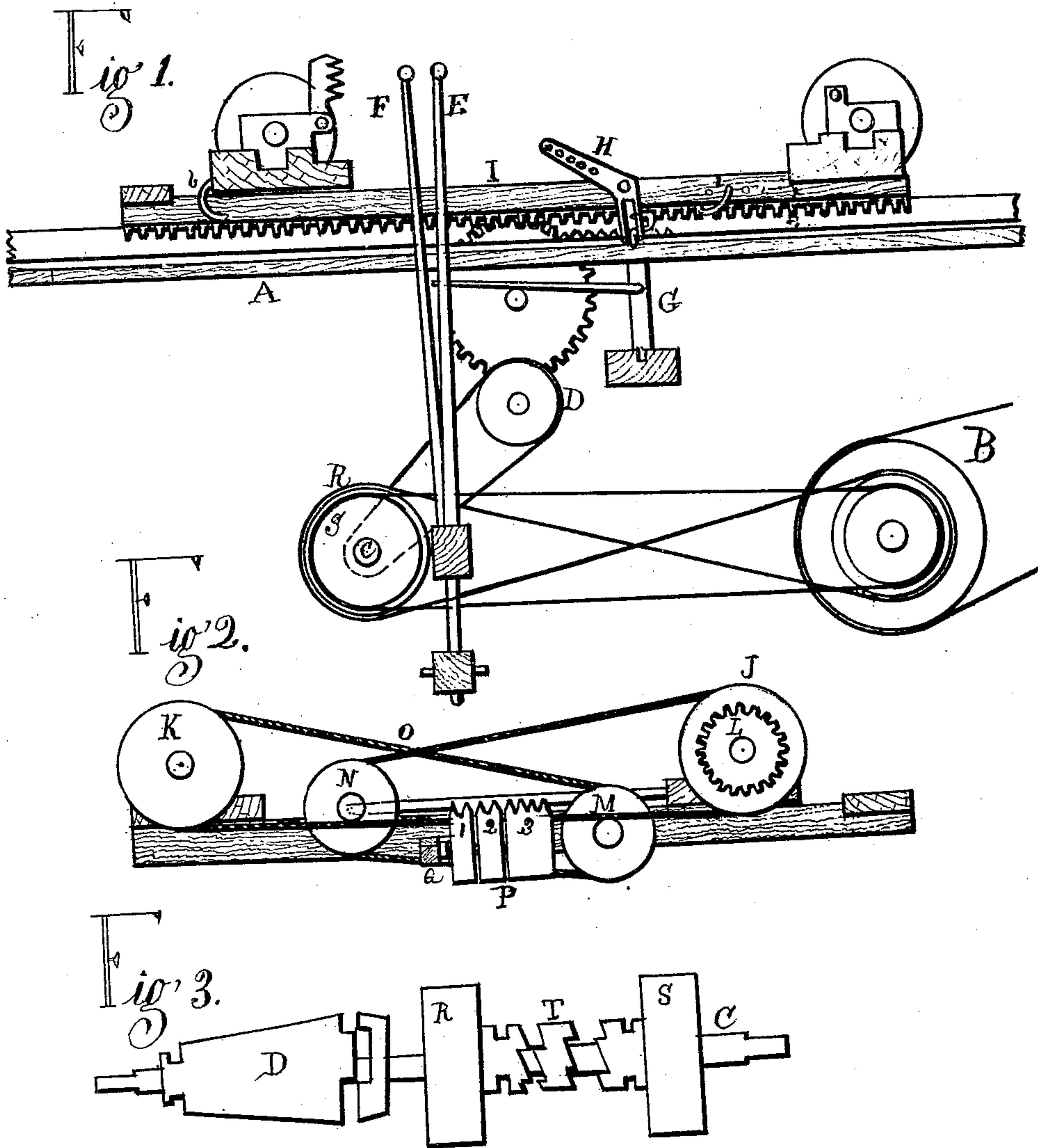


M. F. Campbell,

Reciprocating Saw Mill.

No 105,302.

Patented July 12, 1870.



John L. Lewis
Charles W. Echum, Witnesses

Martin P. Campbell Inventor.

United States Patent Office.

MARTIN P. CAMPBELL, OF BARRINGTON, NEW YORK.

Letters Patent No. 105,302, dated July 12, 1870.

IMPROVEMENT IN SAW-MILLS.

The Schedule referred to in these Letters Patent and making part of the same.

I, MARTIN P. CAMPBELL, of Barrington, in the county of Yates and State of New York, have invented certain Improvements in Saw-Mills, of which the following is a specification.

The first part of my invention relates to making the log-carriage move automatically by the construction and arrangement of the belts and wheels that propel it.

The second part relates to the arrangement of belt or chain and wheels that turn the setting-screws.

The third relates to regulating the motion of the setting-screws to saw any thickness of stuff required.

Figure 1 is a side elevation of the operating machinery;

Figure 2, a side view of the carriage; and

Figure 3, a view of the shaft and wheels that propel the carriage.

A is the floor of the saw-mill. The carriage-ways are placed upon it, and the propelling machinery is placed beneath it, and it is supported by the ordinary frame-work necessary in a saw-mill.

B is the driving-wheel that drives the saw and other machinery. It may be driven by any kind of power, and it may drive a straight or circular saw.

