

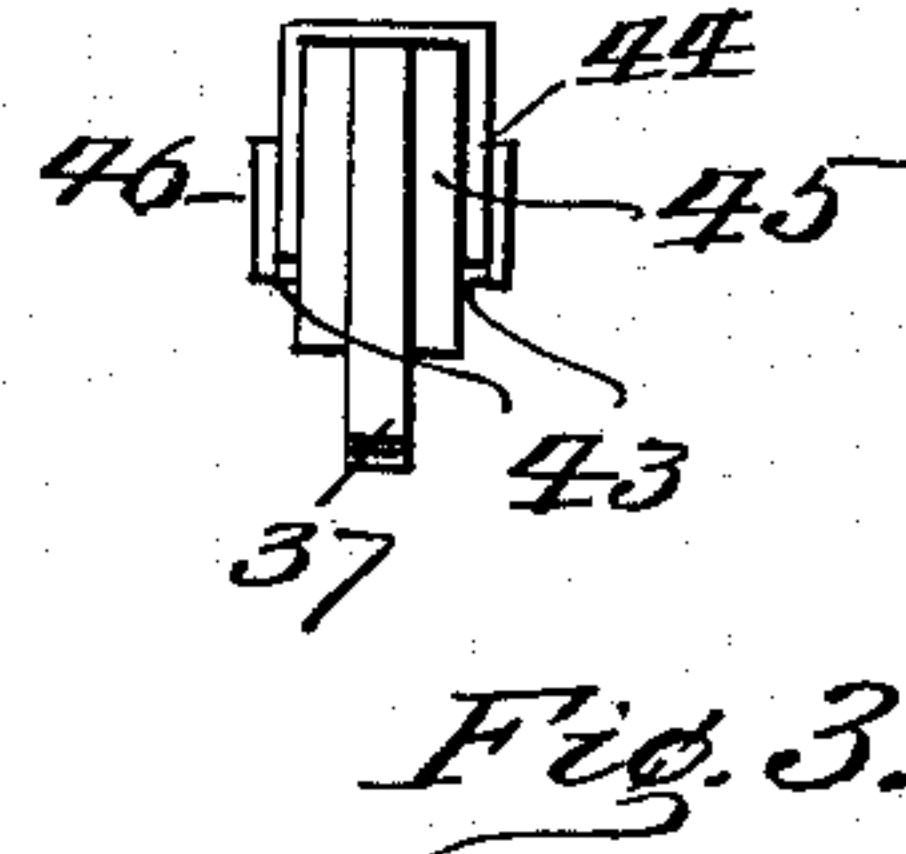
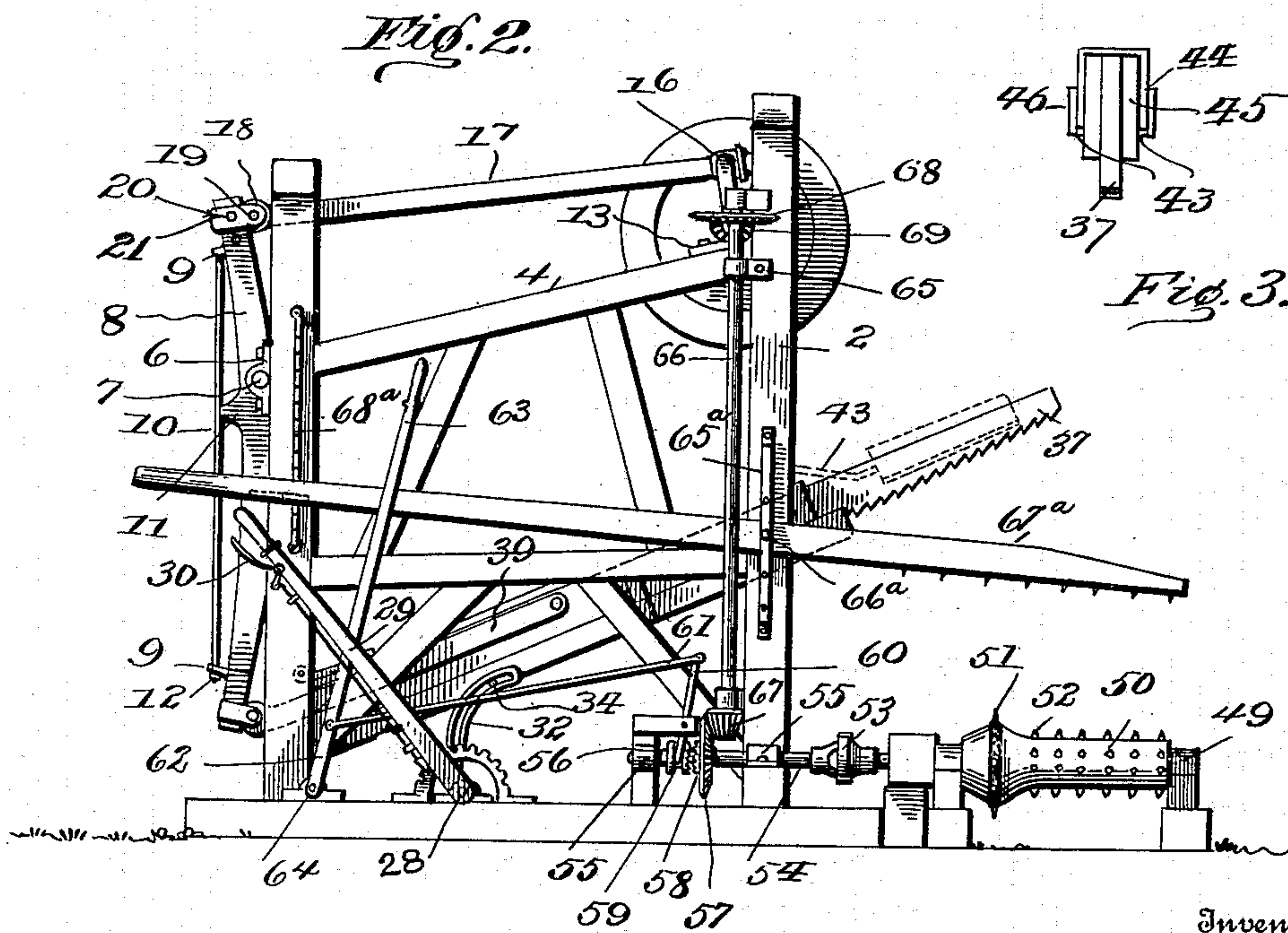
