(No Model.)

S. MALES.

DRAG SAW.

No. 250,557. Patented Dec. 6, 1881.

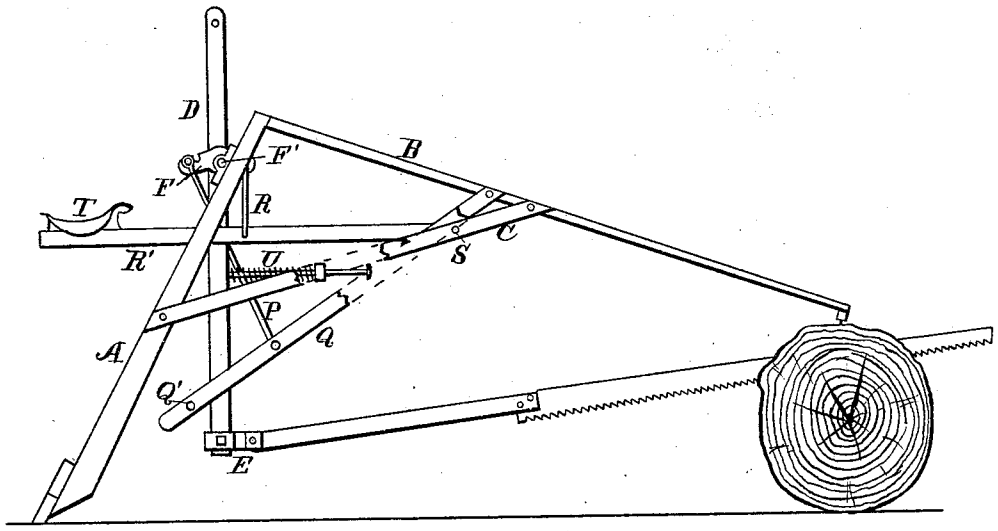

Fig. 1.

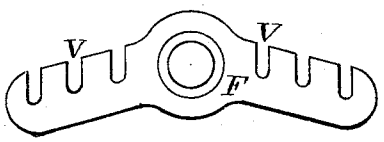

Fig. 3.

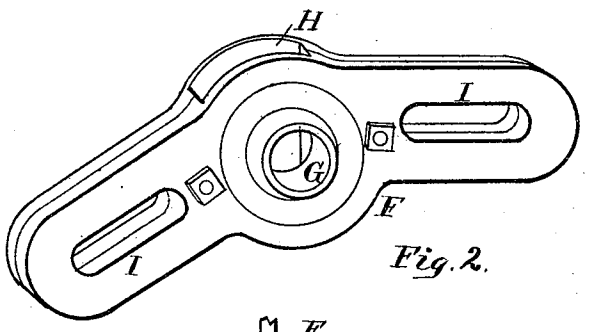

Fig. 2.

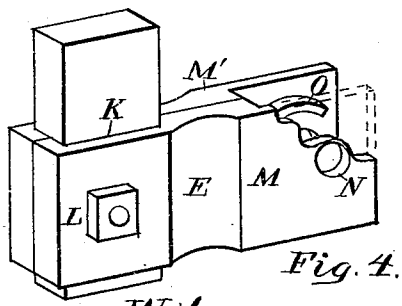

Fig. 4.

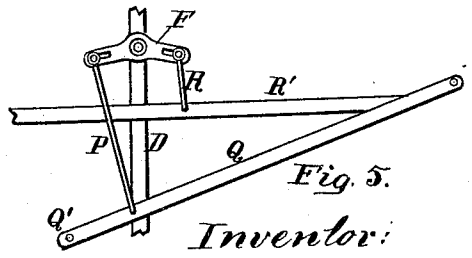

Fig. 5.

Witnesses:

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atty

UNITED STATES PATENT OFFICE.

SAMUEL MALES, OF CINCINNATI, OHIO.

DRAG-SAW.

SPECIFICATION forming part of Letters Patent No. 250,557, dated December 6, 1881.

Application filed January 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL MALES, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Drag-Saws, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side view of the machine. Fig. 2 is a perspective view of the walking-beam, and Fig. 3 a modified view of the same. Fig. 4 is a perspective view of the pitman-joint or connection, and Fig. 5 is a side view, showing clearly the attachments of the stirrups from the walking-beam to the foot and seat levers.

It is the object of this invention to construct a drag-sawing machine in such a manner that it can be easily operated, either by means of the action of the hands alone or by means of the seat and foot levers, or by the united action of the hands and feet in connection with the seat-levers carrying the weight of the operator.

To accomplish this it consists in the peculiar combination and arrangement of a walking-beam with foot and seat levers, as will hereinafter be more fully set forth.

