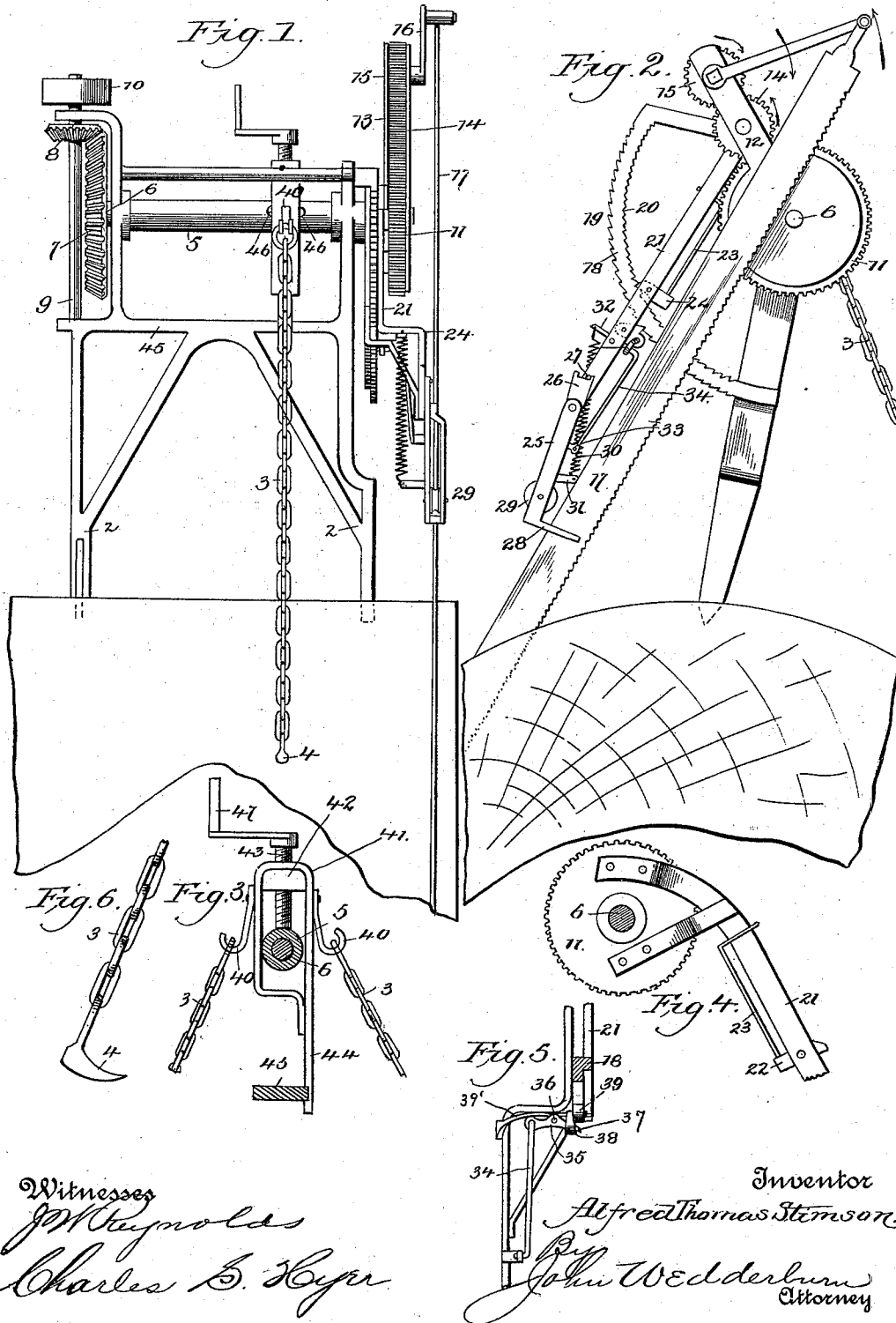


(No Model.)

A. T. STIMSON.
DRAG SAW.

No. 535,424.

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UNITED STATES PATENT OFFICE.

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DRAG-SAW.

SPECIFICATION forming part of Letters Patent No. 535,424, dated March 12, 1895.

