I. M. ROSIER.

Reciprocating Saw-Mill.

No. 219,528. Patented Sept. 9, 1879.

Fig. 1

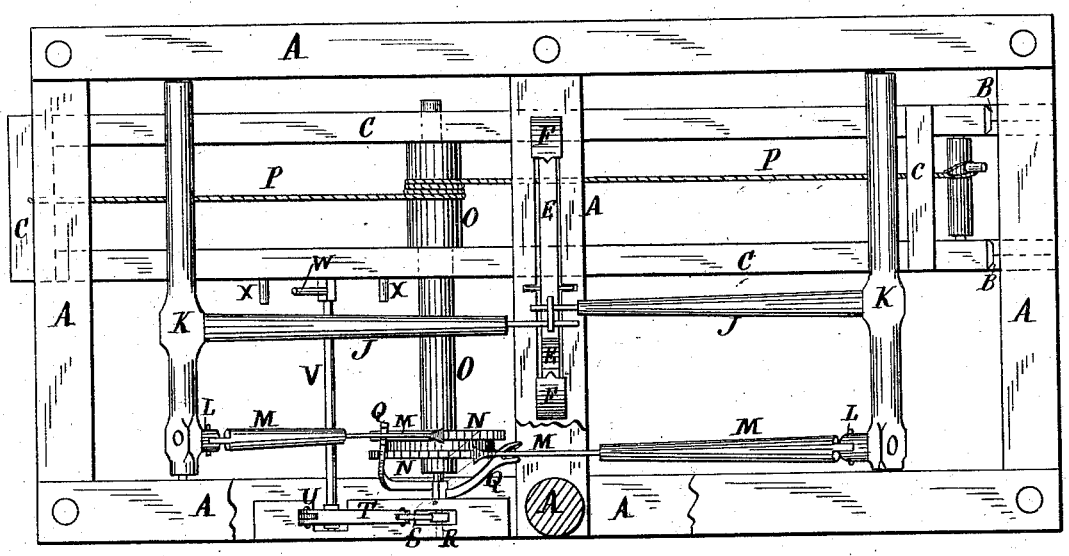

Fig. 2.

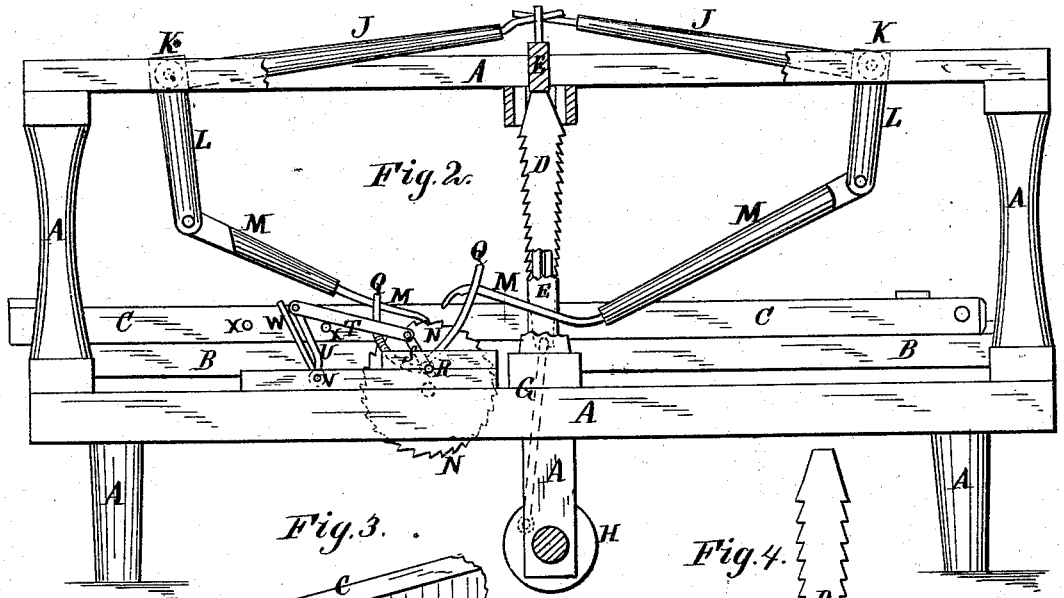

Fig. 3.

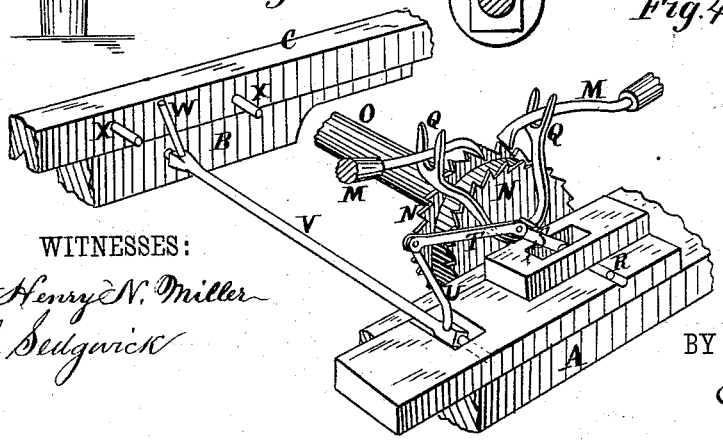

Fig. 4.

