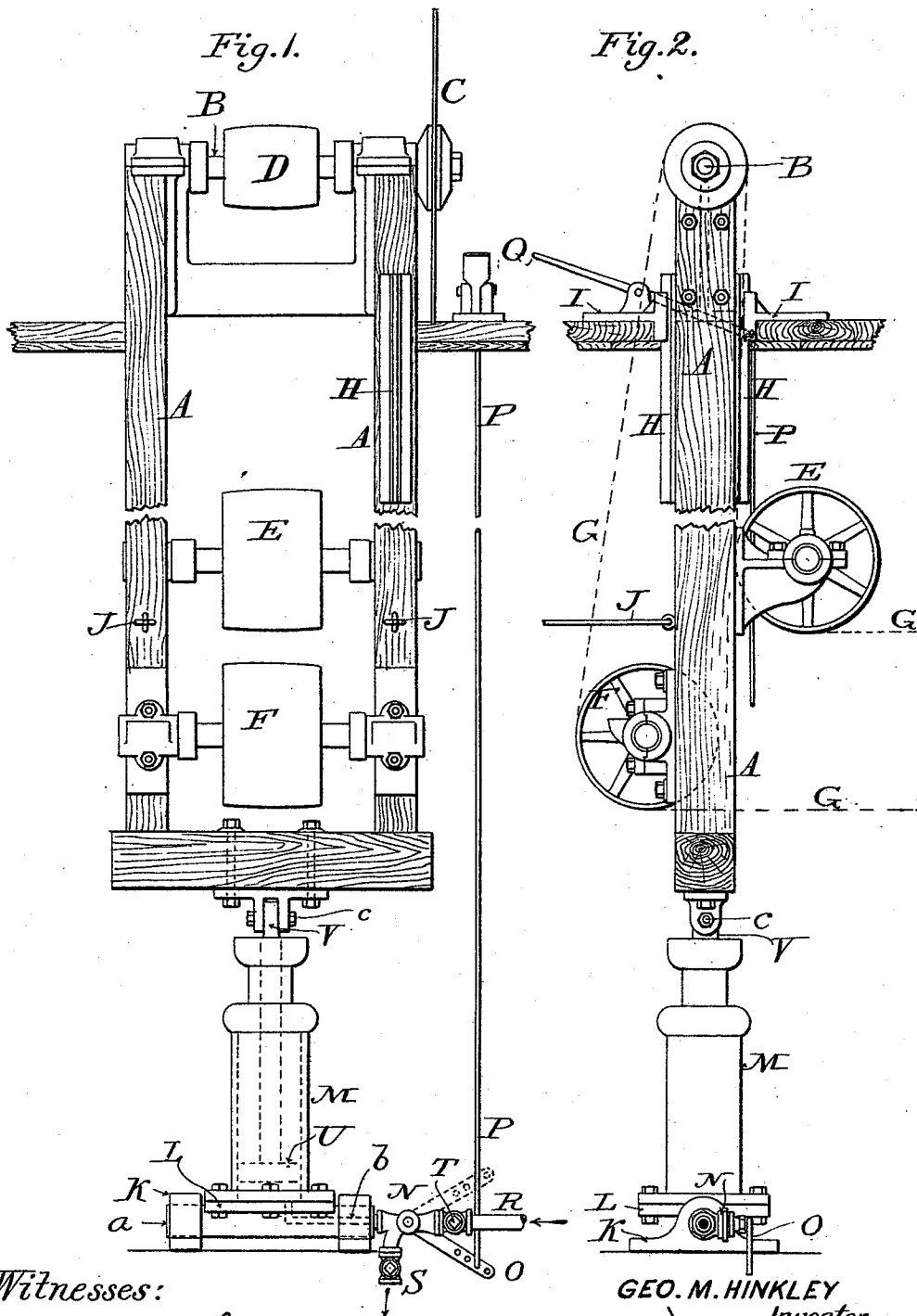


G. M. HINKLEY.

RECIPROCATING CIRCULAR SAWING MACHINE.