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To all whom it may concern:

Be it known that I, ALFRED THOMAS STIMSON, a citizen of the United States, and a resident of Bayside, in the county of Humboldt and State of California, have invented certain new and useful Improvements in Drag-Saws; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to drag saws, and more particularly to the mechanism for operating the same, whereby the machine proper may be secured to the log to be sawed and has for its object to provide a longitudinal reciprocating movement of the saw in a direct line relatively to the material operated upon thereby, as well as to hold the saw firmly to the work, with reduced friction and a positive free action as well as convenience in the mode of application.

With these and other objects and advantages in view, the invention consists of the construction and arrangement of the several parts which will be more fully hereinafter described and claimed.

In the drawings:—Figure 1 is a front elevation of a drag saw embodying the invention when applied. Fig. 2 is a side elevation of the same. Fig. 3 is a detail side elevation. Fig. 4 is a detail elevation of one of the gears and a part of the mechanism. Fig. 5 is a detail bottom plan view of a portion of the pawl feeding mechanism. Fig. 6 is a detail elevation of the lower portion of one of the stay chains.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

Referring to the drawings, the numeral 1 designates a frame having two legs 2, the latter having lower pointed ends which are rested upon and sink into the log being sawed and are secured in position by stay chains 3 at the front and back, having dogs 4 at their lower ends which are driven into the log. In the upper part of the frame 1 is a tubular cross-brace 5, in which is rotatably mounted a shaft 6 having keyed on one end thereof a beveled gear 7 which meshes with a beveled pinion 8

keyed to a longitudinal shaft 9 and having on its free end a drive pulley 10, it being understood that other means for operating the said shaft 9 can be substituted and replace the said pulley if desired. The opposite end of the shaft 6 extends through and moves within a stationary gear 11 which is secured to the adjacent portion of the frame 2. Exterior of the latter and also mounted on said shaft is an arm 12 having a parallel portion 13 on the inner side to form an inclosure for two pinions 14 and 15. The pinion 14 meshes with the stationary gear 11 and also with the pinion 15, the latter having a shaft through which it is stationarily engaged by a crank arm 16. The rear end of a saw 17 is movably attached to the crank arm 16, and it will be seen that by the rotation of the gears 14 and 15, the crank arm 16 is operated to produce a forward and backward reciprocating movement of the saw, which will be at all times in a direct line.

A segmental ratchet bar 18 is secured to the frame at one side, the said ratchet bar being provided with inner and outer teeth 19 and 20, which are reversely arranged so as to provide for a step by step feeding motion.

Attached to the inner portion of the stationary gear 11 is a bar 21, which is stationary and has pivoted thereto a pawl 22, which engages the teeth 20 of the ratchet, the said pawl 22 having a rod 23 attached thereto which is bent at an angle at its opposite end and adapted to be thrown over the bar 21 to hold the pawl 22 in engagement with the teeth 20, but which may be released to disengage the pawl 22 from the teeth 20 to permit the bar to be adjusted in an upward direction. The bar 21 is double and embraces opposite sides of the segmental ratchet and the forward end is bent at an angle as at 24 and has pivotally attached thereto a pressure lever 25 provided with a notched arm 26 at its rear end which engages a stud or pin 27 on the adjacent portion of the bar 21 to limit the upward and downward movement of the said lever 25. The lever 25 has its outer end formed with a right angular bifurcated finger 28 which passes over the back of the saw, as clearly shown in Fig. 2, and in rear of the said finger is a grooved anti-frictional pulley

29, which bears upon the back of the saw, and eases the motion of the latter. The said lever 25 is firmly held down upon the saw by a spring 30 which is attached to a lug 31 on the lower portion of the lever 25 and also to a pin or post 32 on the upper front portion of the arm 21.

