

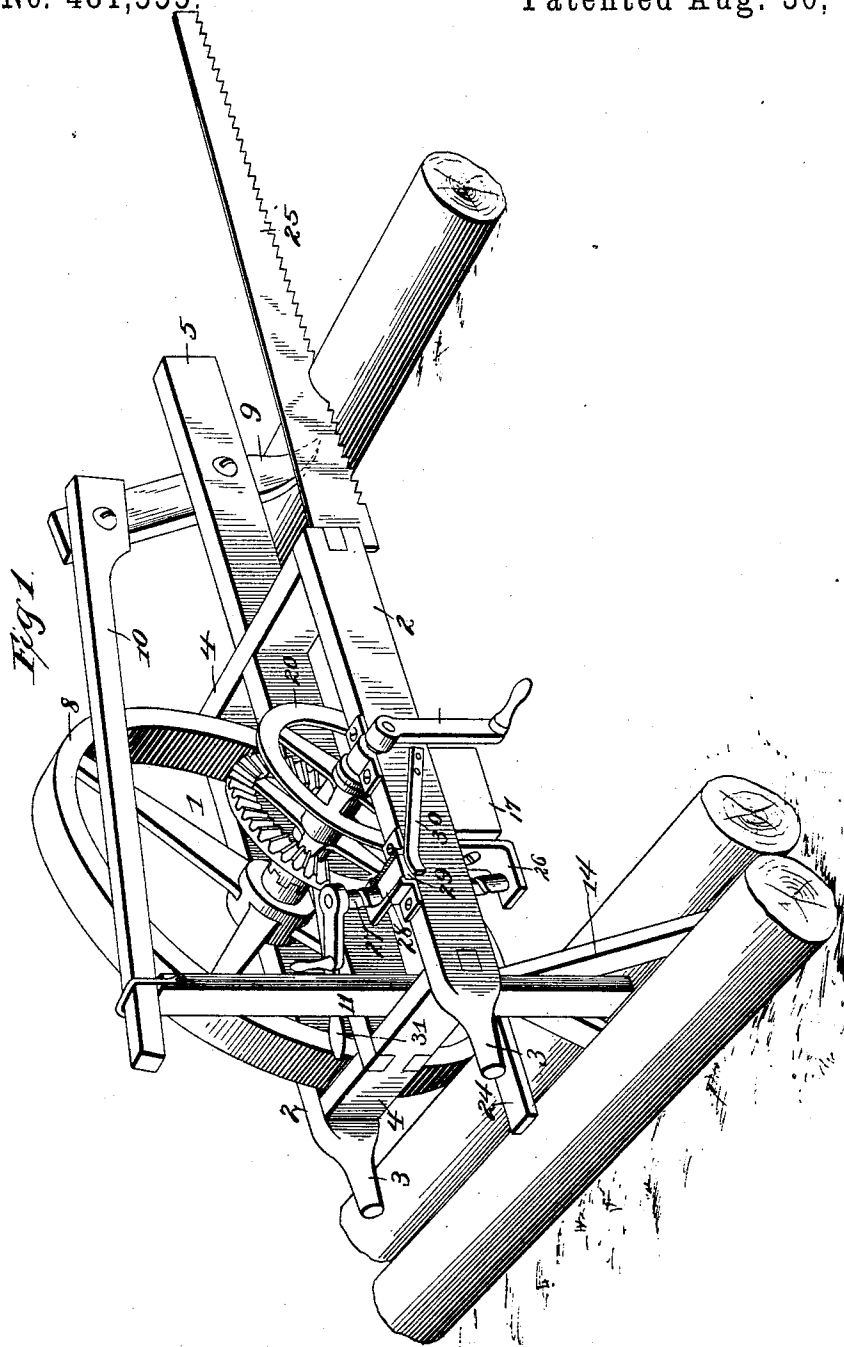
(No Model.)

2 Sheets—Sheet 1.

L. FORSMAN.
DRAG SAWING MACHINE.

No. 481,555.

Patented Aug. 30, 1892.



Witnesses

Inventör

E. J. Sturdevant

By *his* Attorneys,

Leonard Forsman

Chas. B. Hyer. Counselors.

