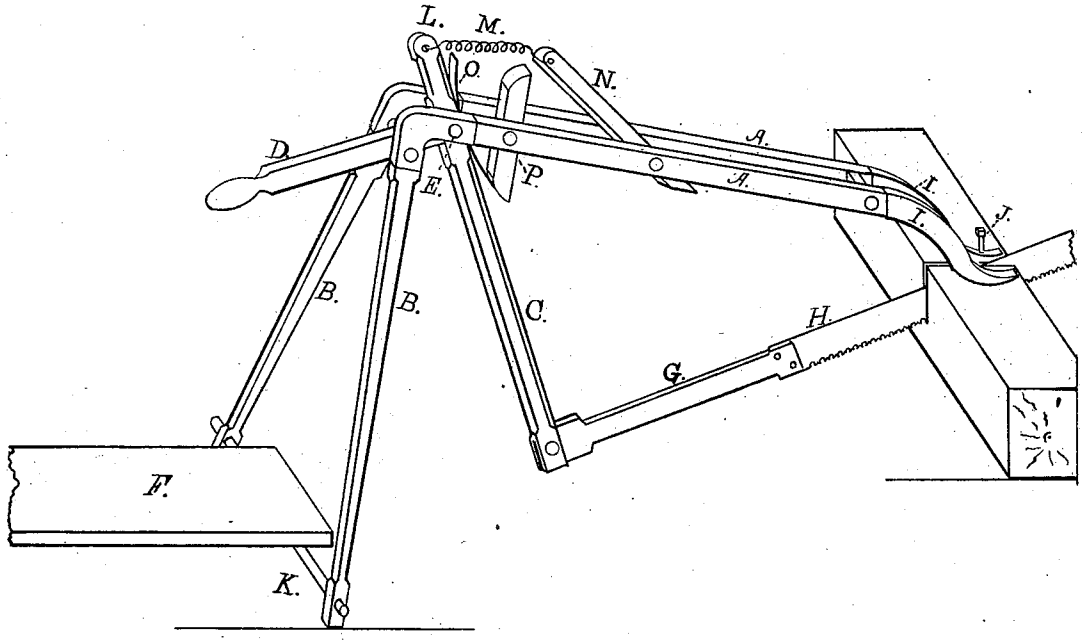
(No Model.)

W. W. GILES.

Hand Sawing Machine.

No. 240,316. **Patented April 19, 1881.**



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UNITED STATES PATENT OFFICE.

WILLIAM W. GILES, OF CHICAGO, ILLINOIS.

HAND SAWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 240,316, dated April 19, 1881.

Application filed December 27, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. GILES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Hand Sawing-Machine, of which the following is a specification.

My invention relates to improvements in hand sawing-machines, which may be constructed at a minimum cost, whereby the operator may stand upon the ground, or upon a board one end of which is placed thereon and the other upon the frame-work of the machine, and by a downward pressure upon a lever actuate the saw in a forward direction, the same being reversed and carried backward in the kerf by means of suitably-arranged springs, thus enabling one operator to perform more work in a given time than is done by two in the usual mode of hand-sawing. I attain the objects mentioned by the mechanism illustrated in the accompanying drawing, in which the figure shown represents a detailed view, in perspective, of the entire machine.

The bars A A, with the legs or standards B B and the curved extension I I, all suitably braced or joined together, constitute the frame of the machine.

C D is a bell-crank or elbow-lever, pivoted at E, D being the handle, which is grasped by the operator, who stands upon the board F, and C being the saw-lever, to the lower extremity of which is attached a pitman, G, which is connected with the saw H.

The extremity I I of the frame-work A A is bent downward to such an extent as may be desired, and rests upon the log or block of wood to be sawed, being secured thereto by means of a wood-screw or spike, J, and serves to secure the end of the frame-work which rests upon the log, while the opposite end is held firmly in its place by means of the board F, resting, as shown, upon the round or bar K. By this latter device, which accomplishes all that could be done in any other manner, the machine may be constructed cheaply, is rendered very simple, and may be easily and readily transported.

