F. C. FROST.

Circular-Saw Mill.

No. 200,448. Patented Feb. 19, 1878.

Fig. 1

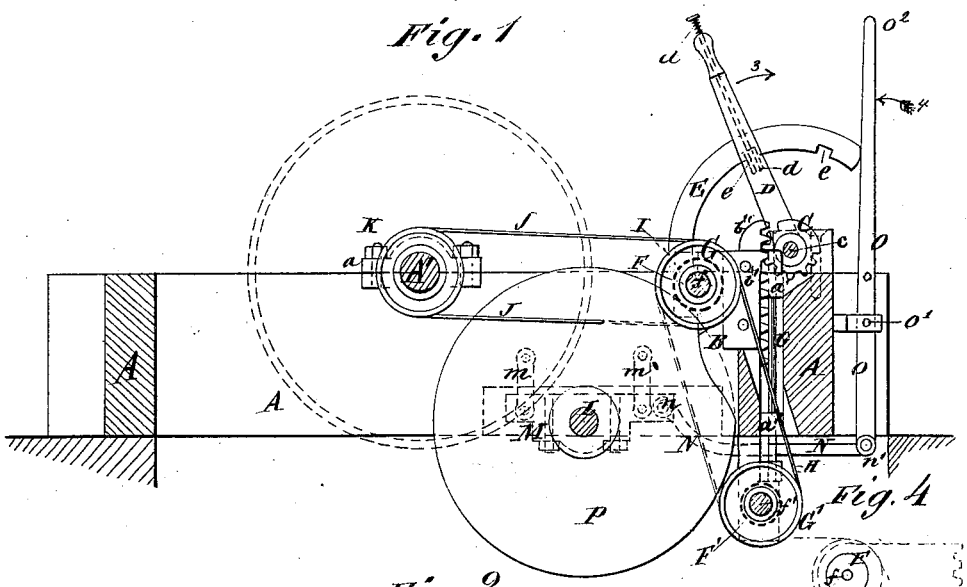

Fig. 4

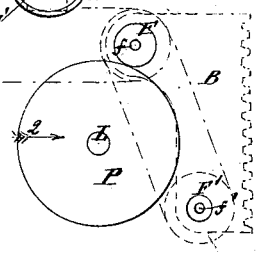

Fig. 2

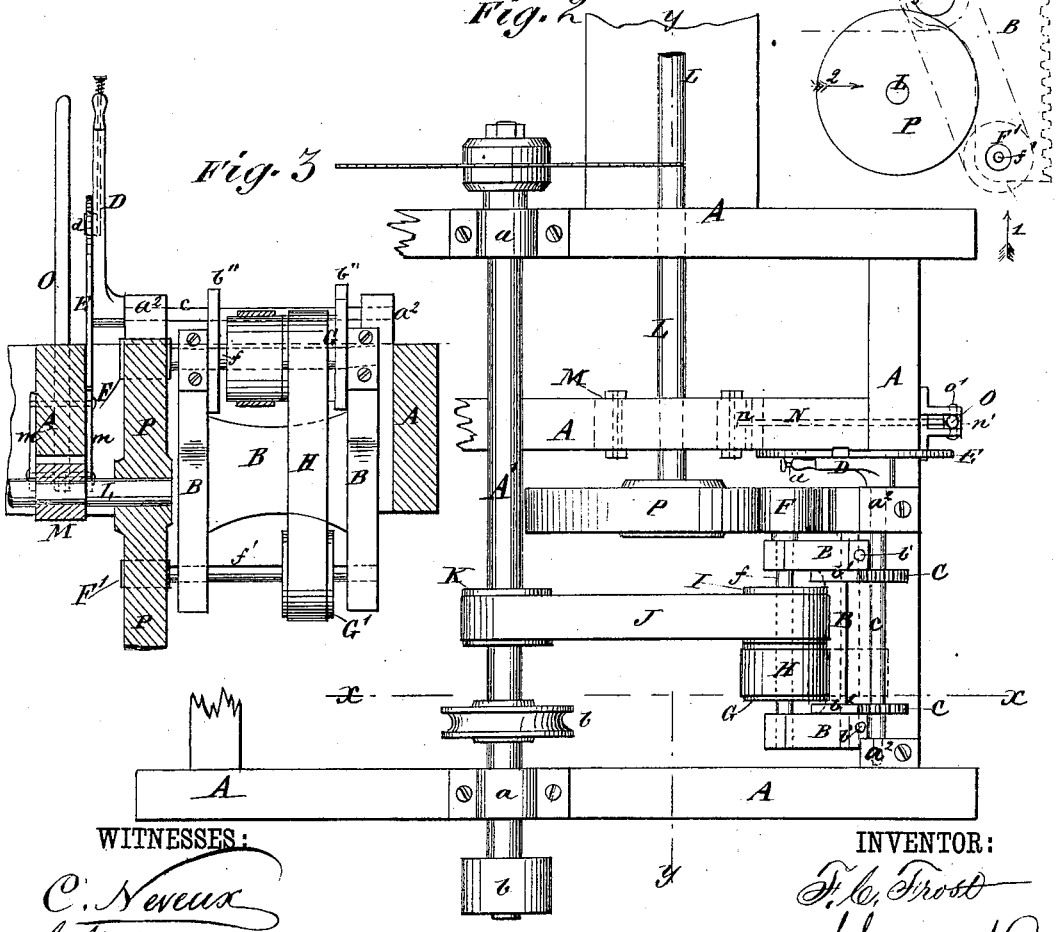

Fig. 3

WITNESSES:

C. Neveux

C. Sedgwick

INVENTOR:

F. C. Frost

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

FRANCIS C. FROST, OF ANOKA, MINNESOTA, ASSIGNOR TO HIMSELF AND JOSEPH E. CRAIG, OF SAME PLACE.