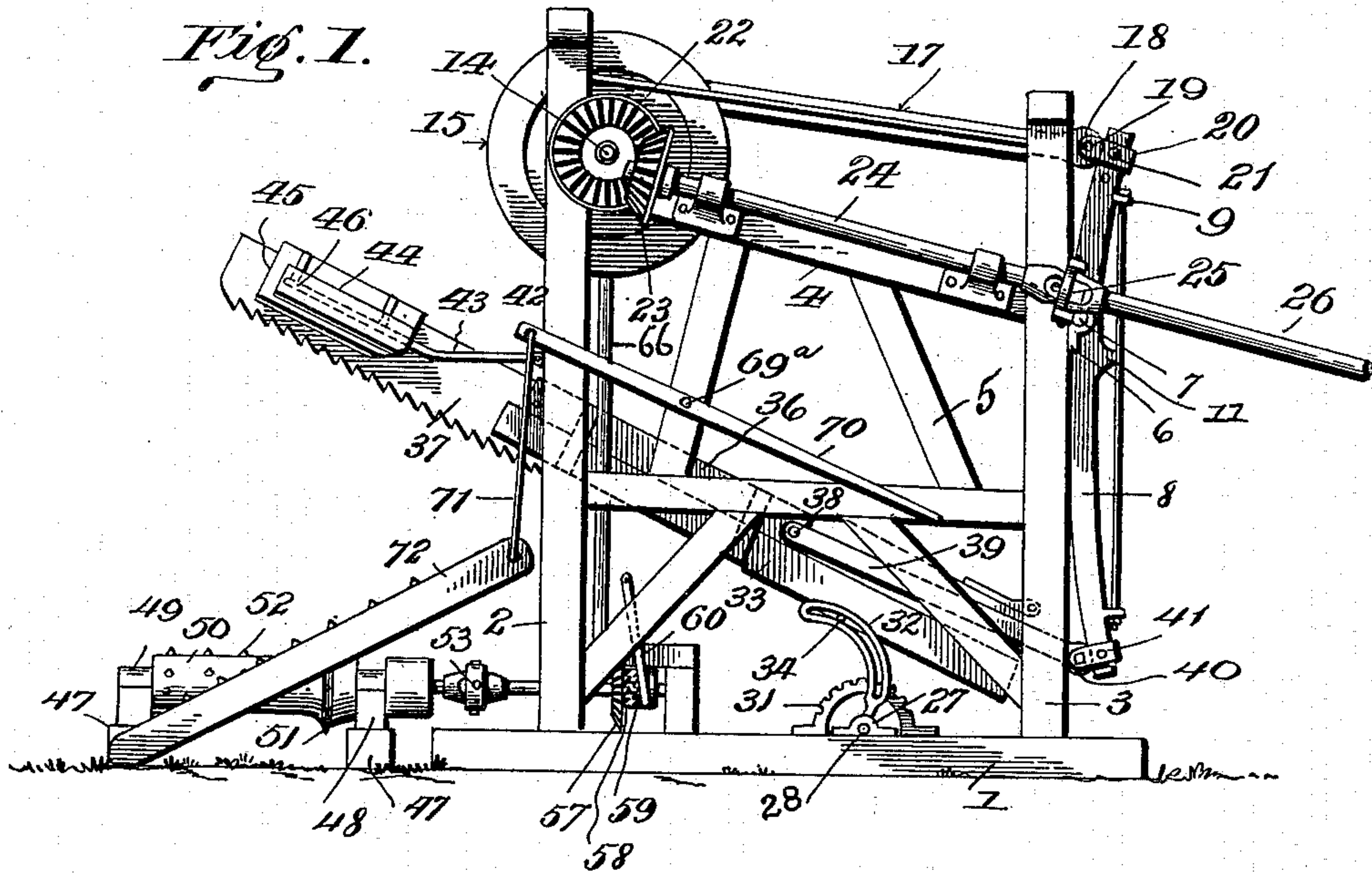
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Patented Oct. 11, 1898.