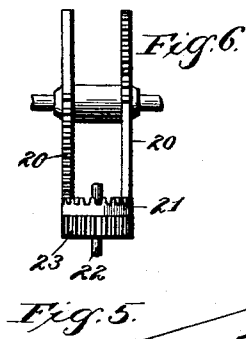
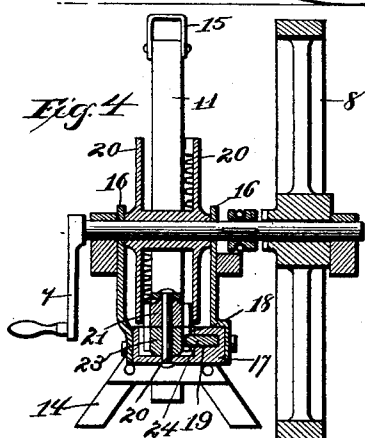
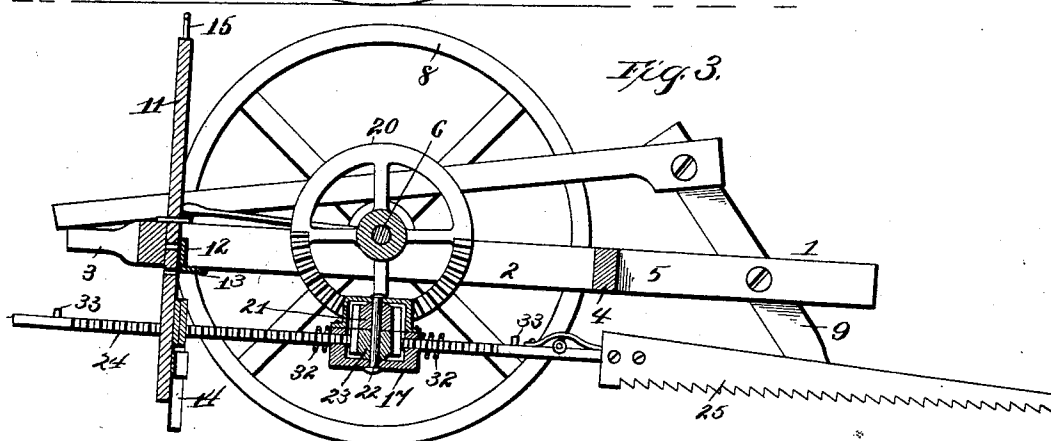
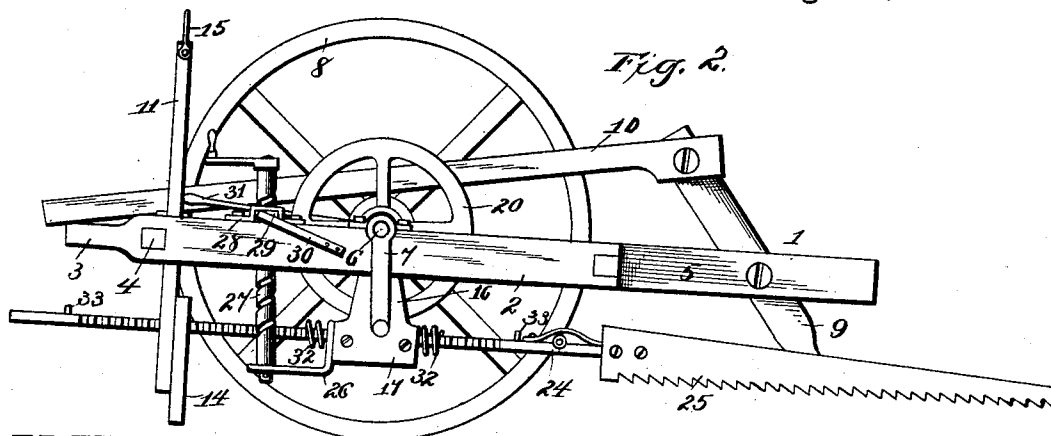
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2 Sheets—Sheet 2.

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Inventor

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By *his* Attorneys,

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UNITED STATES PATENT OFFICE

LEONARD FORSMAN, OF ALBINA, OREGON.

DRAG-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 481,555, dated August 30, 1892.

Application filed March 30, 1892. Serial No. 427,036. (No model.)

To all whom it may concern:

Be it known that I, LEONARD FORSMAN, a citizen of the United States, residing at Albina, in the county of Multnomah and State of Oregon, have invented a new and useful Drag-Sawing Machine, of which the following is a specification.

This invention relates to drag-sawing machines; and it consists in the construction and arrangement of the parts thereof, as will be more fully hereinafter described and claimed.

The object of this invention is to provide a portable drag-sawing machine which can be conveyed from place to place with very little trouble, the parts being simple and effective in their construction and arrangement, strong and durable, and easily handled and understood.

