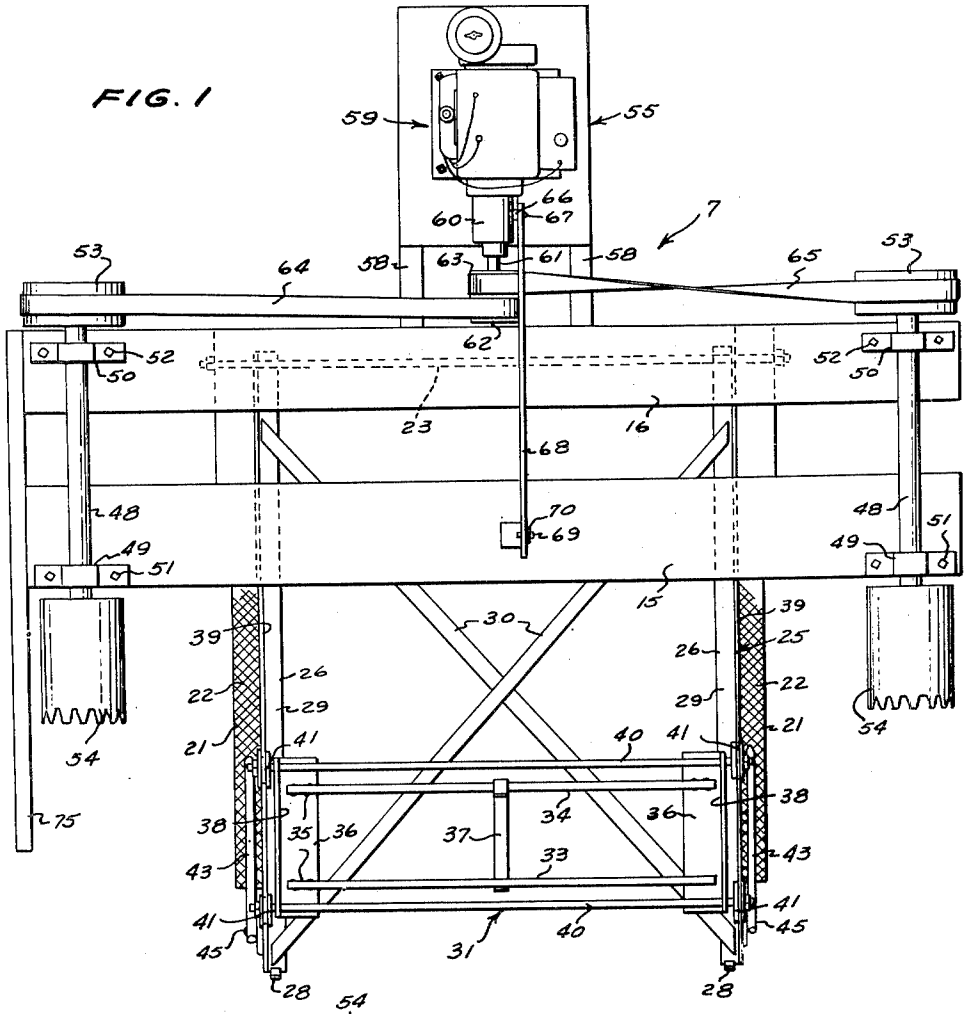
March 29, 1955 D. FOWLER 2,705,031

LOG GAINING MACHINE

Filed April 16, 1954 2 Sheets-Sheet 1

FIG. 1



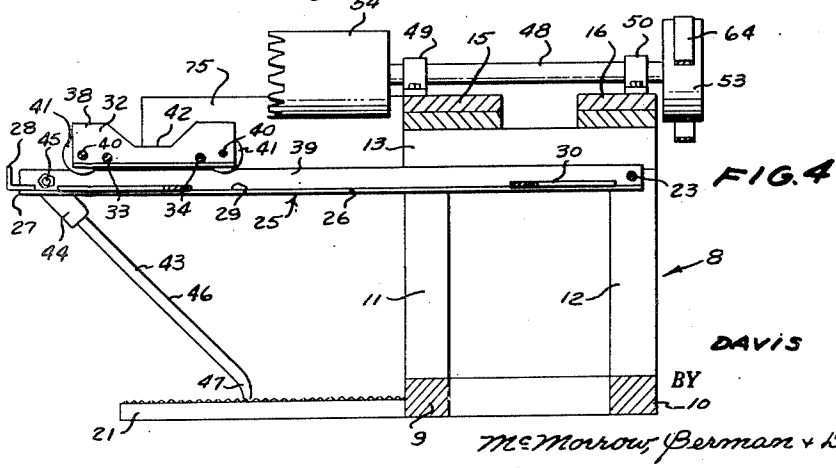




FIG. 4

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LOG GAINING MACHINE

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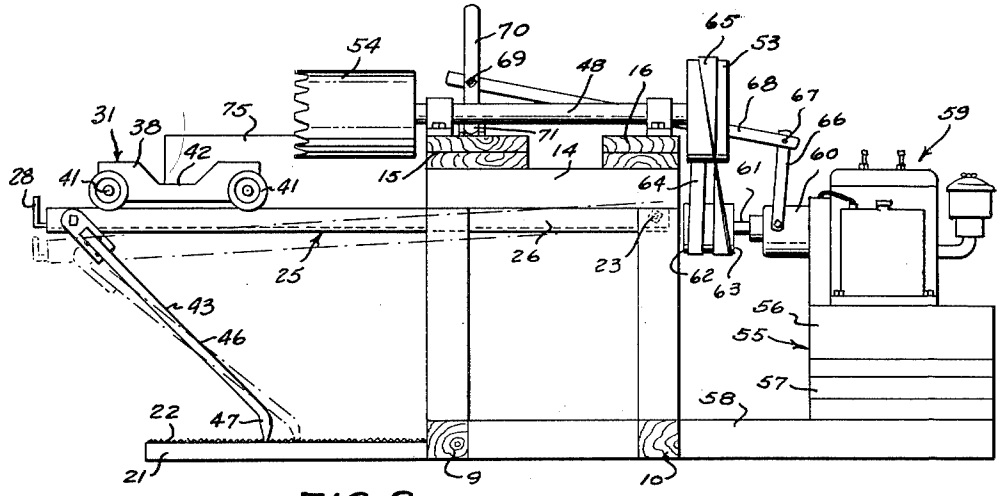
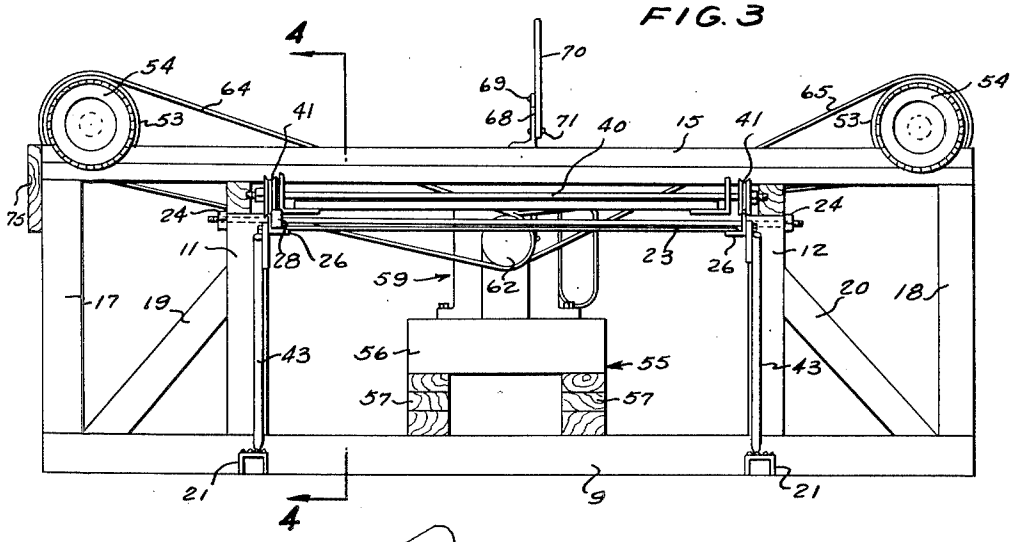



FIG. 2

FIG. 3



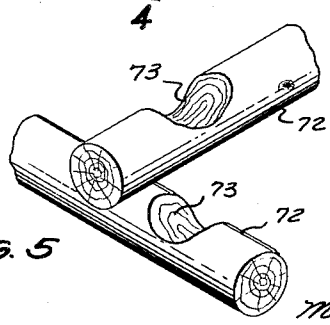




FIG. 5

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United States Patent Office 2,705,031 Patented Mar. 29, 1955



2,705,031

# LOG GAINING MACHINE

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Application April 16, 1954, Serial No. 423,800
6 Claims. (Cl. 144—133)

This invention relates to improvements in gaining machines, and more particularly to a novel and improved machine of this kind which is devised especially but not exclusively for cutting notches in logs, of different and nonuniform diameters, such as are used in the construction of spruce log cesspools or seepage pots employed for the drainage of sewage, and for other uses.

