Jan. 19, 1932. A. W. PRATT 1,842,114

PORTABLE LUMBER MILL

Filed April 2, 1931 5 Sheets-Sheet 1

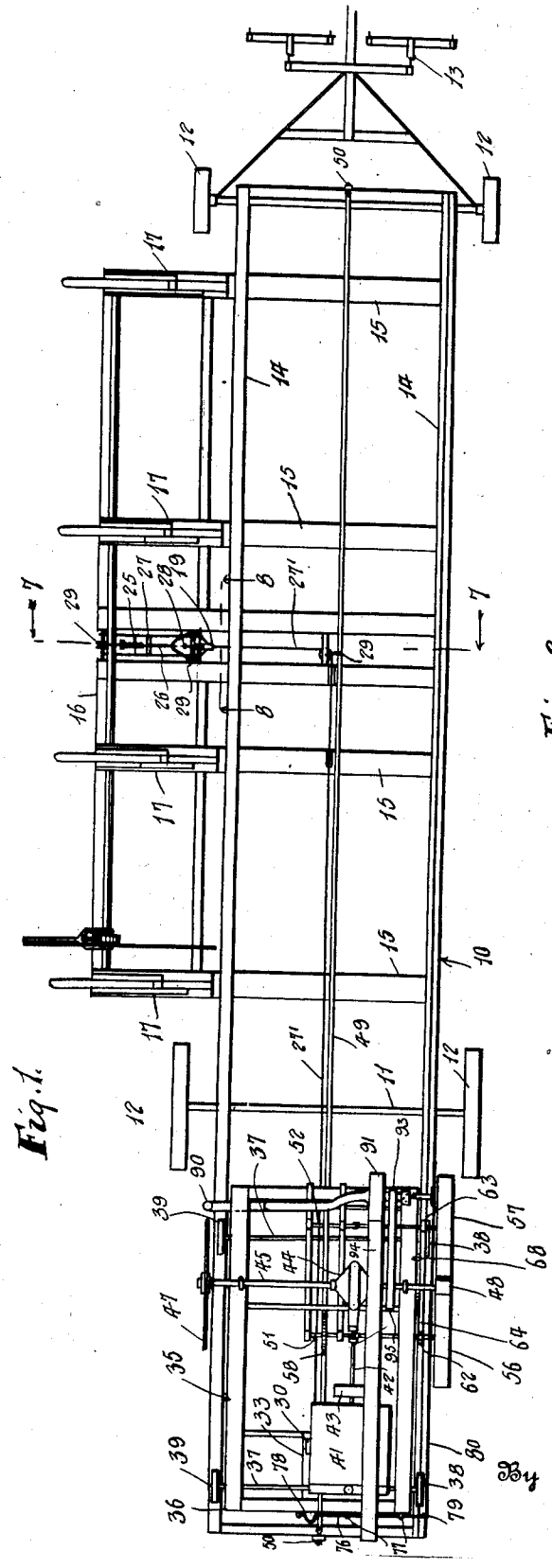


Fig. 1.