C is a shaft, placed horizontally at any convenient place beneath the floor. It has upon it band-wheels and a clutch. The clutches on the band-wheels are alternately united with it, to change the direction of the carriage, as shown in fig. 3; also, a conical-shaped roller, for regulating the motion of the carriage. There are two corresponding band-wheels on the main driving-shaft, and belts from them to those on the shaft C, as shown in fig. 1. One belt drives the log toward the saw, and the other the other way. The wheels should be proportioned to give one slower, and the other a quicker motion.

D is a cone-shaped roller, that has a belt from the roller on the shaft C, to drive it. By changing the place of the belt, the motion of the carriage is changed. On one end of its shaft is a pinion, that drives the cog-wheel that moves the carriage.

E is a lever; the lower end is in a stationary fulcrum, as shown in fig. 1. It passes through a sliding piece of timber that has connections to the clutches of the band-wheels R and S, so that, by moving the lever, one wheel will leave the stationary clutch T, and move the other to it. This lever has an automatic motion given to it by the carriage, or may be moved by the hand of the operator.

F is a lever. It has a fulcrum above the sliding piece that the other lever passes through, and the lower end is pivoted to a sliding piece. The use of this lever is to hold the clutch of the feed-roller in or out of connection with its driving-wheel, thus stop-

ping the motion of the carriage, to put on logs, or for other purposes, without stopping the motive-power.

G is a rocking-shaft. It is placed in a vertical position, as shown in fig. 1. At the upper end it has an arm extending toward the carriage, so that the catch, *a*, in the side of the carriage will move it in one direction, and the catch, *b*, at the end of the head-block will move it the other. This arm may have the end next to the carriage rest in a series of notches, as shown in fig. 1. This arm allows the carriage to actuate the rocking-shaft. Beneath the floor it has another arm extending from the rocking-shaft to the lever E. By the arrangement of these parts, the carriage will change its own motion without assistance from the operator.

H is a bell-crank. It is supported by a pivot, that passes through it at the angle. The lower end is branched, and the branches pass down each side of the arm at the upper end of the shaft G, and is actuated by it. The upper end may be made in any convenient manner that will receive a connection from the throttle-valve of an engine, or from the gate of a water-power. The use of this is to increase the power when sawing, and decrease it while the log is moving back.

I is the log-carriage. It may be made in the ordinary manner. It must be provided with rack-gearing at the under side, as shown in fig. 1. It may have the ordinary blocks, for holding the log, and dogs on the blocks should be moved by a setting-screw of the ordinary construction, and at one side is the catch *a*, and in the head-block the catch *b*, as shown in fig. 1.

J is a grooved wheel. It is fastened on one end of the setting-screw in the head-block, and turns it. It has a ratchet-wheel attached to or made with it. There is also a cog-wheel, L, that turns on the end of the screw; and the wheel L is provided with a pawl that works in the ratchet, so that the cog-wheel will turn this wheel J in one direction, so as to move the log toward the saw.

K is a grooved pulley. It is fastened to the end of the screw in the tail-block, and turns the screw.

M is an intermediate grooved wheel. The axle that it turns upon is fastened to one side of the carriage, as shown in fig. 2.

N is also an intermediate grooved wheel. It is supported by an arm extending from the head-block any convenient distance beyond the wheel M, with an axle to hold the wheel in line with the other wheels. By having this wheel placed in this position, the head-block may be moved for logs of different lengths, and the belt or chain O remain of uniform tightness.

O is a belt or chain that transmits motion of the wheel J to the wheel K, as shown in fig. 2.

P is the rack that actuates the wheel L when the carriage brings the wheel in contact. It is made in any required number of sections, and the sections may have any required number of teeth each, and their position is shown in fig. 2. They are supported by a round iron that passes through their lower ends, so that they may be turned out of line at will. They may each be provided with a spring, or other device, to hold them in a vertical position, and they may be held out of line by turning the screw Q, so as to carry a collar on the screw in the place of the section or sections of rack turned out of line. The use of this rack is to give motion to the wheel L, thus turning the screws to set the log toward the saw. When the wheel L comes in contact in the other direction, it will not turn the screw, because the pawl will run over the ratchet. The stuff sawed will be made thinner by turning No. 1 out of line, and still thinner by turning out No. 2, and so on. If necessary, each tooth of the rack may be in a section by itself, and by the size of the wheel L. Each tooth may be made to represent any fractional part of an inch.

R and S are band-wheels on the shaft C. They are

made to slide freely on the shaft, so that their clutches may be alternately united with the clutch T, that is securely fastened to the shaft C. Their positions are shown in fig. 3. There are corresponding band-wheels on the shaft of the motive-power, so that, by crossing the belt on one pair of wheels, as shown in fig. 1, the required motion in either direction may be given to the carriage.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The shaft C, with its pulleys D R S and clutch T, in combination with the lever E, armed rock-shaft G, bell-crank H, and carriage I, with its stops *a* and *b*, when constructed and arranged as shown and described.

2. The arrangement of the carriage I and grooved pulleys K N M J with belt O, when all the parts are constructed as set forth, and for the purpose specified.

3. The rack P, when constructed and arranged as herein shown, and for the purpose specified.

MARTIN P. CAMPBELL.

Witnesses:

JOHN L. LEWIS,

CHARLES KETCHUM.