H. H. MILLER.

Drag-Saws.

No. 165,749. Patented July 20, 1875.

Fig 1

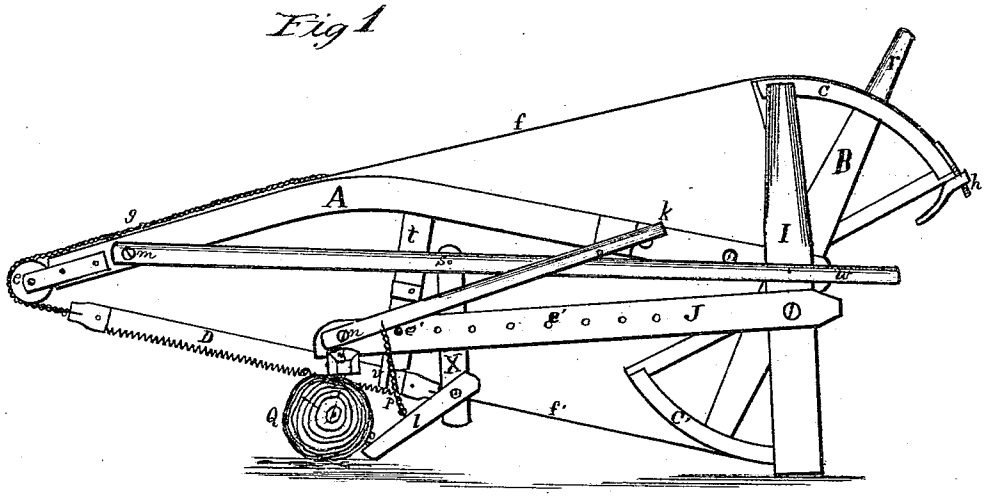


Fig 2.

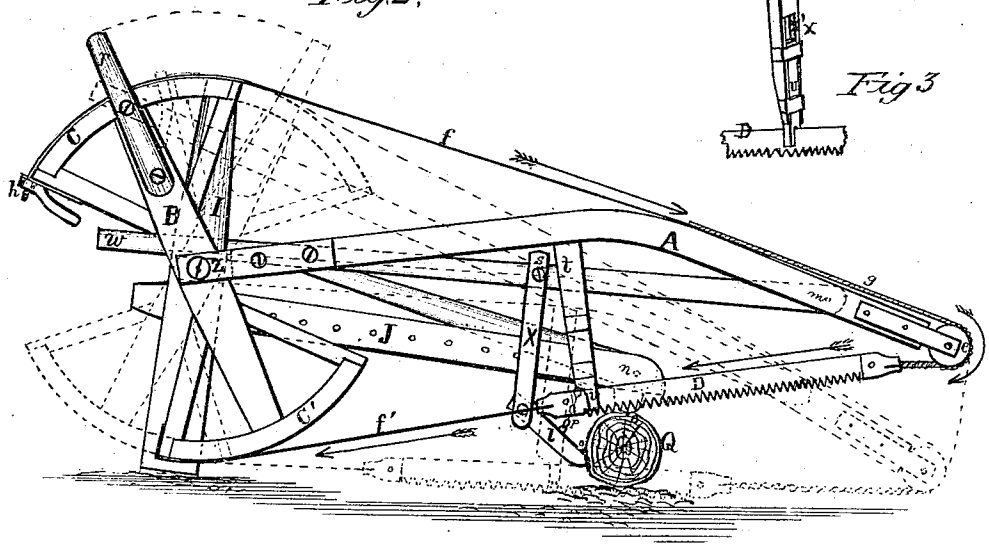
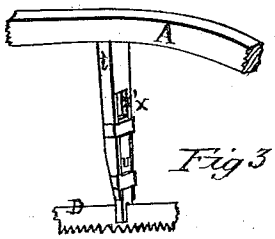


Fig 3



Witnesses
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HORACE H. MILLER, OF LYNDON, VERMONT.

IMPROVEMENT IN DRAG-SAWS.

Specification forming part of Letters Patent No. **165,749**, dated July 20, 1875; application filed September 23, 1874.

To all whom it may concern:

Be it known that I, HORACE H. MILLER, of Lyndon, in the county of Caledonia and State of Vermont, have invented certain Improvements in Drag-Saws, of which the following is a specification:

My invention consists in the construction and arrangement of the different parts of a drag-sawing machine, as will be hereinafter fully described and claimed.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

Similar letters of reference indicate corresponding parts in each of the figures.

Figure 1 is a front side elevation of my improved drag-saw in proper position for working. Fig. 2 is a back side elevation of the same. Fig. 3 is a perspective view of a portion of the saw-frame, with its grooved hanger and slotted or forked bar for guiding the saw.