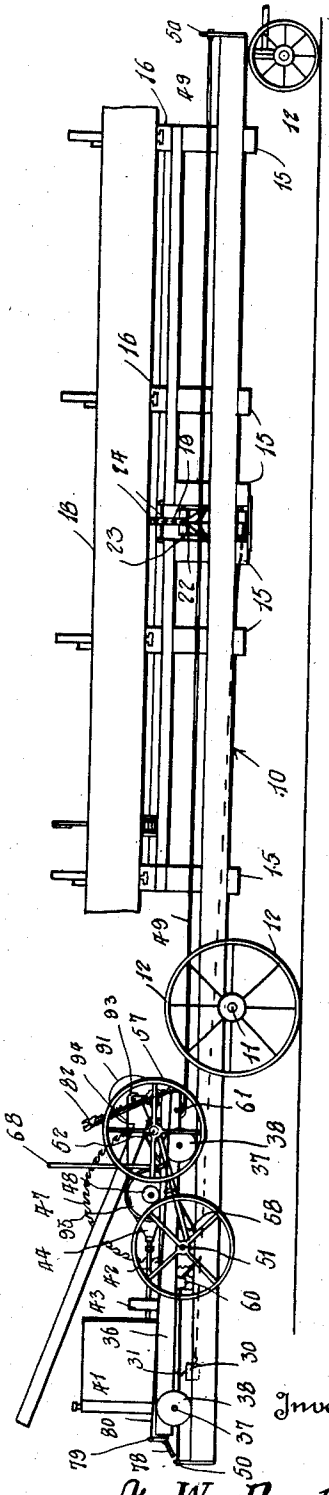


Fig. 2.

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PORTABLE LUMBER MILL

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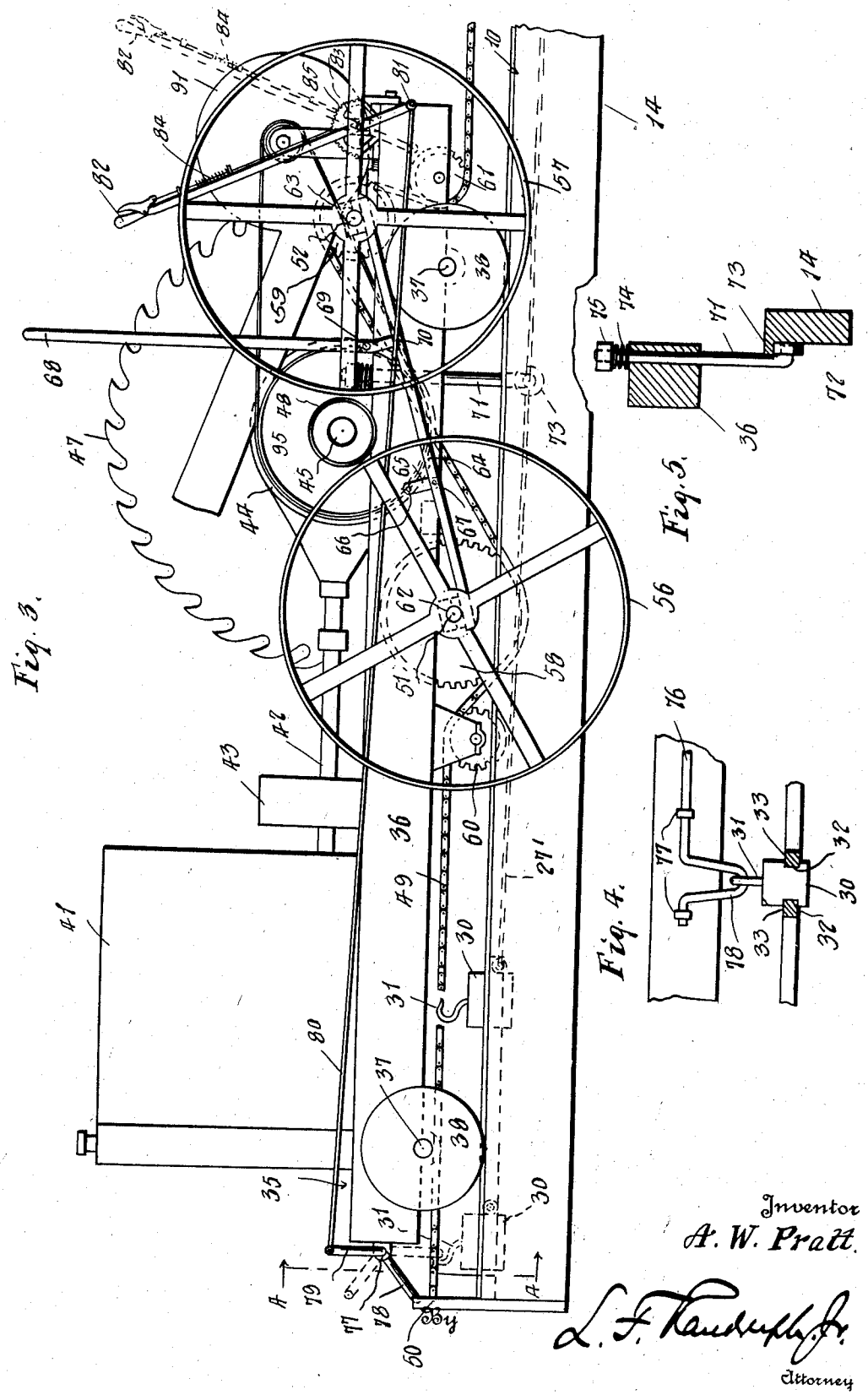


