(No Model.)

2 Sheets—Sheet 1.

J. W. EMERSON & A. C. STARBIRD.

FEED MECHANISM FOR SAW MILL CARRIAGES.

No. 369,781. Patented Sept. 13, 1887.

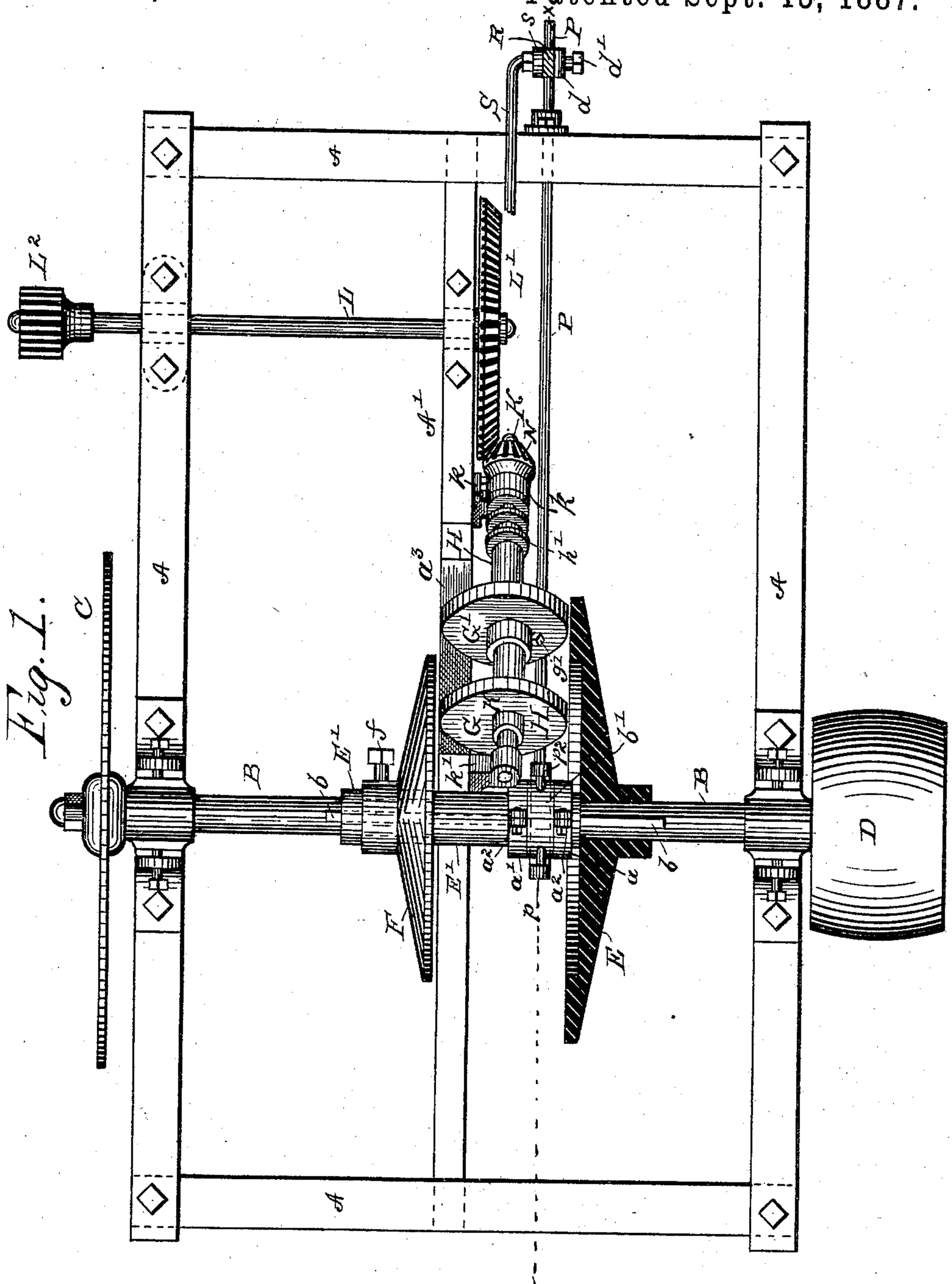

Fig. 1.

WITNESSES

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Percy White.