In the drawings, Figure 1 is a perspective view of a drag-sawing machine embodying the invention, showing the machine in position for operation. Fig. 2 is a side elevation of the same, showing it arranged for transportation. Fig. 3 is a longitudinal vertical section of the same. Fig. 4 is a transverse vertical section of the same. Fig. 5 is a detail perspective view of the saw-blade with its arm or rack-bar which supports it removed from the machine. Fig. 6 is a detail view of a modified form of construction.

Similar numerals of reference indicate corresponding parts in the several parts of the drawings.

Referring to the drawings, 1 designates a frame, which is substantially or wholly of rectangular form, and consists of side bars 2, having their rear ends projected and formed into handles 3, said side bars being connected by end cross-bars 4. Extending through the said frame parallel with the side bars 2 thereof is a bar or beam 5, which is projected beyond the front of the machine to form a support.

In suitable journal-boxes connected to the side bars 2 is journaled a transverse shaft 6, having its end provided with a crank 7, and on said shaft, between the bar or beam 5 and the nearest side bar 2, is journaled a large wheel 8, which forms both a fly-wheel and a road-wheel for the device, respectively, when arranged in position for sawing or for transportation.

To the forward extension of the bar or beam

5 is pivotally connected an enlarged dog 9, having its lower end sharpened or pointed to take into a log or other support, if desirable. To the upper end of said dog 9 is secured a lever 10, which projects rearward over the length of the machine-frame in convenient engaging proximity to the handles 3 of the side bars 2.

To the rear of the frame is secured an upright 11 by angle-irons 12 and 13, secured to said frame around said upright. The said upright has straddle-legs 14 secured to the lower end thereof to form a support for the adjacent end of the machine, and on the upper end of said upright is secured a loop or guide 15, through which the lever 10 is extended and may be operated to control the movement of the dog 9.

On the shaft 6 are secured two hangers 16, through which the said shaft freely moves, and to the lower ends of the same is secured a box-frame 17, having an opening 18 in the top thereof and a longitudinal slot 19, extending therethrough on the side thereof adjacent to the wheel 8. Between the said hangers 16 two mutilated gears 20 are mounted on the shaft 6, with an intervening space between the same sufficient to embrace a horizontally-disposed pinion 21, extending through the top opening 18 of the box-frame 17 and keyed to a vertical shaft 22, on which is also fastened another pinion 23 below the said pinion 21, the pinion 23 extending into the opening 18 of the said frame 17. The said gears 20 have the teeth thereof cut only on the half of the same or in semicircular form, the teeth of one gear normally occupying a position opposite to the blank or untoothed portion of the opposite gear, so that when the shaft 6 is rotated the pinion 21, as well as pinion 23, will be rotated first in one direction and then in a reverse direction, accordingly as they are engaged by the opposite gears 20.

Movably mounted in the longitudinal slot 19 of the box-frame 17 is a rack-bar 24, which meshes with the lower pinion 23 and has the saw-blade 25 attached to the forward end thereof, and when the said pinions 21 and 23 are operated, as herein set forth, the rack-bar is reciprocated, together with the saw carried thereby, and by this means the sawing operation is accomplished.

Projecting from the rear side of the frame 17 is an arm 26, to which is loosely connected one end of a vertical screw-shaft 27, extending upward adjacent to one of the side bars 2 of the frame and through a suitable boxing 28, in which is movably mounted an engaging-wedge 29, provided with a tapered edge adapted to engage the screw-threads of said screw-shaft and having a spring 30, bearing against the outer edge thereof to keep the same in engagement with the said screw-shaft, which may be operated by suitable means to raise the frame 17 by swinging the same through the hangers 16 on the shaft 6, to thereby lower the saw-blade in operative position or to depress or swing the said frame in the opposite direction to raise said saw from engagement with the work operated upon, or at such a height above the ground as to not interfere with the proper transportation of the machine from place to place. To accomplish this the said screw-shaft may be provided with a suitable hand-wheel or other suitable operating means.

Between the wheel 8 and the adjacent mutilated gear 20 a clutch is mounted on the shaft 6, operated by a clutch-lever 31, extending to the rear of the machine and adapted to throw the said wheel 8 in and out of gear with the said pinions and shaft and act as a fly-wheel for the same when in connection therewith and as a road-wheel for the device when disconnected.

Suitable guard-springs 32 are connected to the frame 17 and act to keep the said bar 24 and the saw-blade carried thereby in proper relation with the frame 17, as the said springs are secured around the longitudinal slot 19 of said frame and are engaged by stops 33 on the said bar, to thereby assist in starting the bar in its reverse movement as the teeth of the mutilated gears 20 engage the teeth of the uppermost pinion, as hereinbefore set forth.