J. CARROTHERS.
DRAG SAW.

(Application filed June 19, 1897.)

(No Model.)



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JAMES CARROTHERS, OF EPWORTH, OHIO.

DRAG-SAW.

SPECIFICATION forming part of Letters Patent No. 612,088, dated October 11, 1898.

Application filed June 19, 1897. Serial No. 641,449. (No model.)

To all whom it may concern:

Be it known that I, JAMES CARROTHERS, a citizen of the United States, residing at Epworth, in the county of Richland and State of Ohio, 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.

My invention relates to improvements in drag-saws, and has special reference to certain new and useful improvements upon that construction of drag-saw illustrated, described, and claimed in United States Patent No. 229,091, granted me June 22, 1880.

The objects of my invention, together with the advantages thereof, will hereinafter appear in the following description and will be particularly pointed out in the claims.

Referring to the drawings, Figures 1 and 2 are opposite side elevations of the drag-saw embodying my improvements. Fig. 3 is a detail in front elevation of the saw and its forward guide.

Similar numerals of reference indicate similar parts in all the figures of the drawings.

Rising from a pair of horizontal supporting-sills 1 are front and rear pairs of vertical posts 2 and 3, respectively, the same being connected by intermediate brace-timbers 4, which are in turn strengthened by inclined brace-timbers 5. Any means may be employed for giving rigidity to the framework.

In opposite bearings 6, applied to the rear faces of the rear posts 3, are journaled the opposite ends of a rock-shaft 7, which supports the rocking lever 8. The rocking lever 8 is pivoted above its center and is curved or bow-shaped, as shown. Perforated lugs 9 project rearwardly from the rocking lever adjacent its ends, and these lugs are connected by a truss-rod 10, supported at its center by a strut-lug 11, a nut 12 being threaded on the lower end of the rod. By a rod thus constructed great strength is given, and the strain to which it is subjected is diffused over the entire lever, regardless of the point of application of the strain upon the lever.

In transverse bearings 13, located at the front ends of the upper brace-bars 4, is a shaft 14, which carries between the front posts 2

an ordinary fly-wheel 15. Between the fly-wheel and one of the braces 4 the said shaft is provided with a cranked portion 16, and to the same is loosely connected the front end of a pitman-rod 17. The rear end of the rod 17 terminates in an eye 18, which, by means of a bolt 19, is connected pivotally to a cuff or clevis 20. The cuff or clevis 20 is adjustably connected to the upper end of the rocking lever 8 by means of a bolt 21, the lever being provided with a plurality of holes, in any one of which the bolt may be located, so as to vary the point of connection between the lever and pitman-rod, and thus vary the length of stroke of said rod.