Referring to the accompanying drawings, A represents the upright pieces of the frame, secured at their lower ends to a suitable horizontal base-piece and at their upper ends to the rear end of the beam B. Braces C C extending from the uprights A A embrace the beam B on opposite sides, and thereby form a secure frame for the operating mechanism.

The pitman-lever D is provided midway with a walking-beam, F, through which a cross-shaft, F′, passes, and is journaled to suitable boxing in the upright pieces A A.

The walking-beam F is of peculiar construction. It is preferably halved or made in two parts, so that when placed together they embrace the pitman-lever D and are bolted at J. The transverse aperture G permits the shaft F′ to pass through, and thus form a journal. The ends of the walking-beam are provided with downwardly-inclined slots I or notches V. If desired, however, the walking-beam F may be cast in one piece.

The lower end of the pitman-lever is provided with a peculiarly-constructed pitman-connection, E. This is also formed of two parts, M M′, the rear ends of which are provided with gains K, to receive the ends of the pitman-lever D, and the forward ends have their inner faces cut away sufficiently to permit the rear end of the pitman to pass in and be secured to the joint by means of a bolt passing through the hole N.

To provide against the large surface of the inner face of the plates M M′ at the point where the pitman is united with the joint the space between the shells is made somewhat wider than the thickness of the pitman, and two or more concentric ribs, O, project from the inner faces, which are adapted to act as the wearing-surface against the sides of the pitman.

The rear ends of the shells are firmly secured together and to the pitman-lever D by means of the bolt L.

Q represents levers, secured at their upper ends to the frame B or to the braces C, one on each side of the frame, and united at their lower ends by a cross-piece in any suitable manner. Pins or stirrups Q′ project from the sides of these levers at their lower ends, for the feet of the operator. Rods P P, having their upper ends secured to the rear slots or notches of the walking-beam, have their lower ends secured to the foot-levers P at any suitable point midway. Levers R′, having their forward ends hinged to the braces C or to the frame B, project downward between the uprights A A of the frame, and are united at the rear ends and provided with a saddle, T, which is capable of being moved to or from the pitman-lever, as desired.

Rods R, connected at their upper ends with the forward end of the walking-beam F, have their lower ends hinged to the seat-levers R′.

A coiled spring, U, on a rod, is interposed between and fastened at opposite ends to the pitman-lever D and a cross-piece in the frame a suitable distance below the hinged point. The object of this spring is to relieve the strain on the knees when the foot-levers are drawn backward to the farthest point, and thus readily enable the operator to return the stroke of the saw or impel it forward.

The operation of the machine is as follows: The operator in using the machine as a riding-saw sits on the movable saddle T, places his feet on the stirrups or pins Q′ of the levers Q,

and grasps the cross-handle on the upper end of the pitman-lever. Now by removing the pressure of the feet from the levers Q and at the same time pushing forward the handles of the pitman-lever, the saw will be drawn back, since the weight of the operator is transmitted to the forward end of the walking-beam F. To reverse the motion of the saw, the weight of the body is thrown on the feet, which transmits the power through the rod P to the rear end of the walking-beam F. At the same moment the hands draw back the top of the pitman-lever and the saw is impelled forward. The handle on the upper end of the pitman-lever, however, is not a necessity, but is placed there merely as a means of steadying the workman when used as a riding-saw. In practice I find that the seat and foot levers perform all the functions necessary to operate the saw.

When desired, the rods R P can be detached and the pitman-lever alone used to operate the saw. In this case the seat can be made stationary at any suitable point and used as a rest, or it may be dispensed with entirely, the operator standing while performing the work with the hands on the cross-handle of the pitman-lever.

I am aware that Letters Patent No. 228,413 show a walking-beam to the opposite ends of which stirrups are attached which connect with foot and seat levers; but I disclaim, broadly, the use of a walking-beam and levers so arranged. My invention has special reference to the manner in which the foot and seat levers are connected with the ends of the walking-beam, so that the operator, in manipulating the machine, may be able to exert the greatest possible amount of power. As will be observed, the forward end of the seat and foot levers are hinged to the frame of the machine and the rear ends are adapted, respectively, for the seat and feet, while midway they are connected by the stirrups with the opposite ends of the walking-beam. The connections thus made are direct, few wearing parts are required, and the machine can be made in a much simpler manner, consequently greatly cheapening the cost. In addition to this the seat is loose and adjustable, so that the machine can be readily adapted for an operator of any weight.

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

The seat and foot levers hinged at their forward ends to the frame, and the rear end of the seat-lever being provided with a loose sliding seat, in combination with the pitman-lever having a walking-beam the opposite ends of which are connected with the seat and foot levers, respectively, midway between the ends, as and for the purpose set forth.

SAMUEL MALES.

In presence of—
J. S. ZERBE,
H. J. HARROP.