No. 499,293.

Patented June 13, 1893.



Witnesses:

James F. Orhamel.
Horace A. Dodge.

GEO. M. HINKLEY
Inventor

by Dodge & Sons,
his attorneys.

(No Model.)

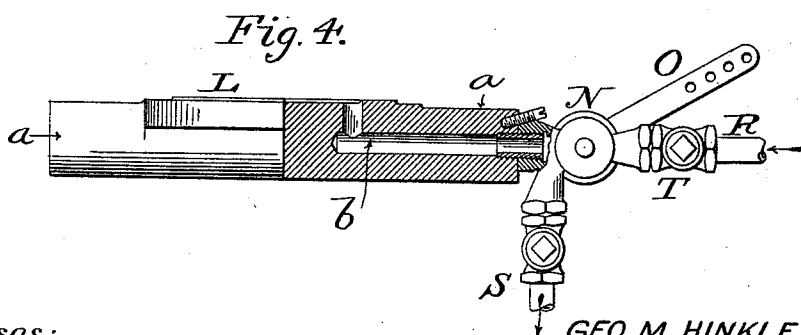
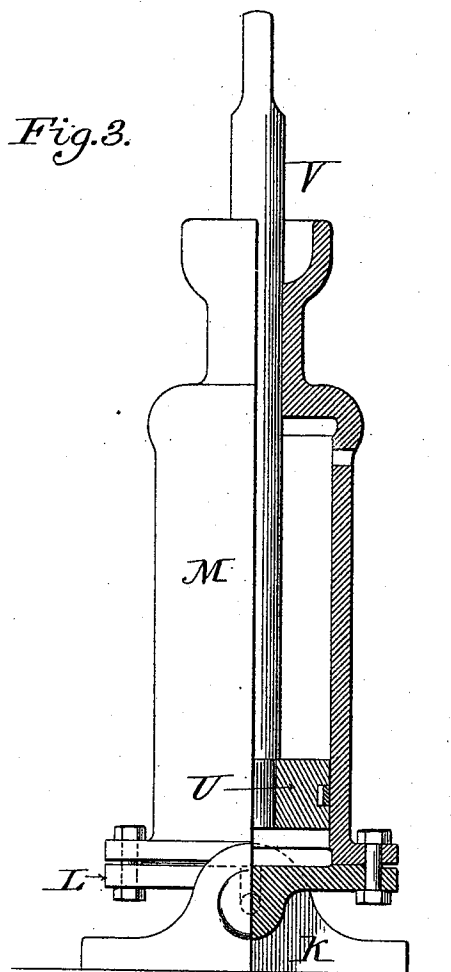
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

GEORGE M. HINKLEY, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF ONE-HALF
TO THE EDWARD P. ALLIS COMPANY, OF SAME PLACE.

RECIPROCATING CIRCULAR SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 499,293, dated June 13, 1893.

Application filed June 25, 1892. Serial No. 437,936. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. HINKLEY, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Reciprocating Circular Sawing Machines, of which the following is a specification.

My invention relates to circular sawing machines, and consists in various features, details and combinations hereinafter set forth and claimed.

In the drawings,—Figure 1 is a side view of my improved machine; Fig. 2, a face view of the same; and Figs. 3 and 4, views illustrating certain details.

A indicates a vertically reciprocating frame, the upper end of which, projecting through an opening in the floor, carries the saw arbor B, saw C and band wheel D; while in the lower portion of the frame are journaled the band wheels or pulleys E and F. About the wheels or pulleys D E and F, passes the belt or driving band G, which receives motion from a shaft (not shown) suitably fixed in position.

