S. R. SMITH.

Drag-Sawing Machine.

No. 220,097. Patented Sept. 30, 1879.

Fig. 1.

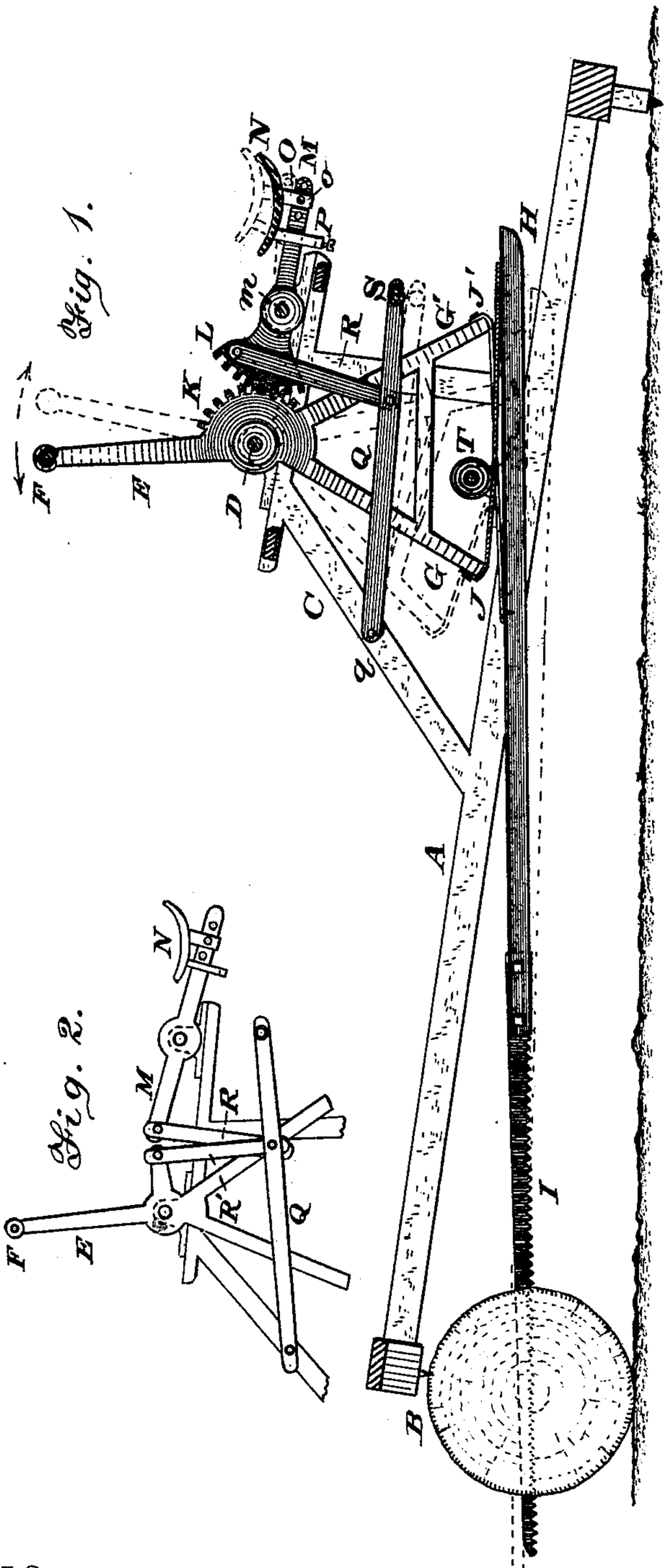

Fig. 2.

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SAMUEL R. SMITH, OF CINCINNATI, OHIO.

IMPROVEMENT IN DRAG-SAWING MACHINES.

Specification forming part of Letters Patent No. **220,097**, dated September 30, 1879; application filed June 24, 1879.

To all whom it may concern:

Be it known that I, SAMUEL R. SMITH, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Drag-Sawing Machines, of which the following is a specification.

My invention relates to the class of sawing-machines in which the operator's weight, thrown alternately on each of two opposing levers, is made auxiliary to the motion of his hands in reciprocating a drag or crosscut saw.

In the accompanying drawings, Figure 1 is a longitudinal section of a drag-saw machine embodying my invention. Fig. 2 represents a modification of the operative mechanism.

A shows one of two parallel timbers constituting the frame, of which one extremity being planted upon the ground its other extremity is placed upon the log to be sawed. These timbers A serve to hold the saw-helve at all parts of its stroke both against lateral and torsional deflection.

One or more spurs or dogs, B, may be provided to insure the immobility of both frame and log during operation.

From the frame A arise standards C, (one shown,) in which is journaled the rock-shaft D of a hand-lever, E, having suitable handles F at its upper extremity, and whose lower extremity consists of two prongs, G G′, to which the helve H of the saw I is directly connected by a pair of crossed bands or plates, J J′, of steel or other suitable material, the plate J extending rearward from the front prong, G, to the heel end of the helve, and the plate J′ extending forward from the rear prong, G′, and being attached to the saw-helve at a point nearer to the blade.

The hand-lever E has a segment-rack, K, which gears with a similar rack, L, upon a lever, M, which is fulcrumed at *m* to the frame A, and whose other extremity supports a seat or saddle, N.

The attachment of the seat N to the lever M is by bracket O, so pivoted at *o* to the lever as to permit the occupant to preserve a level position, notwithstanding the changes of inclination of said lever. A bridle, P, limits the vibrations of the seat.

A treadle, Q, pivoted to the frame at *q*, is, by means of rod R, connected to the rack end of lever M, and has suitable foot-rests S (one shown) for the operator.

An idler, T, journaled in the frame A, serves to maintain the bands J J′ in a taut condition.

The operation is as follows: The operator, having mounted the seat N, and having his feet resting lightly upon the treadle Q, so as to throw the weight of his body upon the seat, thrusts the handles F in direction of the strong arrow, so as to drag the saw toward him, and to bring the parts into the position represented by strong lines. In this movement the weight of the operator upon the seat N obviously coacts with his arm-thrust to produce the desired effect. For the return-stroke thrust of the saw the operator throws the weight of his body upon the treadle Q, and at the same time draws the handles F toward him, (see dotted arrow,) so as to bring the parts into the positions indicated by the dotted lines. He then transfers his weight back to the seat, at the same time resuming his thrust upon the handles F, and so on alternately until the work is done.

It will be seen that the described direct connection of the rocking member E F G G′ with the saw-helve by means of the pair of crossed bands J J′ secures an almost strictly-longitudinal stroke of the saw, and in this respect unlike the vertical oscillation incident to the employment of a crank.

The machine is of simple construction, and is devoid of springs and other parts liable to derangement.

The above-described illustration of my invention is susceptible of various modifications. For example, the members E and M may each be connected to the treadle, as shown at R and R′ in Fig. 2, and in such case the cog-gearing K L is omitted.

I claim as new and of my invention—

1. In a drag-sawing machine, the rocking member D E F G G′, connected by the pair of crossed bands J J′ with the saw-helve, and having geared or equivalent connection K L with lever M, whose remote end carries a seat, N, and whose geared end is connected, by rod

R, with treadle Q *q* S, substantially as set forth.

2. In combination with the forked lever D E F G G′ and its direct cross-band connections J J′ with the saw-helve, the idler T, arranged and operating as set forth.

3. In combination with the oscillating members E, Q, and M, having the described or equivalent connection with each other, and with a drag-saw, the pivoted and bridled seat N, arranged and operating as set forth.

In testimony of which invention I hereunto set my hand.

SAML. R. SMITH.

Attest:
GEO. H. KNIGHT,
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