Fig. 3.



Fig. 5.

Fig. 4.

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PORTABLE LUMBER MILL

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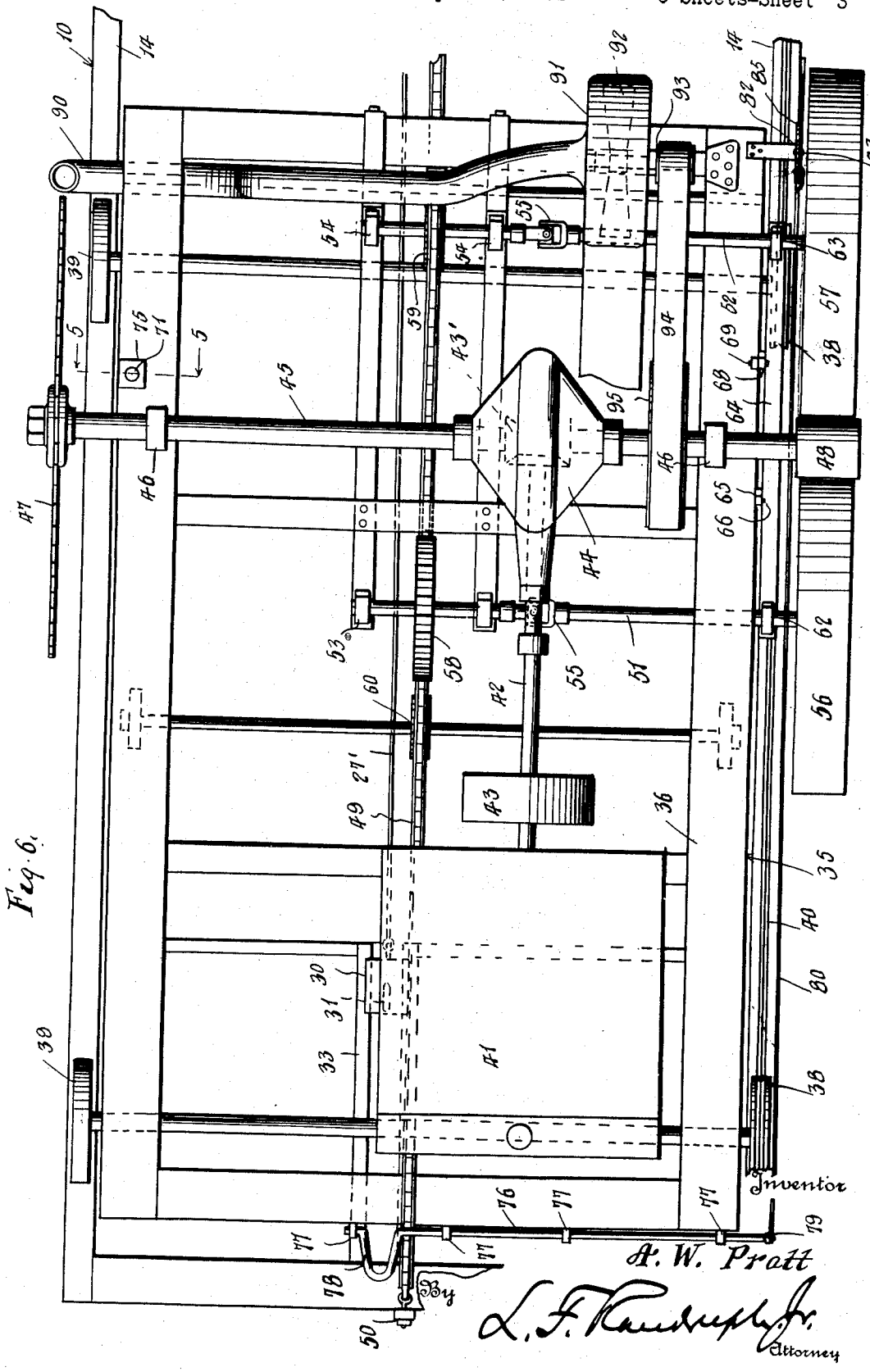


