

L. D. STURM.
 AUTOMATIC WOOD SAW.
 APPLICATION FILED FEB. 5, 1919.

1,332,477.

Patented Mar. 2, 1920.
 2 SHEETS—SHEET 1.

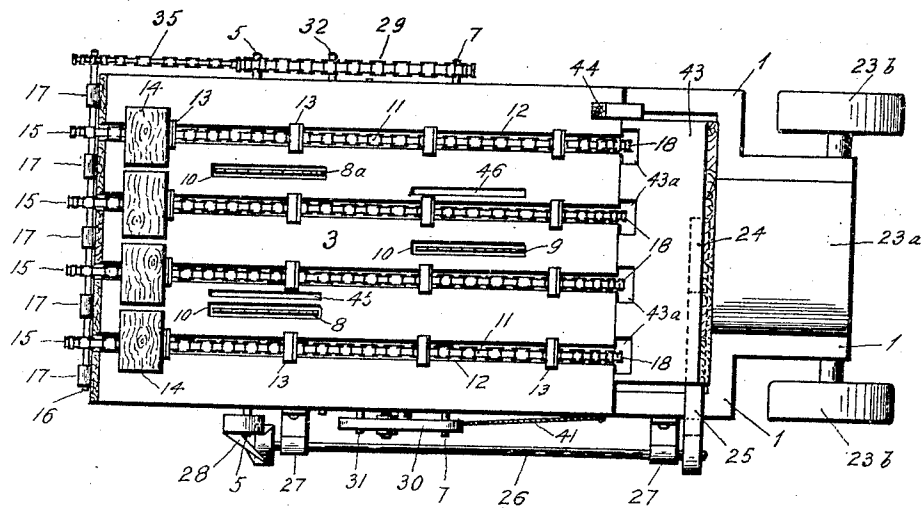


Fig. II.

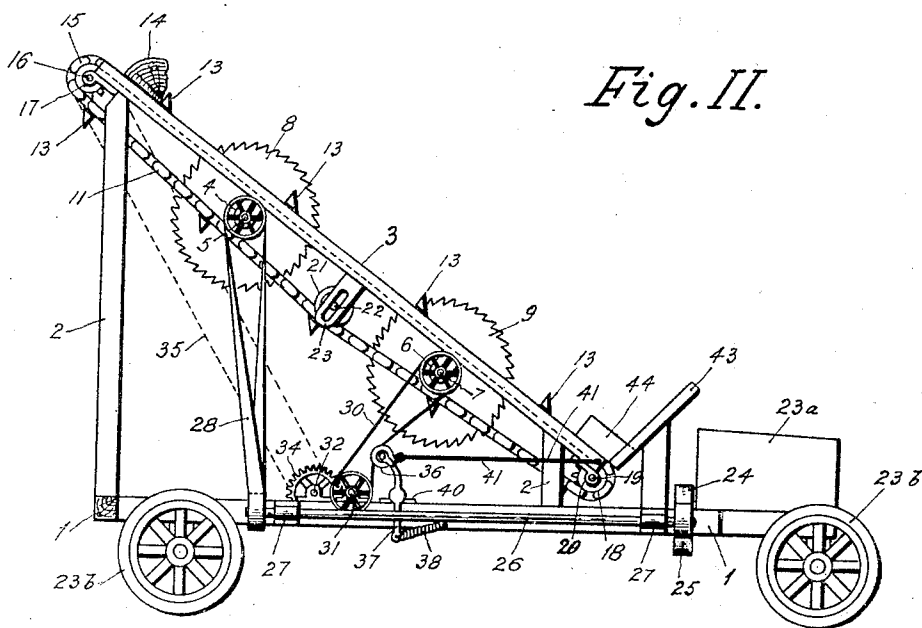


Fig. I.