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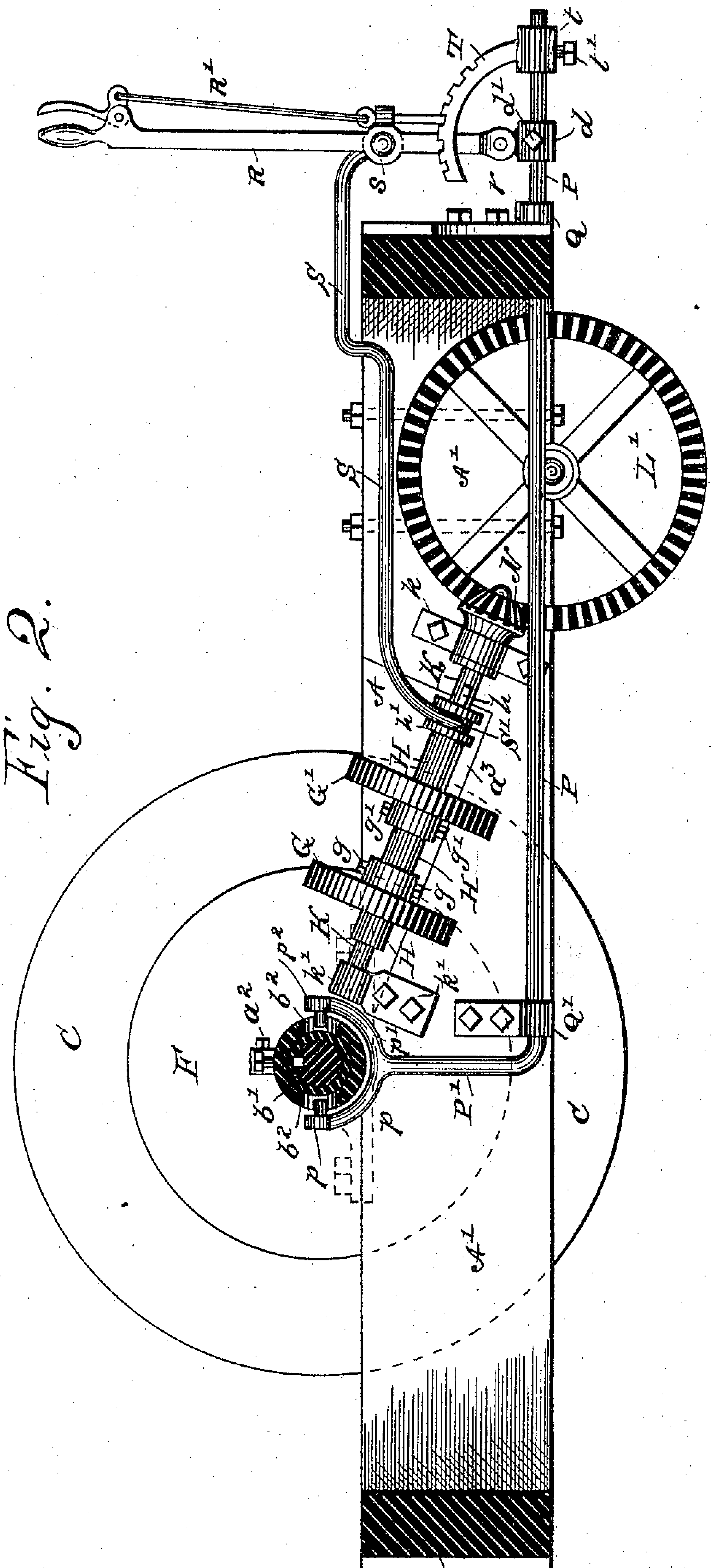

Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN W. EMERSON AND AUSTIN C. STARBIRD, OF APOPKA, FLORIDA.

FEED MECHANISM FOR SAW-MILL CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 369,781, dated September 13, 1887.

Application filed March 4, 1887. Serial No. 229,716. (No model.)

To all whom it may concern:

Be it known that we, JOHN W. EMERSON and AUSTIN C. STARBIRD, citizens of the United States, residing at Apopka, in the county of Orange and State of Florida, have invented certain new and useful Improvements in Feed Mechanism for Saw-Mill Carriages; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

The object of this improvement is a saw-feeding mechanism that can be reversed and made to move backward with speed that is greater than the forward feed, and that is adapted by the adjustment of its parts to different speeds in both directions of its movement. These results are attained by the means illustrated in the drawings herewith filed as part hereof, in which the same letters of reference denote the same parts in the different views.

Figure 1 is a plan, with parts shown in section and parts removed, representing saw-feeding mechanism embodying the features of our improvement. Fig. 2 is a longitudinal vertical section taken on the line *x x* of Fig. 1.

A A′ represent the saw-supporting frame.

B is the saw-mandrel, fixed to the frame in the usual manner by brackets, as shown.

C is the saw.

D is the driving-pulley.

E is a friction-disk having a long integral hub, E′.

F is a friction-disk having an integral hub fitted to the hub-extension E′ of the disk E, to which it is adjustably secured by set-screws *f*. The hub E′ of the disk E is provided with a groove for the reception of a feather, *b*, on the mandrel B, on which the disks E and F are adjustable at the will of the operator, as will be hereinafter fully explained.

G G′ are friction-disks arranged to revolve transversely to the disks E F by contact with the same. The disks G G′ have hub-extensions fitted to a sleeve, H, supported by a shaft, K. The disks G G′ are adjustably secured to the sleeve H by set-screws in their hub-extensions, as fully shown at *g g′* in Fig. 2.

The shaft K is supported in an inclined position by brackets *k k′*, bolted to the central frame-beam, A′ The sleeve H is provided with a groove for the reception of a feather, *h*, on the shaft K.