Fig. 6.

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PORTABLE LUMBER MILL

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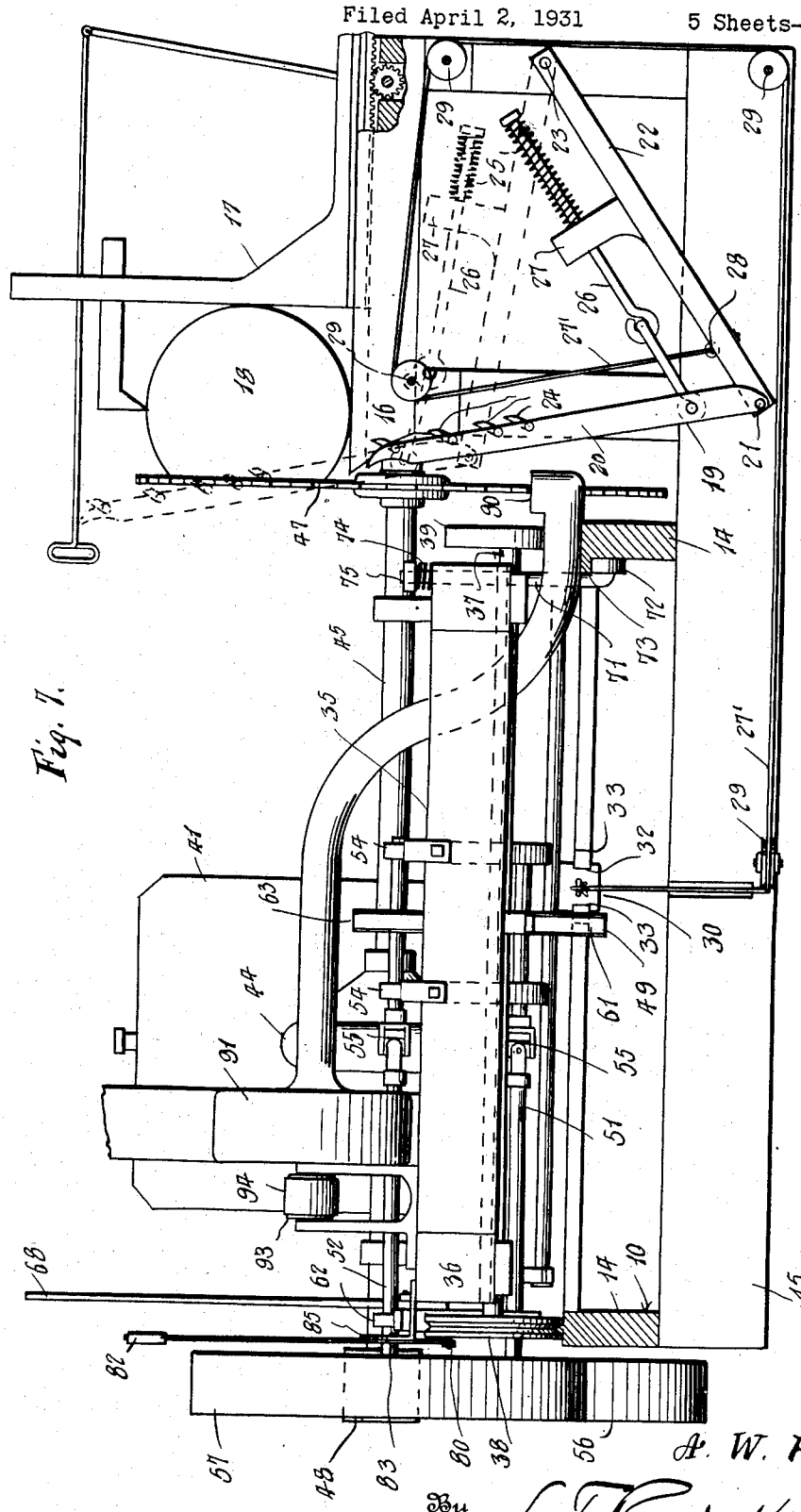