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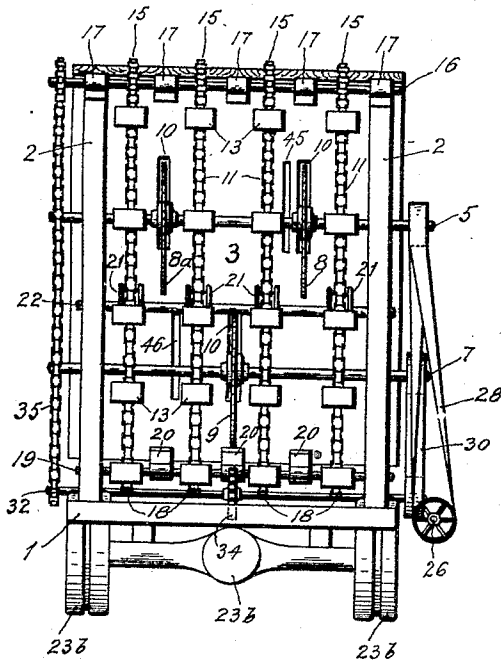


Fig. V.

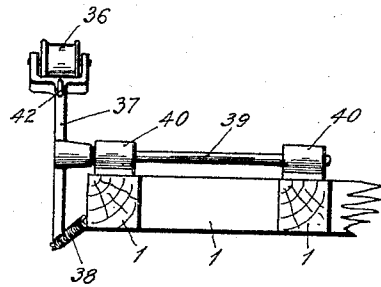


Fig. III.

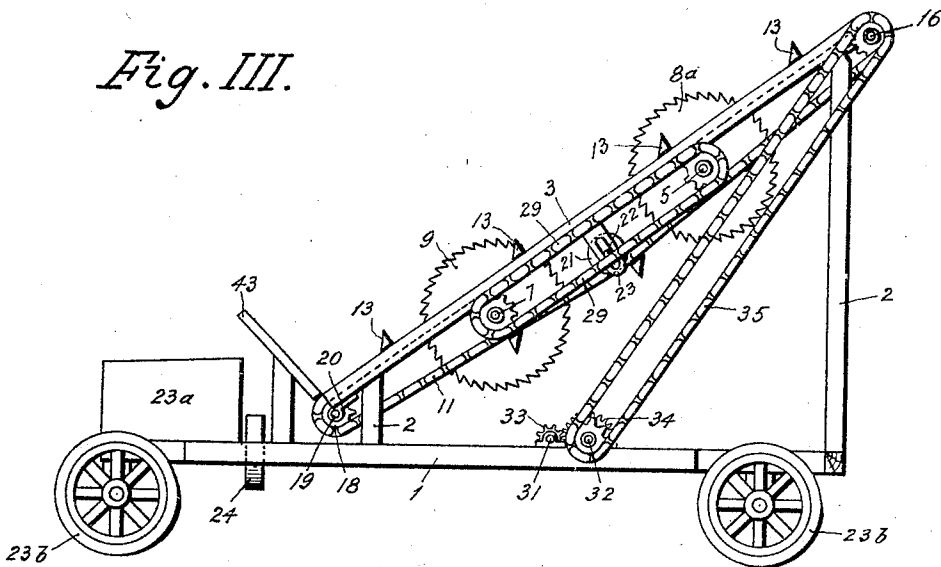


Fig. IV.

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UNITED STATES PATENT OFFICE.

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AUTOMATIC WOOD-SAW.

1,332,477.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LEWIS D. STURM, a citizen of the United States, and resident of Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Automatic Wood-Saw, of which the following is a specification.

My invention relates to improvements in wood saws, in which four-foot long sticks of cord wood are deposited on an inclined table and automatically, by means of conveyer chains, carried past a plurality of circular saws, whereby said sticks are cut into blocks of requisite stove length.

The objects of my invention are:

First, to provide a machine which eliminates the rehandling of every individual block of wood, so that the time of sawing a definite quantity is vastly shortened and also the necessary labor materially reduced.

Second, to produce blocks which are all of equal length.

Third, to provide a machine which may be used either movably or stationarily.

Fourth, to provide a machine which will drop the blocks directly into a wagon where delivery from a wood yard to a customer is intended.

Fifth, to make provisions for easy changing of the saws.

Sixth, to make provisions for the instantaneous release of the conveyer mechanism in case the saws should be crowded.

I attain these objects with the mechanism illustrated in the accompanying drawings in which,

Figure I is a side elevation of the entire machine, also hereinafter referred to as right-hand side;

Fig. II is a plan view.

Fig. III is a rear elevation;

Fig. IV is a side elevation, opposite to the one shown in Fig. I, i. e. the left hand side;

Fig. V is an elevation of the releasing mechanism for the chain conveyers, as it would appear from the front of the machine.