The primary object of the invention is to provide an efficient, reliable, and easily operated machine of the character indicated above which is readily and quickly adjustable to accommodate logs of different uniform diameters and logs of different non-uniform diameters or tapers, so that notches of appropriate depths will be cut at points spaced along such logs to accommodate cross-logs and support the cross-logs level with respect thereto when engaged in the notches so cut.

Another important object of the invention is to provide a machine of the character indicated above which is of simplified and more rugged construction and is composed of a minimum number of simple parts, so that the machine is capable of being made at relatively low cost and operated with a minimum of trouble and expense for the maintenance thereof.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration rather than limitation, a specific embodiment of the invention is set forth in detail.

In the drawings:

Figure 1 is a top plan view;

Figure 2 is a side elevation, showing in phantom lines an adjusted portion of the carriage frame;

Figure 3 is a front end elevation;

Figure 4 is a vertical longitudinal section taken on the line 4—4 of Figure 3; and

Figure 5 is a fragmentary perspective and exploded view showing the relation of crossed logs notched in accordance with the present invention.

Referring in detail to the drawings, wherein like numerals designate like parts throughout the several views, the illustrated machine, which is generally designated 7, comprises a frame 8, which is adapted to rest upon a floor or other support (not shown).

The frame 8, which is preferably made principally of wood, comprises forwardly and rearwardly spaced lower cross members 9 and 10, front and rear inner uprights 11 and 12, rising from the lower cross members 9 and 10, respectively. Short longitudinal members 13 and 14 rest upon and are suitably secured to the upper ends of the uprights 11 and 12 at each side of the frame.

Resting upon and suitably secured to the longitudinal members 13 and 14 are forwardly and rearwardly spaced upper front and rear cross members 15 and 16, respectively, each of which may be composed of two superimposed planks. The upper cross members 15 and 16 extend laterally outwardly beyond the inner uprights 11 and 12, as do the lower cross members 9 and 10, and outer uprights 17 and 18, spaced laterally outwardly from the inner uprights 11 and 12, rise from the outer ends of the lower cross members 9 and 10 and supportably engage the upper cross members 15 and 16. Diagonal braces 19 and 20 extend from the inner uprights 11 and 12 to the lower cross members 9 and 10 near the outer uprights 17 and 18.

Preferably metal channel bars 21, 21 are secured to and extend forwardly from the front lower cross member 9 in line with the laterally inward sides of the inner uprights 11, and have sets of intersecting diagonal grooves 22, 22 on their upper sides, which serve as detent racks.

A pivot bar or bolt 23 extends through upper end portions of the rear inner uprights 12, 12 and has nuts 24 on its outer ends bearing against the laterally outward sides of the rear inner uprights 12, 12.



A log carriage frame 25 comprises longitudinal flexible angle iron side bars on rails 26, 26 which are pivoted at their rear ends on the pivot bar 23 close to the laterally inward sides of the rear inner uprights 12, 12. The frame side bars 26, 26 have forward ends 27, 27 which react forwardly beyond the detent bars 21, 21, and carriage stop fingers 28, 28 rise at the forward ends 27, 27 of the side bars 26, 26, from the horizontal inwardly directed flanges 29, 29 of the side bars.

Flexible diagonal brace bars 30, 30 are crossed, and their front and rear ends are secured by suitable means to front and rear end portions of the horizontal flanges 29, 29 of the side bars 26, 26.

A log carriage 31 which is manually rollable forwardly and rearwardly on the frame 25, comprises short, facing angle iron side bars 32, 32 secured together in rigidly spaced relation by front and rear cross rods 33 and 34, respectively, preferably welded, as indicated at 35 to the horizontal flanges 36, 36 of the side bars 32, 32. A brace bar 37 is fixed to and extends between the cross rods 33 and 34 at their midpoints.

The vertical flanges 38, 38 of the side bars 32, 32 are spaced laterally inwardly from the vertical flanges 39, 39 of the carriage frame side bars 26, 26, and roller axles 40, 40 traverse the vertical flanges 38, 38 of the carriage side bars 32, 32 and have thereon grooved rollers 41, 41 which ride on the vertical flanges 39, 39 of the carriage frame side bars 26, 26.

The vertical flanges 38, 38 of the carriage side bars 32, 32 are formed in their upper edges with log cradling V-shaped notches 42, 42.