Secured to the under portion of the pressure lever 25 is a lug 33 to which is attached the outer end of a rod or arm 34 having its rear end movably attached to a rocking lever 35 which is fulcrumed as at 36 and has its opposite end hooked as at 37 and passes through the outer end of the link 38 whose rear end is movably attached to the outer portion of a pawl 39, which engages the ratchet teeth 19 or the ratchet 18. By this mechanism, as the saw rises in its operation, the pressure lever 25 is raised, which draws on the rod or arm 34 and through the rocking lever 35 forces the pawl 39 into the teeth 19 to assist, in connection with the pawl 22, to hold the bar 21 against upward movement and, of course, when the saw blade is depressed, the pressure lever 25 follows the same downwardly by the action of the spring 30 and releases the pawl 39, so that the bar 21 can move downwardly and follow the saw and thereby at all times produce an equal pressure on the same in accordance with the depth of cut and firmly hold it to its work. The pawl 39 is also engaged by a spring 39', as clearly shown in Fig. 5, to sustain it in engaging position.

The stay chains 3 are adjustable to accommodate the position of the frame 2 on the log and also to sustain the required rigidity of support, and said chains have their upper ends engaging opposite hooks 40 attached to the front and rear sides of a frame 41 which is fitted over the tubular braces 5, and in the upper portion of the said frame 41, is a tap block or nut 42 through which passes a screw bolt 43 whose inner ends bears against the upper adjacent portion of said tubular braces. The said frame 41 is adjustably mounted and has a depending arm 44 which engages a cross-brace 45 of the frame 2 and has movement therein, the opposite sides of the said frame 41 being located between lugs 46 on the tubular braces 5. The said lugs 46 are located at the front and back and keep the said frame steady in its adjustment. Removably engaging the screw bolt 43 is a crank handle 47 by means of which the said screw bolt may be operated to raise or lower the frame and consequently tighten or loosen the chains 5.

It is obviously apparent that many minor changes in the construction and arrangement of the several parts might be made and substituted for those shown and described without in the least departing from the nature or spirit of the invention.

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

1. In a drag saw, the combination of a shaft, operating mechanism for said shaft, an arm secured to the said shaft and carrying rotatably meshing pinions, a stationary gear with which one of the said pinions mesh, a crank arm attached to one of the said pinions and a saw blade attached to the free end of said crank arm, substantially as and for the purposes specified.

2. In a drag saw, the combination of a shaft, means for driving said shaft, an arm keyed to the shaft and carrying a pair of intermeshing rotatable pinions, a stationary gear with which one of said pinions engages, a crank arm movably connected with one of the said pinions, a saw blade attached to the said crank arm, a segmental ratchet bar, a pressure lever engaging the back of the saw, a pawl operated by said pressure lever and engaging said segmental rack bar and another pawl engaging the opposite side of the said rack bar, substantially as and for the purposes specified.

3. In a drag saw, the combination with the saw blade and the operating mechanism thereof, of a segmental rack bar having a double set of teeth arranged reversely on opposite sides of the same, a pawl engaging the rear set of teeth, a bar to which said pawl is pivotally attached, a pressure lever pivotally attached to the front of said bar and having a bi-furcated finger engaging the back of the saw, a rod attached to said pressure lever, a rocking arm to which said rod is also connected and a pawl to which the rocking arm is movably secured, the said pressure lever being operated to throw the finger downward and inward, substantially as and for the purpose specified.

4. In a drag saw, the combination with a saw blade and the operating mechanism thereof, of a pressure lever, a bar to which said pressure lever is pivotally attached having a pin or stud projecting therefrom, a notched arm attached to the rear of the pressure lever to engage said pin or stud and limit the movement of said lever and a spring for firmly holding the said pressure lever in engagement with the saw blade, substantially as and for the purposes specified.

5. In a drag saw, the combination with the saw blade and the mechanism for operating the same, of a bar, a segmental ratchet embraced by said bar, a pressure lever pivotally attached to the outer portion of said bar and engaging the back of the saw blade, a spring for firmly holding said pressure lever in engagement with the saw blade, means for limiting the movement of the pressure lever and front and rear pawls engaging the said segmental rack, substantially as and for the purposes specified.

6. In a drag saw, the combination with a cross-brace of a frame adjustably mounted thereover and having hooks on the front and back sides thereof, a screw bolt movably

mounted in said frame and adapted to engage said cross-brace, a crank handle for operating said screw bolt and stay chains for supporting the frame of the machine in connection with the log and having their upper ends removably engaging the said hooks, substantially as and for the purposes specified.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ALFRED THOMAS STIMSON.

Witnesses:

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