Similar numerals refer to similar parts throughout the several views.

On a horizontal frame 1, and supported by suitable posts 2 is mounted the inclined table 3. Attached to the under side of said table (Fig. I) are the bearings 4 for the shaft 5 and the bearings 6 for the shaft 7. In Fig. II it appears that shaft 5 is equipped with two circular saws 8 and 8^a, both saws placed at about equal distance from the lon-

gitudinal center line of the table, but the number of saws as well as their location on the shaft may be varied without affecting the principle of my machine. So also, though shaft 7 shows one circular saw 9 at the center line of the table, the same reservation applies to this case.

The saw blades project through the slots 10 beyond the upper surface of the table 3 so that a stick of wood drawn across the table will be divided into blocks of a length corresponding with the setting of the saws. To carry the stick automatically across the table, conveyer chains 11 are mounted on each side of the saws, crossing the table in longitudinal directions. These chains run in grooves 12 (Fig. II) and have attached at certain intervals scrapers 13 which insure the propelling of the sticks past the saws or, farther on, the blocks over the edge of the table. At 14 in Figs. I and II is shown such a stick which has been cut into blocks and is on the point of being dropped over the upper edge of the table.

Sprocket wheels at both ends of the table provide for the return of the chain conveyers. At the upper end these sprocket wheels are designated by the numeral 15, the shaft on which latter are mounted by 16, and the necessary bearings for the shaft by 17. The corresponding sprocket wheels, shaft and bearings at the lower edge of the table are designated by the numerals 18, 19 and 20 respectively.

It may here be mentioned that the upper sprocket wheels are set slightly divergent from the line of the lower sprocket wheels. This is desirable in order to relieve the saws as much as possible from "pinching."

The conveyer chains in course of time will stretch and sag, and have a tendency to sway against the adjacent saw blades, much to the damage of each other. To eliminate this danger, and also to insure an even stretching of the conveyer chains, I have provided a stabilizer in the shape of the flanged pulleys 21 resting on the conveyer chains 11. Said pulleys are mounted on the shaft 22 and the latter is held in its place by the slotted bearings 23.

The driving power for my apparatus is furnished by any suitable power generator, in this case by the engine 23^a of the truck 23^b itself. The fly wheel 24, by means of belt connection 25 drives the shaft 26. This shaft is located at the right hand side of the

machine and attached to the horizontal frame 1 by means of the bearing 27; from thence by the quarter-turn belt 28 the shaft 5 is driven.

5 A chain drive 29 at the left hand side connects shaft 5 with shaft 7. From shaft 7, but at the right hand side of the machine, belt 30 drives the conveyer mechanism. However, in order to give a sufficient reduction of speed, two intermediate shafts 31 and 32 are introduced. Both shafts may be located on the horizontal frame 1 and transmission between both may be accomplished by a suitable pinion 33 (Fig. IV) on shaft 31 and a gear 34 on the shaft 32. From the latter shaft, at the left hand side of the machine, the chain drive 35 connects with the shaft 16 at the upper end of the table.

20 If for some reason the saws should not cut as fast as the conveyer chains feed, I have made provisions for an instant release of the conveying mechanism. For this purpose an idle pulley 36 presses constantly against the belt 30, said pulley being pivoted at the upper end of the vertical lever 37, the lower end being held to the horizontal frame 1 by a tension spring 38. Said lever being fulcrumed by means of shaft 39 in bearings 40 on the horizontal frame 1 (see Fig. V). A rope 41, attached with one end to an eyelet 42 at the upper part of the vertical lever 37, and with the other end attached to the inclined table 3, enables the operator to withdraw the pulley 36 from the belt 30 and to stop the conveying mechanism from feeding till the saws have again reached their full speed.

A board 43 mounted at the lower end of the table 3, at approximately right angles to the latter, forms a convenient hopper for the reception of the wooden sticks. Apertures 43^a (Fig. II) permit free passage to the scrapers 13. A suitable guard 44, at one end of the hopper, insures the correct starting point for the wooden sticks in order to have all the blocks of even length.

In these drawings the machine is shown mounted on a truck 23^b to make it quickly available at different places. For stationary use, any other suitable base may be substituted and other power generators may be employed.