The frame A is provided at its upper end with ribs or flanged plates H, the flanges or ribs of which are embraced loosely by suitably-formed shoes I secured to the floor so as to steady or guide the frame in its reciprocation. This frame A is further steadied, below the floor, by one or more radius bars or rods J, pivotally secured at one end to the frame and at the other end to the fixed framework of the mill as usual. These plates H and shoes I are intended simply to prevent lateral displacement of the saw frame, or displacement in the direction of the length of the saw-arbor, but do not prevent a slight swinging or rocking movement in a direction of the plane of the saw. Ordinarily the top face of the pulley F is on a line with the center of the driving shaft, when the frame or ladder is in its lowermost position; and when the latter is in this position the radius bar is substantially horizontal. Now if the frame or ladder be raised and lowered in a direct vertical line, the driving belt G would be loosened or tightened according to the location of the main

driving pulley. To obviate this the lower end of the frame or ladder is connected with the radius bar J so that when the ladder is moved upward its lower end will be swung on the arc of a circle described or controlled by the radius bar, thereby keeping the belt practically at a uniform tension. In practice the tension is arranged to be slightly tighter just when the saw is raised and working a cut.

K K indicate a pair of bearings or blocks rigidly bolted or otherwise affixed in position to the lower floor, directly in line with the frame A, said blocks or bearings having suitable holes to receive the cylindrical ends or journals *a* of the cylinder-plate L. This plate L,—shown in section in Fig. 4,—is provided with a steam passage *b*, the inner end of which is designed to be covered by the lower end of the cylinder M which is bolted rigidly to the upper face of the plate. The outer end of said steam passage *b* passes through one of the journals *a*.

N indicates a valve screwing onto the hollow journal of the plate L and provided with a handle or arm O by which it may be actuated. This handle O is connected to the lower end of a rod P, whose upper end extends upward through the main floor where it is connected to a lever or treadle Q which may be actuated by hand or by foot.

The valve shell or casing will have a steam supply pipe R, an exhaust pipe S, and a stop-cock T to regulate the speed of the piston; all of such devices being shown in Figs. 1 and 4.

U indicates a piston working within the cylinder, and having its rod V pivotally connected to a plate secured to the frame A, by means of a bolt *c*, which is in substantially the same vertical plane as the axis of the cylinder plate.

The parts are shown in Fig. 1 in the positions they occupy when the saw is not in use. Now if it becomes desirable to raise the frame and its saw into operative position, the attendant presses down upon the treadle Q,—connected by rod P with the valve arm O,—thereby opening the valve. Steam entering through pipe R passes into the passage *b* and from thence into the cylinder M; and

acting upon the lower side of the piston, forces the latter upward together with the saw frame connected thereto. After one or more cuts have been made, the foot is removed from the treadle and the valve closes,—
5 thereby cutting off the steam and allowing the piston and frame to fall and the exhaust to escape through pipe S. By providing the cylinder head or plate with the trunnions or
10 journals *a*, and by pivotally connecting the piston rod with the "ladder" or frame, the parts will readily adjust themselves to the slightly radial movement given to the frame.

Any other fluid, such for instance as water
15 or compressed air,—may be used in lieu of steam.

Having thus described my invention, what I claim is—

1. In combination with a vertically-reciprocating saw-frame, a pivoted cylinder, a piston
20 working within the cylinder and connected

with the frame, and means for admitting a fluid under pressure to and from the cylinder.

2. In combination with a vertically-reciprocating saw-frame, a pivoted cylinder, a piston
25 working therein and having its rod pivoted to the frame, and means for admitting a fluid under pressure to and from the cylinder.

3. In combination with a vertically-reciprocating saw-frame, a cylinder having its head
30 provided with journals, one of which is hollow, bearings to receive the journals, a piston connected to the frame, and a valved steam-supply pipe connected with the hollow journal or trunnion.

In witness whereof I hereunto set my hand
35 in the presence of two witnesses.

GEORGE M. HINKLEY.

Witnesses:

FRANK W. GREENLEAF,
GEO. F. WILLIS.