the

friction-disk, bracket-arms carrying the friction-wheel, a horizontal rod attached to said arms, and a vertical lever connected to the rod, a feathered shaft bearing the friction-wheel, and gears connecting it to the carriage shaft and pinion, as shown and described.

3. The combination, with the saw-frame and its mandrel bearing a circular saw, S, of an arched or inclined hood arranged over the mandrel next to the saw, as and for the purpose described.

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Witnesses:

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