L is the feed-shaft, which has its bearings in boxes suitably secured to the lower edges of the central frame-beam, A′, and the frame-beam adjacent to the saw C.

L′ is a bevel-gear fixed to the inner end of the shaft L, which is provided at its outer end with a pinion, L^2.

N is a beveled pinion on the outer end of the shaft K and arranged to mesh with the gear-wheel L′.

The hub-extension E′ of the disk E is provided with two collars, *a a′*, preferably made in half-sections with perforated flanges and firmly clamped to the hub E′ by bolts a^2. The hub E′ is provided intermediate of the collars *a a′* with a collar, *b′*, having slots on two opposite sides of the hub E′, as shown at b^2 in Fig. 2.

P is a rod having a rectangular extension, P′, provided at its end with arms *p p′*, which are curved in a manner to clear the collar *b′* on the hub E′. The arms *p p′* are provided with pins p^2, which project inward and enter the slots b^2 in the collar *b′*. The rod P P′ is supported by and arranged to oscillate in brackets Q Q′, bolted to the frame-beam A′. The rod P is provided adjacent to its end with a longitudinally and transversely perforated eye, *d*, which is secured to the rod P by a set-screw, *d′*.

R is a lever having a bifurcated eye at its lower end, by means of which it is pivotally connected to the transversely-perforated part of the double eye *d*, as shown at *r* in Fig. 2.

S is a rod pivotally connnected at *s* to the lever R, and provided at its opposite end with curved arms S′, which set in a grooved shoulder, *h′*, of the sleeve H.

T is a curved rack having an eye, *t*, fitted to the rod P, to which it is secured by a set-screw, *t′*.

R′ represents an ordinary latching device fixed to the lever R for use in connection with the rack T.

By reason of the pivotal connection of the

lever R with the transversely-perforated part of the double eye *d*, fixed to the rod P, the lever R may be adjusted in opposite directions longitudinally with the machine. It is obvious that it may also be adjusted transversely, and that by reason of its rigid connection with the rod P by the eye *d* the transverse oscillation of the lever R will produce a corresponding movement of the rod P's rectangular extension P', and also of the disks E F, through the curved arms *p p'* and their connection with the collar *b'* on the hub E' of the disk E, to which the disk F is secured, as shown. The adjustment of the lever R toward the saw side of the saw-frame will bring the disk E in contact with the transverse disk G'. By adjusting the lever R in the opposite direction the friction-disk F will be brought in contact with the transverse disk G, which will be entirely clear of the disk E by reason of the recess in the body of the latter. By adjusting the lever R in opposite directions longitudinally the disks G G' may be moved toward or away from the mandrel B, and held in positions to be operated by their respective disks E or F more or less distant from the mandrel B, and a corresponding increase or reduction of the speed of the disks G G' and a more or less rapid feed and return motion, as occasion may require, thereby attained, as the motion of the carriage will be governed by the speed of the pinion L^2 on the shaft L, which is operated through its geared connection with the shaft K, which is driven by the disks G G', when they are brought in contact with the disks E or F, as the case may be.

Suitable action of the parts for forward feed is obtained by contact of the disks F and G. Reverse motion of the feed will be produced by contact of the disks E and G'. The disk E being the largest and the disk G' being arranged to engage the disk E at a greater distance from the mandrel than the disk G engages the disk F, the motion of the disk G' will be greater than that of the disk G, and the shaft L will move faster when the disk G' is in contact with the disk E than when the disk G is in contact with the disk F, and the return movement of the carriage will be more rapid than the feed.

By reason of the adjustability of the disk F, it may be set nearer to or farther from the disk E. By reason of the detachable connection of the disks G G' with the sleeve H, they may be removed and replaced by larger or smaller disks, as may be deemed advisable for increasing or reducing the speed of the shaft L, and the disks E F may be secured in relative positions adapted to the size of the disks G G'. The speed of the feed motion and reverse action of the same may be changed more or less by adjusting and securing the disks G G' in different positions on the sleeve H.

Having explained the construction and operation of my improvement, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the friction-disks supported by and movable on the saw-mandrel, the friction-disks adjustable on and supported by the inclined shaft fixed to the saw-frame and geared to the feed-shaft, the rock-shaft for operating the friction-disks on the saw-mandrel, the rod for operating the sleeve, disks supported by the inclined shaft fixed to the saw-frame, and the lever for operating the rod and rock-shaft and adjusting the friction-disks, substantially as specified, for the purpose set forth.

2. The friction-disks supported by and movable on the saw-mandrel, the friction-disks supported by and movable on the inclined shaft fixed to the saw-frame and geared to the feed-shaft, the lever and curved rack-bar secured to rock-shaft, and the connecting curved moving-rod, in combination with the saw-frame, saw-mandrel, and drive-pulley, substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN W. EMERSON,
AUSTIN C. STARBIRD.

Witnesses:
H. WITHERINGTON,
E. C. MORGAN.