A is a longitudinal beam forming a part of the saw-frame, the forward portion of which pitches downward, forming an angle near the middle of its length. This beam carries a pulley, *e*, on its forward end. The rear end of said beam is pivoted to an upright vibrating lever, B, which is provided with segments C and C′ at its upper and lower end. Z is a bolt which forms the pivot of the vibrating lever and beam. Said bolt also passes through an upright standard, I, (see Fig. 2,) the lower end of which rests on the ground. J is a longitudinal bar, the rear end of which is firmly attached to the upright standard I, while its forward end is furnished with a short cross-block, *y*, with two or more teeth or dogs projecting from its under surface and resting upon the log Q. X is a vertical cross-bar attached to the horizontal bar J near its forward end. *l* is a short lever pivoted to the lower end of the cross-bar X. This lever is furnished with a tooth or dog at its free end. P is a chain, connecting the short lever to a longer lever, *k*, which is situated directly above the lever. One end of the lever *k* is pivoted, at *n*, to the forward end of the bar J. D is the saw, the rear end of which is connected with the segment C′, on the lower end of the vibrating lever B, by means of the metallic strap *f′*. *g* is a chain attached to the forward end of the saw. This chain extends forward around and over the pulley *e* to the top side of the saw-beam, where it is attached to a metallic band or strap, *f*. Said strap extends back and over the face of the segment C on the upper end of the vibrating lever B, and is secured to said segment by means of the screw-bolt and thumb-nut *h*. The latter also serves to give more or less tension to the saw. *w* is a horizontal lever, one end of which is pivoted to the forward end of the saw-beam at *m*. Said lever is also pivoted at *s*, near the middle of its length, to the upper end of the vertical cross-bar X. The object of this lever is to enable the operator to regulate the feed of the saw, as well as to raise and lower the saw for any other purpose when it would be desirable to do so. *t* is an arm attached to the under side of the saw-beam, extending downward, its lower end reaching to near the top edge of the saw. This arm is provided with a recess or groove, *x′*, in its front face, in which the bar *v* is allowed to work up and down freely. The lower end of said bar is slotted or forked, so as to allow the saw to work freely through it. The bar *v* is what I term a yielding saw-guide. Its object is to prevent the saw from canting and cause it to cut a true and even kerf. *r* is a handle attached to the upper end of the vibrating lever, and extending above the same, by which motion is communicated to the saw when operated by hand.

The operation of the machine is as follows: The machine is placed upon a log, so as to allow the teeth or dogs *o*, at the end of the bar J, to rest on the log; then, by raising the free end of the lever *k*, the free end of the short lever *l* will also be raised by means of the chain connecting the same, thereby causing the teeth or dogs *o* in the block *y*, as well as the tooth or dog in the end of the lever *l*, to firmly grasp the log, and, by inserting a pin in one of the holes *e′* in the bar J, this gripe upon the log is maintained, and the machine is in proper position for working, as shown in Figs. 1 and 2. The operator then grasps the handle *r*, and, by throwing the same forward, the metallic bands or straps *f* and *f′*, chain *g*, and saw D will move in the direction indicated by the arrows, as shown in Fig. 2. By moving the lever *r* back to its original position the motion of the metallic bands, chains, and saw will be re-

versed, thereby imparting a reciprocating motion to the saw, which is dragged across the log, cutting a kerf into the same. These operations are repeated until the saw has cut down through the log to a position shown in dotted lines in Fig. 2. As the saw is dragged across the log in opposite directions by means of the chain and metallic bands, the forward and rear connections of the saw are alternately tightened and slackened every time the motion of the saw is reversed, giving to the saw a rocking motion, causing it to do the principal part of the cutting each way from the center of the log, similar to the rocking motion of a saw when worked by two men dragging the same alternately in opposite directions by handles at each end of the saw.

While the machine herein described is represented as being operated by hand, it is not necessarily restricted to hand-power, as it is evident that it can be operated by steam, water, or horse power simply by attaching the end of a pitman or connecting-rod that receives motion from a revolving wrist-pin attached to the vibrating lever *r*.

I claim—

1. The drag-saw frame, consisting of the beam A, the pulley *e*, and the vibrating segmental lever B, in combination with the drag-saw D, metallic bands or straps *f* and *f'*, and chain *g*, in such manner that a reciprocating motion can be given to the saw without imparting said motion to the frame, substantially as herein described.

2. In combination with a drag-saw and its frame, the standard I, pivot Z, bar J, levers *k* and *l*, chain P, dogs *o*, and lever *w*, substantially as and for the purposes set forth.

HORACE H. MILLER.

Witnesses:

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