Fig. 7.

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PORTABLE LUMBER MILL

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Fig. 8.

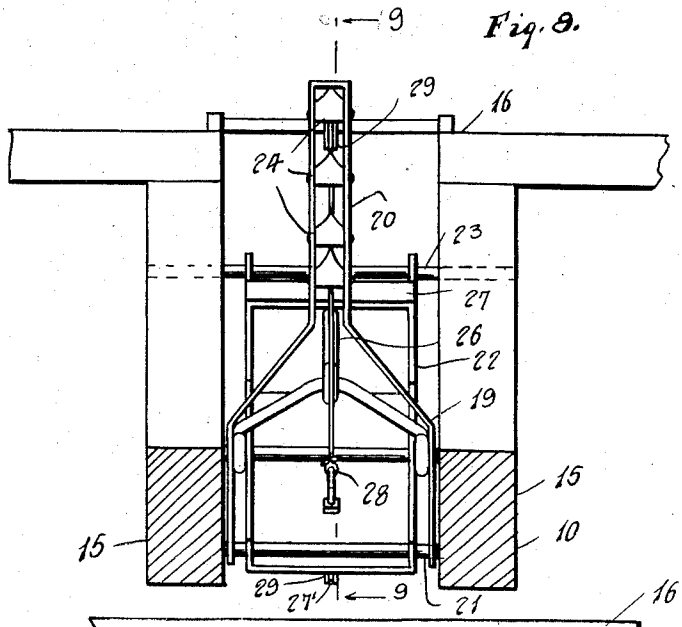


Fig. 9.

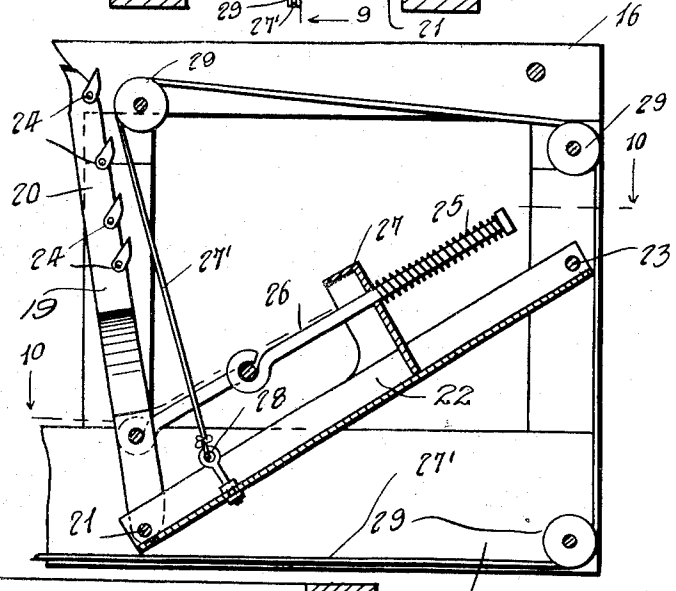
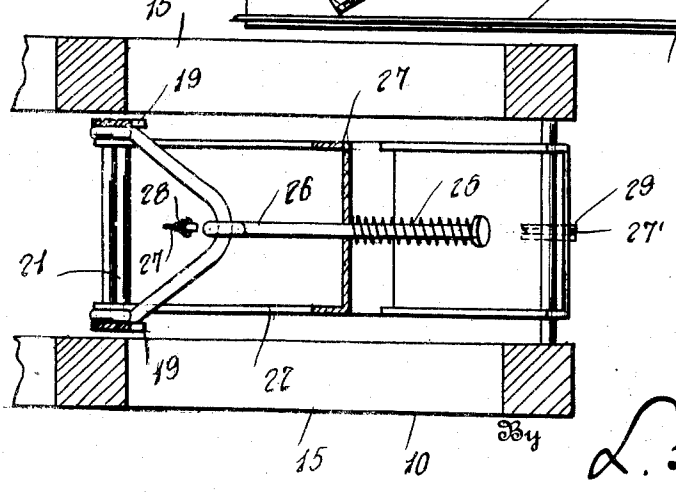