IMPROVEMENT IN CIRCULAR-SAW MILLS.

Specification forming part of Letters Patent No. **200,448**, dated February 19, 1878; application filed December 7, 1877.

To all whom it may concern:

Be it known that I, FRANCIS C. FROST, of Anoka, in the county of Anoka and State of Minnesota, have invented a new and Improved Feed for Circular-Saw Mills, of which the following is a specification:

The object of my invention is to furnish an improved device for changing the speed of the feed for circular-saw mills, even during full run, when desired, and to obviate the necessity of stopping and shifting belts on different pulleys, as heretofore done for that purpose.

The invention consists in the combination, with the friction-wheel and feed-shaft, of friction-rollers of different sizes mounted in a sliding frame, which is operated by a hand-lever, to present one or the other of the said rollers for contact with the said friction-wheel, the latter being thrown in and out of gear with the said friction-rollers, to start and stop the feed-carriage or feed-rollers, by a hand-lever.

The invention will first be described in connection with the drawing, and then pointed out in claims.

In the accompanying drawing, Figure 1 represents a longitudinal vertical section, taken on the line *x x* of Fig. 2, of a saw-frame provided with my speed-changing device for the feed-carriage. Fig. 2 is a plan view of the same. Fig. 3 is a vertical cross-section taken on the line *y y* of Fig. 2. Fig. 4 is an explanatory detail.

Similar letters of reference indicate corresponding parts.

A is the frame. A′ is the saw-mandrel, working in bearings *a*, and provided with pulleys *b*, to run the saw from the main shaft or from the engine or other motor with the desired velocity. B is a frame fitted to slide (by the rods *b′*, working in the lugs a^1 of the frame A) up and down in the frame A, and provided with the racks *b″*, into which gear the pinions or cog-segments C, secured on the shaft *c*, the latter working in bearings a^2 on the frame A.

On the shaft *c* is fastened the lever D, having a spring-pawl, *d*, catching into notches *e* in the segment E, for holding the frame B, when raised or lowered by the lever D and pinions C, in either position.

F is the larger friction-roller for fast speed, and F′ the smaller friction-roller for slower speed, both of which are secured on shafts *f f′*, working in bearings on the sliding frame B, the shafts *f f′* being connected to revolve simultaneously by the pulleys G G′ and the belt H.

On one of the said shafts *f* is a pulley, I, which receives motion to operate the friction-rollers F F′ by the belt J from the pulley K, the latter being secured on the mandrel A′ or other shaft revolved from the primary motor.

L is the feed-shaft, or the shaft which communicates motion to the carriage or feed-rollers, by which the lumber is moved or fed up to the circular saw.

The feed-shaft L is mounted in bearings, of which one, M, is not stationary, but attached to the frame A by links *m*, pivoted with one end to the bearing and with the other to the frame, in such a manner that a reciprocating motion of the bearing, and thus of the feed-shaft, may be obtained by connecting the bearing M, by a rod, N, and pivots *n n′*, to a lever, O, fulcrumed at o^1 to the frame A, and operated at the handle end o^2.

The bearing M may be fitted to slide in guides in the frame A, instead of being connected by the links *m*.

P is the friction-wheel, secured on the shaft L, to communicate motion from the friction-rollers F F′ to the feed-carriage or feed-rollers for the timber. The drawing shows the larger friction-roller F in contact with the wheel P, to impart fast speed to the feed.

By moving the lever D in the direction of the arrow 3 until the pawl *d* lodges in the last notch *e* in the segment E, the frame B is raised in the direction of arrow 1, Fig. 4, for applying the small friction-roller F′ for slow speed.

To throw the friction-wheel P in gear or contact with either of the rollers F F′ for starting the feed, it is only necessary to move the lever O, by the handle o^2, in the direction of arrow 4, when the wheel P will move in the direction of arrow 2, as desired.

The speed of the carriage may further be varied by exchanging friction-rollers F F′ of different sizes on the shafts *f f′*.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. The wheel P and shaft L, in combination with the bearing M, links *m*, rod N, lever O, and with the friction-rollers F F′ and sliding frame B, substantially as and for the purpose specified.

2. The combination of the rollers F F′, connected to revolve simultaneously, the frame B, lugs a^1 and rods b', racks b'' and pinions C, shaft *c*, lever D, pawl *d*, and notched segment E, substantially as and for the purpose specified.

FRANCIS C. FROST.

Witnesses:
GEO. W. MORRILL,
CHAS. P. CUTTER.