A carriage frame supporting leg 43 depends from a forward end portion of each carriage frame side bar 26. Each leg 43 comprises a web 44 which is pivoted, as indicated at 45, to the outward side of the vertical flange 39 of the related carriage frame side bar 26, and a rod 46 which depends from the web 44 and terminates at its lower end in a forwardly and downwardly directed point 47 which is selectively engageable with the detent grooves 22 on the related one of the detent bars 21, 21. It is obvious that when both of the leg points 47 are moved to rearward points on the detent bars 21, 21, the carriage frame 25 will be depressed forwardly and downwardly in a level position, so as to provide for the shallow notching of a small diameter log; and forward positioning of both of the legs 43, 43 along the detent bars will position a larger diameter log on the carriage 31 at a higher elevation for deeper notching.

Longitudinal cutter shafts 48, 48 are journaled in forward and rear bearings 49 and 50, respectively, which are bolted, as indicated at 51 and 52, respectively, on the tops of the upper cross members 15 and 16, respectively, near their outer ends. The shafts 48, 48 have belt pulleys 53, 53 on their rearward ends, and hole saw cutters 54, 54 on their forward ends.

To the rear of the machine frame 8 is positioned an engine support 55 which may comprise a platform 56 mounted on standards 57, 57 which rest upon longitudinal members 58, 58 which are secured by suitable means at their forward ends to the rear lower cross member 10.

An engine or motor 59 of suitable type, such as a gasoline engine, is mounted on the platform 56 and includes a forwardly projecting clutch housing 60 from which projects a driven shaft 61 having front and rear pulleys 62 and 63, respectively thereon. A belt 64 is trained over one of the cutter shaft pulleys 53 and the front pulley 62, and another belt 65, which is twisted to make the cutter shafts 48, 48 run in the same direction, is trained over the rear pulley 63 and the pulley of the other cutter shaft 48.

A clutch lever 66 is operatively mounted on the outside of the clutch housing 60 and is pivoted at its upper end, as indicated at 67, to the rear end of a link bar 68 which extends forwardly above the upper cross members 15 and 16, and is pivoted at its forward end, as indicated at 69, to a manual operating lever 70 which is pivoted at its lower end, as indicated at 71, to the front upper cross member 15. Operation of the hand lever 70 in opposite directions connects and disconnects the cutter shafts 48, 48 from the engine 59.

In a double log notching operation, a log 72 is placed in the notches 42, 42 of the carriage 31 and the carriage frame legs 43, 43 adjusted along the detent bars 21, 21 in accordance with the diameter of the log. If the log is of uniform diameter both legs 21, 21 are adjusted the same amount. However, if the log is tapered or otherwise of non-uniform diameter, the legs 43, 43 are adjusted to different positions on the detent bars 21, 21, so that the carriage frame 25, and hence the carriage 31 is canted crosswise of the machine, rather than level, so as to compensate for the different diameters of the portions of such a log which are to be presented to the cutters 54, 54. The flexibility of the carriage frame 25 provides for this canting of the carriage frame 25. As a result, a deep notch 73 will be cut in the thicker part of the log and a shallower notch in the thinner part of the log.

A guide plate 75 may be secured to one end of the front and rear upper cross members 15 and 16 and extend forwardly therefrom along the outer side of one of the cutters 54, against which one end of a log on the carriage 31 may be guidingly engaged, as the carriage 31 is moved rearwardly to engage the log with the cutters 54, 54, so as to assure accurate positioning of the resultant notches along the log.

What is claimed is:

1. In a log gaining machine, a machine frame, spaced parallel cutter shafts journaled on said machine frame, motor means connected to a corresponding end of each of said shafts, rotary cutters on the other ends of the cutter shafts, a carriage frame pivoted at one end thereof to said machine frame to swing on an axis parallel to a plane in which the cutter shafts lie, said carriage frame having its other end spaced longitudinally outwardly from said cutters, said carriage frame having siderails, a log carriage having rollers riding upon said siderails and enabling movement of said carriage along the carriage toward and away from said cutters, and pivoted leg means depending from said outer end of the carriage frame for supporting the carriage frame at a desired angle.

2. In a log gaining machine, a machine frame, spaced parallel cutter shafts journaled on said machine frame, motor means connected to a corresponding end of each of said shafts, rotary cutters on the other ends of the cutter shafts, a carriage frame pivoted at one end thereof to said machine frame to swing on an axis parallel to a plane in which the cutter shafts lie, said carriage frame having its other end spaced longitudinally outwardly from said cutters, said carriage frame having siderails, a log carriage having rollers riding upon said siderails and enabling movement of said carriage along the carriage toward and away from said cutters, pivoted leg means depending from said outer end of the carriage frame for supporting the carriage frame at a desired angle, and detent bars on said frame having longitudinal rack surfaces, said means being pivoted on the carriage frame and having free ends engageable with selected points along the rack surfaces for supporting the carriage frame at selected angles relative to the cutter shafts.