Fig. 10.



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1,842,114

UNITED STATES PATENT OFFICE

ALBERT W. PRATT, OF OPELIKA, ALABAMA

PORTABLE LUMBER MILL

Application filed April 2, 1931. Serial No. 527,340.

This invention relates to a portable lumber mill and aims to provide a construction which is complete so that the apparatus may be moved from one stand of timber to another, by means of a tractor, draft animals or in any desired way, without necessitating the disassembling and reassembling of a single part.

It is generally aimed to provide a means and construction whereby more and better lumber may be manufactured with less power and labor.

It is further aimed to provide a novel construction which is exceedingly compact, simple, durable and relatively inexpensive.

In addition it is aimed to provide a construction having a frame on which a log is adapted to be held and relatively to which a saw carriage is bodily movable, novel means being provided to control the direction of movement of the saw carriage and also to cause the turning of a log.

The more specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:—

Figure 1 is a plan view of the apparatus,

Figure 2 is a side elevation thereof,

Figure 3 is an enlarged side elevation of one end of the apparatus,

Figure 4 is a detail sectional view taken on the line 4—4 of Figure 3,

Figure 5 is a detail sectional view taken on the line 5—5 of Figure 6,

Figure 6 is an enlarged plan view of the parts of Figure 3,

Figure 7 is a detail sectional view taken on the line 7—7 of Figure 1,

Figure 8 is a sectional detail taken on the line 8—8 of Figure 1,

Figure 9 is a sectional view taken on the line 9—9 of Figure 8, and

Figure 10 is a sectional view taken on the line 10—10 of Figure 9.

Referring specifically to the drawings, the apparatus comprises a main frame generally designated 10 having axles 11 connected thereto which in turn have ground wheels 12 journaled thereon. At the front, a suitable hitching connection is provided at 13 so that the apparatus may be attached to a tractor, draft animal or any suitable source of power to move it from one stand of lumber to another.

The frame 10 is of any suitable skeleton form, for instance having parallel longitudinal side beams 14 and transverse beams 15 connecting them together.