If the machine is to be operated by power derived from a convenient source, one end of the shaft 14 is preferably provided with a beveled gear 22, and the same intermeshes and receives its motion from a companion beveled gear 23, located on the front end of an inclined shaft 24, supported rotatably in bearings with which the brace 4 is provided. The rear end of the shaft 24 is connected by a gimbal-joint 25 to a tumbling-shaft 26, leading from the motor. It will be evident that in lieu of this means for transmitting motion the end of the shaft 14 may be provided with an ordinary belt-pulley, the same receiving its motion by a system of belting, or where it is desired to operate the machine manually by hand a crank may be substituted for the gear 22.

Journaled in bearings 27, located in transverse alinement on the sills 1, is a transverse shaft 28, the same being provided at one end with a hand-lever 29, rigid with the shaft and carrying a locking-pawl 30, the tooth of which automatically engages with the toothed locking standard or sector 31, with which one of the sills is provided. Extending upwardly from the shaft 28 at an angle thereto and rigid therewith is a pair of segmental rock-arms 32, the same being slotted for nearly their entire length. These rock-arms 32 are spaced apart and between them is supported the saw-box 33, from the under side of which lag-bolts 34 extend, the same passing through the slots in the curved rock-arms and adapted to ride therein. Mounted and adapted for reciprocation within the saw-backs 33 is the saw-frame 36, the same being secured

at its front end to the butt of the drag-saw 37. The box 33, it will be understood, is slotted longitudinally, so that the saw-teeth project through and below the bottom of the same.

5 Loosely connected, as at 38, to the rear end of the saw-frame is a link or yoke 39, the rear end of which is connected by a loose joint 40 to a cuff or clevis 41, bolted to the lower end of the rocking lever 8, heretofore mentioned.

10 It will be obvious that by a manipulation of the hand-lever 29 the rock-arms 32 may be raised and lowered, causing the lag-bolts 34 of the saw-box to move within the curved slots with which the rock-arms are provided,

15 and in this manner said box may be raised and lowered and carry with it the saw, whereby the latter is adjusted to any height in order to accommodate itself to the size of the log to be sawed.

20 Pivoted, as at 42, to the front posts 2 is a pair of arms 43, which project forward and have connected at their front ends a movable saw-guide 44. The saw-guide 44 comprises a pair of opposite side pieces 45, that are con-

25 nected by a pair of bowed overlapping metal straps 46. This guide rests upon the saw near its outer end and serves to maintain the saw in alinement against any possible lateral play until such time that it shall have entered the log a sufficient distance to serve this purpose, the guide lying on the top of the log as the saw enters.

The metal straps 46, herein mentioned, are merely light straps having more or less resiliency, their function being to permit of a certain amount of separation of the side pieces 45 comprised in the saw-guide. The guide, it will be observed, is of considerable length, so that the saw is embraced loosely for a considerable portion of its length, which is an advantage in drag-saws where hard knots and other obstructions are apt to cause buckling. The increased length of the guide renders necessary or desirable some provision for the yielding of the guide to the play of the saw-blade.

I also prefer to employ a feed device for the logs, so that the same may be conveniently fed at a point beneath the saw. For this purpose I locate opposite the sills 1 and at an angle thereto cross sills or tracks 47, surmounting the same with a pair of alining bearings 48, which support a shaft 49. The shaft 49 between the bearings is surmounted with a rotatable rest 50, the same being preferably enlarged toward that end adjacent to the saw-frame, as indicated at 51, and the surface of this rest is studded with spikes 52 for the purpose of engaging with the fiber of the log and retaining the same during the operation of sawing. As the cut is made by the saw as the same is retracted, it will be observed that by enlarging the end of the rest that is nearest the frame such rest will resist any tendency upon the part of the log to roll or tumble out of position. The shaft 49 is extended beyond one of its bearings