It is apparent that it is much easier for a man to exert a given force by a downward pressure than by lifting upward, and the difference in the force produced in the respective modes mentioned enables one, by suitable mechanism, to store up the overplus of power produced in a downward pressure, and thus utilize the same in the reverse movement. In order to accomplish this result I have extended the bar C above the pivotal point E, and to the extremity L thus extended I attach a spiral spring, M, which spring is connected with the upper extremity of the block or bar N, which, in turn, is rigidly attached to the frame or bars A A. As the operator presses downward upon the handle or lever D, thus throwing the saw H forward, the surplus force which may be produced by this movement is stored in the spring M, and is utilized in drawing the saw backward in its reverse stroke; but as the momentum of the operator is greatest at the extremity of the downward stroke, and as it requires great exertion of the muscles of the back of the operator to suddenly recover and reverse his movement, I have found it essential to interpose at the extremity of each stroke an opposing force, which may tend to assist the operator in recovering, and, in addition thereto, reverse the movement of the saw at a point when it is most difficult for the operator to effectually exert his muscular force in so doing, and also where the saw, being at rest, is set most firmly in the wood. This end I effect by means of the curved spring, O, the center and convex surface of which is attached rigidly to the saw-lever C at its pivotal point E. I then attach rigidly, in a vertical position, between the bars A A, the block P, which is made of a suitable length to correspond to that of the spring O, and the ends of the same are suitably rounded or beveled on the side toward the spring O. It is my design to place the block P at such a distance from the spring O as that one or the other end of the latter may strike one or the other end of the former and suddenly produce a reverse movement of the saw-lever. Thus, when the operator presses down upon the handle D, the lower end of the spring O meets the corresponding end of the block P, producing a rebound, which suddenly overcomes the downward momentum of the operator, and not only assists him in recovering an erect posture, but draws the saw backward as well, thus equal-

izing and averaging the power or force of the operator, and at the extremity of the upward stroke the top of the spring O strikes the top of the block P, giving a sudden backward movement to the saw before the latter has actually attained its rest and become set in the kerf, as so frequently happens in sawing wet or unseasoned timber.

It will readily be seen that by this device the greatest force is exerted at the points of greatest resistance, and that the operator is eased and assisted at the time of exerting, and while in a position to exert, the least force.

Different springs, either spiral or otherwise, may be used instead of those indicated, as well as various modes of adjusting the same—*e. g.*, one or more coiled springs attached at proper points on the saw-lever or on the ends of the block P, so that the same may act at the extremity of each saw-stroke—may be used in place of the spring O; or india-rubber or other like substance may be employed to accomplish the same purpose; but I prefer the device as shown above.

In sawing rapidly, and when considerable force is required, it may be necessary to secure the rear end of the machine in some manner to prevent its movement. This may be accomplished by means of a stake driven in the ground and attached to the brace K or other part of the frame-work; or the operator may stand upon the board F, one end of which rests upon the brace K or other portion of the frame-work, and the other end upon the ground; or he may stand upon the frame itself when suitably arranged for that purpose.

I am aware that there are sawing-machines wherein the weight of the operator is regarded as necessary in propelling the same, and in which a platform is provided for him to stand upon; but I do not claim to make any provision in this machine whereby the weight of the operator assists in actuating the saw, and, as my intention is to make a very light and portable machine, I prefer to dispense with the use of a platform, and by the use of the springs, as described, in reversing the saw, I am enabled to do so in ordinary work.

Having described my invention, what I desire to secure by Letters Patent is—

In a sawing-machine, the combination of the bars A A and B B and the bar K, constituting the frame-work, the board F, the lever C D, the pitman G, the saw H, the extension L of the saw-lever C, the spring M, the block N, the spring O, and the block P, for the uses and purposes substantially as described.

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