Suitably connected to the frame 10, and in laterally offset relation to the side beams 14, are log supporting head blocks 16, forming part of mechanism generally designated 17, adapted to rigidly hold a log such as 18, during sawing, and which mechanism is conventionally shown. The same comprises, however, a log turning bar 19, normally located in the full line position of Figure 7 but movable to the dotted line position in the same figure, while turning the log. Such bar 19 is made from a strap of material as at 20, in Figures 8 to 10, whose free ends are pivoted on a rod 21 carried by a mounting frame 22, pivoted at 23 to the framework 10. The bar 19 has barbs 24 to engage the logs and the same are urged toward the log, through the expansion of a spring 25 coacting with a rod 26 connected to the bar 19 and slidably mounted through a lug 27 of the frame 22. In order that the frame 22 may be swung upwardly to the dotted line position of Figure 7 in order that the bar 19 may turn the log 18, a draw cable 27′ is fastened at 28 to frame 22 and is trained over various direction pulleys 29 on the framework 10, first extending transversely of the mechanism 17 and then extending longitudinally and centrally of the frame 10 toward the left hand end thereof where it is fastened to a slide block 30 carrying a hook 31. Block 30 is grooved at 32 on opposite sides thereof so as to receive guide and mounting bars 33 suitably fastened to the framework 10. Such block 30 is at its right hand limit of movement as shown in Figure 6 for example, corresponding to the lowered or normal position of the turning bar as shown in Figure 7.

A saw carriage generally designated 35 is movable longitudinally of the frame 10. Such carriage 35 comprises a body 36, having axles 37 on which wheels 38 and 39 are

journaled. The wheels 38 are peripherally grooved so as to fit track members 40 fastened on top of one of the side bars 14 while the wheels 39 have flat peripheries so as to travel along the other side bar 14.

On the body 36, a prime mover or power plant of any suitable construction, for instance an internal combustion motor such as is used on an automobile. The propeller shaft 42 is driven by the power plant, having a flywheel 43 thereon. Shaft 42, through the medium of gearing 43′ located within a casing 44, drives a transverse shaft 45 which is journaled in suitable bearings 46 on the body 36. On shaft 45, a suitable saw 47 is detachably mounted.

At the other end of shaft 45, a drive pulley 48 is keyed.

In order to effect positive movement of the saw carriage 35, longitudinally of the frame 10, a chain or other flexible element 49 extends the full length of the frame, having its opposite ends connected to posts 50 on such frame.

A pair of transverse shafts 51 and 52 are suitably journaled on parts of the body 36 as at 53 and 54, each shaft including a universal joint at 55. Shaft 51 has a drive member 56 thereon and shaft 52 has a drive member 57 thereon. Keyed on the shaft 51 is a sprocket wheel 58 while a sprocket wheel 59 is keyed on the shaft 52. Such sprocket wheels are traversed by the chain 49. In order to properly hold the chain in position, the same also passes over guide sprockets at 60 and 61, suitably mounted on the carriage body 36. The driving of shaft 52 is adapted to move the saw carriage 35 to the right for a sawing operation while the movement of the shaft 51 is adapted to move the saw carriage to the left or return it to normal position. Since the latter movement should be faster than the former, the sprocket wheel 58 is larger than that shown at 59 to afford such movement.

Normally the drive wheels 56 and 57 are disengaged from the pulley 48. In order to arrange them selectively in driving engagement with such pulley, each is journaled in a bearing as at 62 and 63 carried by a shifting bar or member 64. Such member 64 is suspended by a link 65 pivoted to the frame 36 at 66 and to the bar 64 at 67. A manually operated lever for shifting the bar 64 is provided at 68, being pivoted at 69 on the body 36 and at 70 to the bar 64. Thus it will be seen that with the prime mover 41 in motion, when the lever 68 is moved to the right, the drive member 57 will be moved into contact with the pulley 48, whereby the parts will operate so that the saw mill carriage 35 will positively move to the right and the saw 47 thus engaged with the log 18 to saw the same.

For the return movement, the lever 68 is shifted to the left, which moves drive wheel 57 out of contact with pulley 48 and places drive wheel 56 in contact therewith, thus causing reverse movement of the parts and restoration of the carriage 35 to normal position, by movement to the left.

One or more hold-down devices are provided to prevent disengagement of the saw carriage 35 from the frame 10, for instance as shown in Figures 3, 5 and 6. The hold-down comprises a vertically disposed rod 71 having a roller 72 journaled on its lower end and engaging the under surface of a flange 73 on one of the side members 14. The rod 71 is slidably mounted in one element of the body 36 and above the same is engaged by an expansive spring 74, also coacting with a nut 75 thereon, thus urging the rod 71 upwardly and maintaining the roller 72 in engagement with the flange 73.

