M. E. Dean,

Drag Saw.

No. 102,921. Patented May 10. 1870.

Fig. 1.

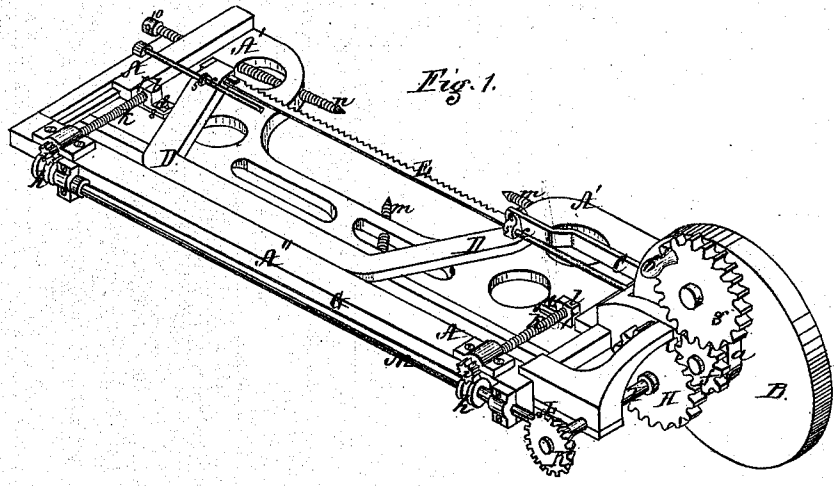
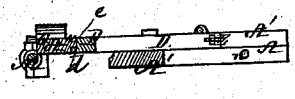


Fig. 2.



Witnesses
W. J. Cambridge
Ezra B. Whittier

Inventor
Marcus E. Dean
By his Attorneys
Teschemacher & Stearns.

United States Patent Office.

MARCUS E. DEAN, OF FOXBOROUGH, MASSACHUSETTS.

Letters Patent No. 102,921, *dated May* 10, 1870.

IMPROVEMENT IN SAWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, MARCUS E. DEAN, of Foxborough, in the county of Norfolk and State of Massachusetts, have invented certain Improvements in Machines for Sawing or Cutting-down Trees, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a perspective view of my improved machine.

Figure 2 is a transverse section through the center of the same.

My invention has for its object to provide a simple, efficient, and durable machine for cutting or sawing-down standing timber, which may be operated and moved from place to place by one individual only; and

My invention consists in a saw attached to a frame moved by a connecting-rod longitudinally, in or upon guides, over an independent lower frame secured by screw-pins or otherwise to the trunk of the tree to be felled, the power for moving the saw longitudinally being applied by hand to a crank, which operates a fly or driving-wheel, which also serves as a means by which the machine may be easily transported from place to place, the same power transmitted through a series of gear-shafts, worms, and screws, being also employed for feeding the saw transversely into and through the tree.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings—

A is the frame-work of the machine, composed of a stationary portion, A′, secured to the tree, and a movable portion, A″, sliding upon the former.

In bearings *a*, in the latter or movable portion, is placed the driving or fly-wheel B, to the crank of which is attached one end of a connecting-rod, C, to the other end of which is secured a frame, D, in which is hung a saw, E, the ends of the saw being loosely pivoted to its frame, and the latter being supported in or upon guides, *c c d*, up above the frame-work A, so that the saw-frame D may move without friction over it.

The guides *c c* are small circular rods which pass through small eye or ring-bolts, 5 5, screwed into the opposite ends of the saw-frame D, which is thus free to slide in a longitudinal direction by the throw of the connecting-rod without coming in contact with the frame-work A beneath.

The guide *d* projects out from the back of the saw-frame and rests in a groove, *e*, formed in the rear bar G of the movable portion of the frame-work.

The power for moving the saw longitudinally is also employed to feed it transversely up to and through the trunk of the tree, being transmitted in the following manner:

On one extremity of the axis of the fly-wheel is secured a pinion, *f*, into which mesh the teeth of a cog-wheel, *g*, provided with a crank, 6, for applying the hand of the operator thereto.

H is another cog-wheel secured to one end of a short horizontal shaft, I, and driven by the pinion *f*.

At the opposite end of the shaft I is secured a bevel-wheel, K, which meshes into a bevel-pinion, L, on one end of a horizontal shaft, M, extending longitudinally at the back of the movable portion A″ of the frame-work A, and at right angles with the shaft I.

Secured to the shaft M are two worm-gears, *h h*, which revolve two small pinions, *i i*, on the ends of two screw-shafts, *k k*, which turn in bearings attached to the movable portion of the frame-work and pass into two projections, *l l*, provided with female screws and secured to the stationary portion A′ of the frame-work A.

The projections *l l* are made in two pieces, 7 8, one, 8, of which is slotted at its base for the reception of a screw, 9, which may be loosened so that the pieces 7 8 may be separated from each other to allow of the withdrawal of the movable portion of the frame-work and the saw and frame attached thereto, without the delay which would occur were the feed-mechanism turned back by power applied to the crank.

m m are two screw-pegs or pins passing through the stationary portion A′ of the frame-work A, at or near one of its ends, and *n* is another screw-pin or peg passing through the opposite end of the frame-work A′, the purpose of the said pins or pegs being to support the frame-work with the fly-wheel and other mechanism in place upon the trunk of the tree to be felled, so that the fly-wheel may revolve without touching the ground.

The two pins *m m* nearest the fly-wheel are slightly inclined downward from the horizontal, and the pin *n* is slightly inclined up therefrom when they enter the tree, so that the weight of the machine may be supported without the liability of settling down after the cut is commenced. These pins are operated by a bar fitting into holes in their heads, 10, in a well-known manner.

It will be seen from the foregoing construction that one individual only is sufficient to operate the machine, the hand-power applied to the crank not only causing the longitudinal movement or stroke of the saw, but also carrying up the movable portion of the

frame-work with the fly-wheel and the feed-mechanism, and operating the feed, by which it is carried transversely into and through the tree, as required.

The fly-wheel equalizes the motion and carries the saw in both directions without binding, and at the same time affords a ready means by which the operator may move the machine from place to place.

In cutting down timber of different densities, such as pine or other soft woods, and oak or other hard woods, it is necessary to provide a means whereby the degree or amount of the feed of the saw into the trunk may be readily changed, as required. This I am enabled to do by providing a series of bevel-gears of different diameters, and substituting them for those K L on the shafts I M.

If, from any cause, (for instance, the occurrence of numerous knots,) the feed is required to be irregular, the bevel-pinion may be disconnected from the bevel-wheel and the feed be operated by hand.

As an additional security for holding the machine in place against the tree, a leg or support may be attached to the underside of the machine and thrown down when occasion requires.

It is evident that the wheel *g* may be omitted, if required, and the crank 6 be attached directly to the fly-wheel B without departing from the spirit of my invention.

Claim.

What I claim as my invention, and desire to secure by Letters Patent, is—

The frame-work A, saw E, and frame D, in combination with the fly-wheel B, connecting-rod C, shafts I M, gear *f g* H K L, worms *h h*, and screw-shafts *k k*, with their gear *i i*, constructed and operating substantially as and for the purpose described.

MARCUS E. DEAN.

Witnesses:

N. W. STEARNS,

W. J. CAMBRIDGE.