3. In a log gaining machine, a machine frame, spaced parallel cutter shafts journaled on said machine frame, motor means connected to a corresponding end of each of said shafts, rotary cutters on the other ends of the cutter shafts, a carriage frame pivoted at one end thereof to said machine frame to swing on an axis parallel to a plane in which the cutter shafts lie, said carriage frame having its other end spaced longitudinally outwardly from said cutters, said carriage frame having siderails, a log carriage having rollers riding upon said siderails and enabling movement of said carriage along the carriage toward and away from said cutters, pivoted leg means depending from said outer end of the carriage frame for supporting the carriage frame at a desired angle, and detent bars on said frame having longitudinal rack surfaces, said leg means being pivoted on the carriage frame and having free ends engageable with selected points along the rack surfaces for supporting the carriage frame at selected angles relative to the cutter shafts, said carriage frame being flexible, and said leg means comprising a pair of legs which are individually adjustable to different points along the rack surfaces of the detent bars to impart a desired cant to the carriage frame crosswise of the machine frame.

4. In a log gaining machine, a machine frame including a horizontal upper part, a pair of laterally spaced parallel and horizontal cutter shafts journaled on said horizontal upper part of the machine frame, said cutter shafts having forward ends and rear ends, motor means operatively connected to said rear ends of the cutter shafts, rotary cutters on the forward ends of the cutter shafts, a carriage frame having a rear end pivoted on said machine frame below and between said cutter shafts to swing on a horizontal axis extending crosswise of the machine frame at a point near the rear ends of the cutter shafts, said carriage frame including siderails and a forward end, said forward end of the carriage frame extending forwardly of the cutters, a log carriage having grooved rollers riding on the carriage siderails so as to be movable to carry a log on the carriage toward and away from engagement with said cutters, and pivoted leg means depending from the forward end of said carriage frame.

5. In a log gaining machine, a machine frame including a horizontal upper part, a pair of laterally spaced parallel and horizontal cutter shafts journaled on said horizontal upper part of the machine frame, said cutter shafts having forward ends and rear ends, motor means operatively connected to said rear ends of the cutter shafts, rotary cutters on the forward ends of the cutter shafts, a carriage frame having a rear end pivoted on said machine frame below and between said cutter shafts to swing on a horizontal axis extending crosswise of the machine frame at a point near the rear ends of the cutter shafts, said carriage frame including siderails and forward end, said forward end of the carriage frame extending forwardly of the cutters, a log carriage having grooved rollers riding on the carriage siderails so as to be movable to carry a log on the carriage toward and away from engagement with said cutters, and pivoted leg means depending from the forward end of said carriage frame, said leg means comprising legs having upper ends pivoted to related ones of the carriage frame side rails and lower ends, the lower ends of the legs terminating in points, and detent means on the frame below the carriage having longitudinal rack surfaces, the points of the legs being selectively engageable with different points along the rack surfaces so as to determine the angularity of the carriage frame relative to the machine frame and the elevation of the log carriage relative to said cutters.

6. In a log gaining machine, a machine frame including a horizontal upper part, a pair of laterally spaced parallel and horizontal cutter shafts journaled on said horizontal upper part of the machine frame, said cutter shafts having forward ends and rear ends, motor means operatively connected to said rear ends of the cutter shafts, rotary cutters on the forward ends of the cutter shafts, a carriage frame having a rear end pivoted on said machine frame below and between said cutter shafts to swing on a horizontal axis extending crosswise of the machine frame at a point near the rear ends of the cutter shafts, said carriage frame including siderails and a forward end, said forward end of the carriage frame extending forwardly of the cutters, a log carriage having grooved rollers riding on the carriage siderails so as to be movable to carry a log on the carriage toward and away from engagement with said cutters, and pivoted leg means depending from the forward end of said carriage frame, said leg means comprising legs having upper ends pivoted to related ones of the carriage frame side rails and lower ends, the lower ends of the legs terminating in points, and detent means on the frame below the carriage having longitudinal rack surfaces, the points of the legs being selectively engageable with different points along the rack surfaces so as to determine the angularity of the carriage frame relative to the machine frame and the elevation of the log carriage relative to said cutters, said carriage frame being flexible and said leg points being individually engageable with selected points along the rack surfaces so as to produce a desired cant of said carriage frame crosswise of the machine frame.

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