The log 18 is adapted to be turned through the return movement of the saw carriage 35 to initial position. To this end, a rock shaft 76 is journaled in bearings 77 at the left hand end of the body 36 of the carriage 35. The shaft 76 has a loop 78 which may be arranged so as to engage the hook 31 as the carriage returns to initial position. Shaft 76 has a crank 79 at one end thereof, to which a rod 80 is pivoted and which rod 80 is also pivoted at 81, to a hand lever 82, pivoted at 83 on the body 36 and having a locking mechanism 84 coacting with a toothed segment 85 mounted on such body 36.

Normally, the loop 78 is elevated so that movement of the saw carriage 35 will not be effected by the hook 31 or vice versa. However, when the log is to be turned, the operator moves the lever 82 so as to arrange the loop 78 in a position for engagement with the hook 31. When the loop 78 is engaged with the hook 31, the movement of the carriage 35, moves the block 30 to the left therewith from the full to the dotted line position shown in Figure 3, thereby exerting a pull on the cable 27′, causing elevating and log-turning movement of the arm 19.

As previously stated, the log holding and turning mechanism is of conventional form and due provision is made for moving the log closer to the saw, as becomes necessary incidental to sawing.

In order to remove saw dust, a duct is provided at 90, having its entrance adjacent the saw, and leading to a casing 91 suitably supported on the body 36, in which a suction fan 92 operates, such fan serving to draw in the saw dust and discharge it from the casting 91 at any suitable point and to any desired place of deposit. The fan 92 is mounted on a shaft 93, driven by a belt 94, for example, from a pulley 95, keyed on the shaft 45.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:—

1. A carriage of the class described in combination with a track over which the same is movable, a flexible element in anchored relation to the track, driving means on the carriage, a plurality of shafts having gear members thereon in engagement with said flexible element, said gear members being in offset relation to divert the chain from a tangential to a partly peripheral course around each gear member, and means whereby either of said shafts may be moved into driving relation with said driving means according to the direction of movement desired for the carriage.

2. A carriage of the class described in combination with a track over which the same is movable, a flexible element in anchored relation to the track, driving means on the carriage, a plurality of shafts having gear members thereon in engagement with said flexible element, said gear members being in offset relation to divert the chain from a tangential to a partly peripheral course around each gear member, means whereby either of said shafts may be moved into driving relation with said driving means according to the direction of movement desired for the carriage, said shafts having universal joints therein, a shifting member in journaled relation with the shafts, and means operable to shift said member.

3. A carriage of the class described in combination with a track over which the same is movable, a flexible element in anchored relation to the track, driving means on the carriage, a plurality of shafts having gear members thereon in engagement with said flexible element, said gear members being in offset relation to divert the chain from a tangential to a partly peripheral course around each gear member, means whereby either of said shafts may be moved into driving relation with said driving means according to the direction of movement desired for the carriage, said shafts having universal joints therein, a shifting member in journaled relation with the shafts, means operable to shift said member, comprising a lever pivoted to the carriage and to said shifting member, and driving members on said shafts for direct engagement with said driving means.

4. A carriage of the class described in combination with a track over which the same is movable, a flexible element in anchored relation to the track, driving means on the carriage, a plurality of shafts having gear members thereon in engagement with said flexible element, said gear members being in offset relation to divert the chain from a tangential to a partly peripheral course around each gear member, means whereby either of said shafts may be moved into driving relation with said driving means according to the direction of movement desired for the carriage, said shafts having universal joints therein, a shifting member in journaled relation with the shafts, means operable to shift said member, said driving means having a transverse shaft, a saw driven by said transverse shaft, and wheels on said first mentioned shafts for engagement with the other shaft.

In testimony whereof I affix my signature.

ALBERT W. PRATT.