The saws 8, 8^a and 9, and the sprocket wheels for the chain 29 on the shafts 5 and 7 are all fastened with set screws. In changing the saws, the set screws are loosened, the shafts withdrawn from their bearings, and the required change can be made without difficulty.

Where a customer requires only two cuts in his wood, the upper left hand saw 8^a is removed entirely and the right hand saw is shifted toward the center of the table to occupy the slot 45, while the lower saw is

shifted from the center toward the left side into slot 46. Where only one cut is required, both upper saws are removed and the lower saw remains where it is shown at present.

Having described my invention, it will be seen that my objects have been accomplished, and though I have shown the preferred form of my invention, I reserve to myself the right to make minor changes of construction providing I do not violate the spirit and principles of my claims.

I claim:

1. In an automatic wood-saw, the combination of an auto truck having a propelling engine and a body portion, with a table surmounting the body portion, said table inclining upward from the engine toward the rear of the truck, a plurality of rotary saws on the table, chain conveyers ascending the table on each side of the rotary saws, and mechanism to drive the saws and chain conveyers from the flywheel of the propelling engine.

2. In an automatic wood-saw, the combination of an auto truck having a propelling engine and a body portion, with a table on the body portion inclining upward from the engine toward the rear of the truck, a second table abutting the first-named table at the lower end and inclining upward toward the engine, a plurality of chain conveyers emerging at the juncture of the two tables and ascending in a slightly diverging direction to the upper edge of the first-named table, a plurality of rotary saws mounted between the chain conveyers, and means to drive the saws and chain conveyers from the flywheel of the auto truck engine.

3. In an automatic wood-saw, the combination of an auto truck having a body portion and a propelling engine on the body portion, with an inclined table on the body portion and adjacent to the engine, rotary saws on the table, chain conveyers descending below said table on each side of the saws, guiding pulleys resting on the chain conveyers to keep the latter from swaying against the rotary saws, a shaft to mount the guiding pulleys, guides at each end of said shaft, said guides being attached to the underside of the inclined table, and means to drive saws and chain conveyers from the flywheel of the auto truck engine.

4. In an automatic wood-saw, the combination of an auto truck having a body portion and a propelling engine, with a wood sawing elevator mounted on the body portion, a transmission shaft for driving the wood sawing elevator attached to one side and parallel with the body portion, said transmission shaft being driven from the flywheel of the auto truck engine.

5. In an automatic wood-saw, the combination of an auto truck having a body por-

tion and a propelling engine, with a wood
sawing elevator on the body portion, said
wood sawing elevator comprising an in-
clined table with rotary saws and chain
5 conveyers, a board across the lower end of
the inclined table at approximately right
angles to the latter, a removable guard at
one end of the valley formed by table and
board, and mechanism to drive the wood
10 sawing elevator from the flywheel of the
auto truck engine.

6. In an automatic wood-saw, the combi-
nation of an auto truck having a propelling
engine, with an inclined table on the truck
15 and adjacent to the engine, a plurality of
chain conveyers ascending the table and re-
turning below the table, a stabilizing weight
on the returning run of the chain conveyers,
a plurality of rotary saws attached to the
20 table, shafts to support the saws, driving
mechanism between saw shafts and propel-
ling engine, an intermediate shaft driven by
a belt from the saw shaft, a second inter-
mediate shaft driven by a gear from the
25 first-named intermediate shaft, a chain drive

from the second intermediate shaft to the
chain conveyers, and means to render the
belt connection between the saw shafts and
the first-named intermediate shaft instantly
inoperative.

7. In an automatic wood-saw, the combi-
nation of an auto truck having a propelling
engine, with an inclined table on the truck,
a plurality of chain conveyers ascending
the table, rotary saws on the table between
35 the chain conveyers, shafts to support the
saws, mechanism to drive the saws from the
flywheel of the propelling engine, an inter-
mediate shaft driven by a belt from the saw
shafts, a second intermediate shaft driven
40 by a gear from the first-named intermediate
shaft, a chain drive from the second inter-
mediate shaft to the chain conveyers, a lever
with tension spring and pulley pressing
against the belt between the saw shafts and
45 the first-named intermediate shaft, capable
of being manually withdrawn and thereby
to stop the motion of the chain conveyers.

LEWIS D. STURM.