WITNESSES:

Henry N. Miller

C. Sedgwick

INVENTOR:

I. M. Rosier

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ISHAM M. ROSIER, OF JONESVILLE, VIRGINIA.

IMPROVEMENT IN RECIPROCATING SAW-MILLS.

Specification forming part of Letters Patent No. **219,528**, dated September 9, 1879; application filed June 26, 1879.

To all whom it may concern:

Be it known that I, ISHAM MICAJAH ROSIER, of Jonesville, in the county of Lee and State of Virginia, have invented a new and useful Improvement in Reciprocating Saw-Mills, of which the following is a specification.

Figure 1 is a top view of my improved saw-mill, part being broken away to show the construction. Fig. 2 is a side view of the same, partly in section, to show the construction. Fig. 3 is a detail perspective view of a part of the reversing device. Fig. 4 is a detail side view of the saw.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish saw-mills which shall be so constructed as to saw the logs from end to end, reverse the motion of the carriage automatically at the proper time, and saw the log in both directions, thus saving lumber, time, and labor, and doing much more work than would otherwise be possible, and which at the same time shall be simple in construction, convenient in use, and reliable in operation, not being liable to get out of order.

The invention consists in the combination of the four rock-shafts and their respective arms, the connecting-rod, the two pawls, and the double ratchet-wheel with the saw-gate, the feed-shaft, and the stops adjustably attached to the carriage, for reversing the motion of the said carriage automatically, as hereinafter fully described.

A is the frame of the saw-mill, to which are attached the ways B, upon which the carriage C moves back and forth. D is the saw, which is secured to the gate or sliding frame E in the usual way. The saw D is hung vertically, and is made about two inches wider at its upper than at its lower end, and has teeth upon both edges, as shown in Figs. 2 and 4. This construction gives the proper inclination to both edges, and allows the saw to cut in either direction.

The gate E slides up and down in ways F, attached to the frame A, and to its lower end is pivoted the upper end of a connecting-rod, G, the lower end of which is pivoted to a crank-wheel or crank, H, attached to or formed upon the shaft I. The shaft I revolves in bearings attached to the frame A, and receives motion from a water-wheel or other power.

To the upper end of the gate E are fastened so as to move up and down the inner ends of two arms, J, the outer ends of which are rigidly attached to the rock-shafts K. The shafts K work in bearings attached to the frame A, and to them are rigidly attached downward-projecting arms L. The shafts K and rigid arms J L thus operate as bent levers. To the lower ends of the arms L are pivoted the outer ends of the two pawls M, the inner ends of which engage with the teeth of the double ratchet-wheel N, attached to the shaft O. The shaft O revolves in bearings in the frame A, and around it are passed two or three coils of a rope, P, the ends of which are attached to the end parts of the carriage C, so that the said carriage may be moved back and forth by the revolution of the shaft O in one and the other direction alternately.

If desired, gear-wheels may be attached to the shaft O, to mesh into the teeth of racks attached to the carriage, C to move the said carriage C back and forth.

The inner parts of the pawls M pass through the slots or forks formed in the outer ends of the arms Q, the inner ends of which are rigidly attached to a short shaft, R, which rocks in bearings attached to the frame A, and has a third arm, S, rigidly attached to it. To the end of the arm S is pivoted the end of a connecting-rod, T, the other end of which is pivoted to the end of an arm, U, rigidly attached to the outer part of the shaft V. The shaft V rocks in bearings attached to the frame A, and to its inner part is rigidly attached an arm, W, which projects into such a position as to be struck by the stops X, attached to the carriage C. The stops X may be in the form of pins inserted in holes in the side bar of the carriage C; or they may be made of any desired form, and clamped adjustably to the side bar of the said carriage by any suitable clamp. The stops X are adjusted at such a distance apart as the length of the lumber to be sawed may require.

With this construction, when the saw has cut through the entire length of the lumber, one of the stops X strikes the arm W of the rock-shaft V, which turns the short rock-shaft R, raising the forked arm Q, and raising the pawl M, that has been moving the carriage C, and lowering the forked arm Q of the other pawl M, so that it may engage with the teeth of the ratchet-wheel N, and thus move the carriage C in the other direction, thus reversing the motion of the said carriage C automatically.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination of the four rock-shafts K K R V and their respective arms J L Q Q S U W, the connecting-rod T, the two pawls M M, and the double ratchet-wheel N with the saw-gate E, the feed-shaft O, and the stops X, adjustably attached to the carriage C, for reversing the motion of the said carriage automatically, substantially as herein shown and described.

his
ISHAM MICAJAH × ROSIER.
mark.

Witnesses:
HENRY J. MORGAN,
D. R. SMITH.