and is, by means of a gimbal-joint 53, connected to a short tumbling-shaft 54, located in bearings 55, formed on one of the posts 2 and on a short standard 56, with which one of the sills 1 is provided. A loose beveled gear 57 is mounted on the tumbling-shaft 54, and is provided at its rear side with a clutch member 58, into connection with which may be slid a clutch-sleeve 59, splined on the tumbling-shaft 54 in rear thereof. A short lever 60 is fulcrumed on the standard 56, and at its lower end is forked, so as to loosely connect with the sleeve 59. The upper end of the short lever 60 is loosely connected to the forward end of an actuating-rod 61, the rear end of which is pivoted, as at 62, to an intermediary point upon a hand-lever 63, whose lower end is fulcrumed, as at 64, on one of the sills 1. In vertically-alining bearings 65, applied to one of the front posts 2, there is journaled a vertical shaft 66, the lower end of which is provided with a small beveled pinion 67 and the upper end of which is provided with a beveled gear 68. The pinion 67 is in constant mesh with the beveled gear 57 and the gear 68 is likewise in constant mesh with a small beveled gear 69, located on the adjacent end of the crank-shaft 14.

It will be evident that motion will be imparted from the crank-shaft to the rocking lever 8 and by the lower end of the latter to the saw-blade; also, that the vertical shaft 66 will be constantly rotated and that by throwing the lever 63 to the rear the clutch-sleeve 59 will be thrown into engagement with the toothed hub or clutch member of the gear-wheel 57, so that motion will be imparted from the vertical shaft 66 to the gear 67, from thence to the gear 57, and by the latter to the clutch 59 and tumbling-shaft 54, and from thence, by means of the gimbal-joint 53, to the rotatable rest 50. Such motion upon the part of the rest will cause the log to be advanced for the purpose of commencing a new cut. It will be seen that the relative sizes of the gears for transmitting motion to the log-rest are such as to cause the log to be comparatively slowly fed. As soon as a sufficient length of log has been advanced or fed the hand-lever is thrown to the front, thus arresting the movement of the rest by a disconnection of the clutch-sleeve.

A keeper 65^a is located upon the outer side of one of the front posts 2, said keeper and its post, upon which it is mounted, being provided with alining holes for the accommodation of an adjusting and pivoting bolt 66^a, that passes through an intermediary point on a holding or clamping bar 67^a, that projects beyond the front and rear of the frame. The rear companion piece 3 is provided with a toothed rack-bar 68^a, with which the rear inner portion of the holding-bar 67^a engages. By arranging the bolt 66^a in suitable holes, with which the keeper 65^a is provided, it will be seen that the said holding-bar may be

raised and lowered in accordance with the size of log to be cut. When the log is in position upon the rest, by raising the rear end of the holding-bar the front end of the same, which is provided with spikes, is caused to clamp the log, the rear end of the bar automatically engaging with the teeth of the rack-bar, so that the bar becomes locked in position by being sprung into said teeth.

At the opposite side of the machine I pivot to one of the braces of the frame, as at 69^a, a hand-lever 70, the front end of which is connected by means of a loose link 71 to the rear end of an inclined gravity-bar 72, the upper face of which is provided with teeth and the lower front end of which rests upon the ground in rear of the log-rest. This bar is for the purpose of throwing the cut log clear of the rest and out of the path of the advancing log and is operated by a depression of the hand-lever 70. It will of course be understood that any ordinary truck is employed for skidding the log to the rest, such truck forming no part of my invention, and therefore not being shown. The truck, however, is mounted on the track 47.

It is proposed to build the machine described either stationary or movable, and in the latter instance it is intended to provide the same with an ordinary axle and wheels by means of which the machine may be moved from one point to another, and when it is desired to operate the machine the wheels and

axles are of course removed and the machine anchored to position, such features being common to the machines for analogous purposes.

Having described my invention, what I claim is—

1. The combination with a drag-saw, of the arms, 43, pivoted to the front posts of the frame and extending to opposite sides of the saw and the guide comprising the opposite independent side pieces secured to the arms and the yielding arched metallic straps embracing said side pieces and connecting the same.

2. In a drag-saw, the combination with a framework, a power-shaft, a saw and means for conveying motion from the power-shaft to the saw, of a log-rest, a tumbling-shaft connected therewith, a loose gear arranged on the tumbling-shaft and having a toothed hub, a clutch-sleeve splined on the tumbling-shaft, a lever connected with the clutch-sleeve, a hand-lever and connection between the same and clutch-lever, an intermediate shaft, gears on the ends of the same, the lower one of which meshes with the loose gear, and a gear on the power-shaft meshing with the remaining gear.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES CARROTHERS.

Witnesses:

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LEVI W. STEVENSON.