In operation for sawing purposes the wheel 8 is thrown into gear to run with the shaft 6 and the mutilated gears 20, and acting as a fly-wheel therefor. The saw-blade is lowered to engage the work and the crank of the shaft operated to reciprocate the saw. The saw is firmly held at both ends either upon logs or other suitable base-supports, and when it is desired to transport the same from place to place the wheel 8 is thrown out of gear with the shaft 6 and mutilated gears 20, the saw-blade and its connected parts raised from the work with which it has been in engagement, and the securing devices at each end of the machine are disengaged, when by grasping the handles 3 the whole device may be pushed along, with the wheel 8 then acting as a road-wheel. The mutilated gears set forth by the drawings may be substituted by other gears on which the teeth are on the peripheral edge instead of the faces of the wheels, and in this form a corresponding change will be made in the remaining parts of the device. The ad-

vantages and conveniences of this form of device are readily apparent to those skilled in the art and need not be further enlarged upon herein.

The preferable change of construction of the mutilated gears is shown in Fig. 6 of the drawings, wherein said gears have the teeth thereof on the peripheral edges and similarly arranged as to their extent as the gears heretofore described. In this instance the pinion engaging said gears is formed with crown-teeth as well as edge teeth, as is fully shown in said figure, the construction of the remaining parts remaining the same. The screw-shaft 27 is arranged at an angle of inclination, as will be observed, and it is shown loosely connected at its lower end to the arm 26 by being reduced at this point. The movement of a frame or box 17 in an arc of a circle is comparatively slight in view of the extended leverage. In raising the saw the screw-shaft 27 is adjusted downwardly, and in lowering it it is adjusted in a reverse direction.

Having thus described the invention, what is claimed as new is—

1. In a drag-sawing machine, the combination of a saw-blade secured to a rack-bar, double pinions, one of which engages said rack-bar, and oppositely-situated mutilated gears adapted to engage one of said pinions to impart reverse reciprocating movements to said rack-bar and the saw-blade carried thereby, substantially as described.

2. In a drag-sawing machine, the combination of a frame, a transverse shaft arranged thereon, a large wheel carried by said shaft, mutilated gears keyed to said shaft, pinions below said gears, and a rack-bar engaging one of said pinions and carrying a saw-blade, said large wheel being adapted to be thrown into and out of connection with the mutilated gears, the other of said pinions being in engagement alternately with said mutilated gears, substantially as described.

3. In a drag-sawing machine, the combination of a frame, a transverse shaft mounted thereon, hangers depending from said shaft, a box-frame connected to the lower portion of said hangers and having a rearward extension, pinions carried in said box-frame, a rack-bar extending through one side of said box-frame and having a saw-blade connected thereto, and a vertically-disposed screw-shaft connected to the said rearward extension of the box-frame and having a spring-actuated wedge engaging the same, substantially as described.

4. In a drag-sawing machine, the combination of a frame, a shaft transversely mounted thereon, mutilated gears on said shaft having the teeth thereof arranged opposite to the untoothed portion of each other, a pinion engaged by said mutilated gears alternately, another pinion below the first-named pinion, a rack-bar, and a saw-blade carried by said rack-bar, substantially as described.

5. In a drag-sawing machine, the combination of a frame having the rear ends of the side bars thereof formed into handles and provided with an extension at the front end thereof, a dog pivotally connected to said extension, a lever attached to said dog and extending to the rear of the machine, an upright at the rear of the machine having legs at the lower end thereof and its upper end in engagement with the end of said lever, an adjustable saw carried by said frame, and an enlarged wheel secured to the frame and having a clutch mechanism in engagement therewith, whereby the same may be transported from one position to another, substantially as described.

6. In a drag-sawing machine, the combination of the frame, a shaft transversely mounted on said frame, mutilated gears on said shaft, a box-frame suspended from said shaft and having an opening in the top thereof, and a slot extending longitudinally therethrough, a pinion mounted to project through the top

opening of said frame and engaged by the mutilated gears, a second pinion in line with the longitudinal slot in said frame, a rack-bar movably mounted in said longitudinal slot, and a saw carried by said rack-bar, substantially as described.

7. In a drag-sawing machine, the combination of a frame, a shaft transversely extending across the same, a frame suspended from said shaft having a longitudinal opening therethrough, springs surrounding opposite sides of said opening, a rack-bar having stops to engage said spring and carrying a saw-blade, and means for operating said rack-bar, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LEONARD FORSMAN.

Witnesses:

K. JOHN ANDERSON,
O. J. OLSON.