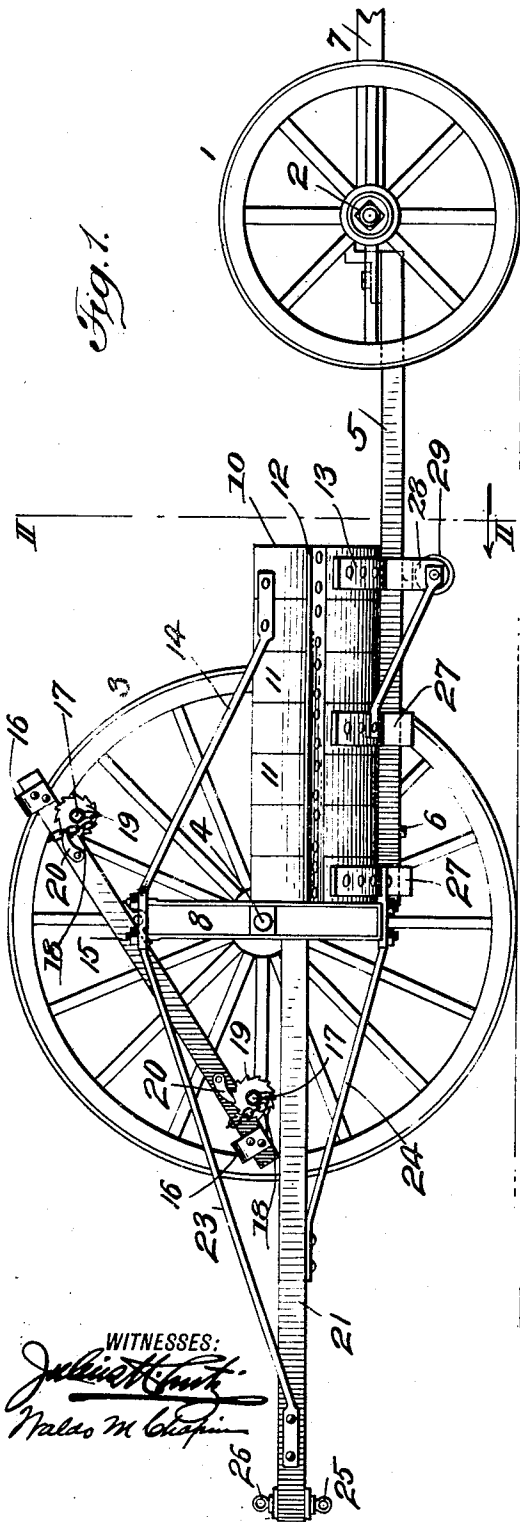


TREE REMOVER.

Patented May 6, 1913.

3 SHEETS—SHEET 1.

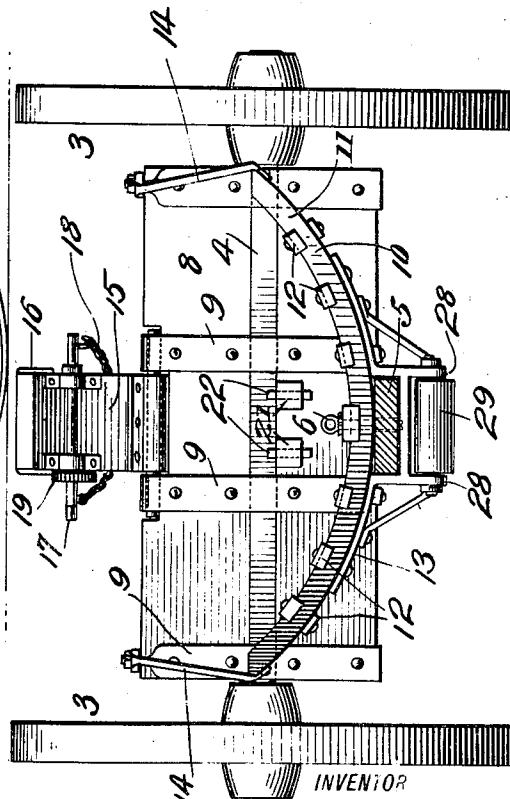
Fig. 1.



WITNESSES:

WITNESSES:
Julius H. Smith
 Walter M. Chapin

Fig. 2.



INVENTOR

James H. Macmillan

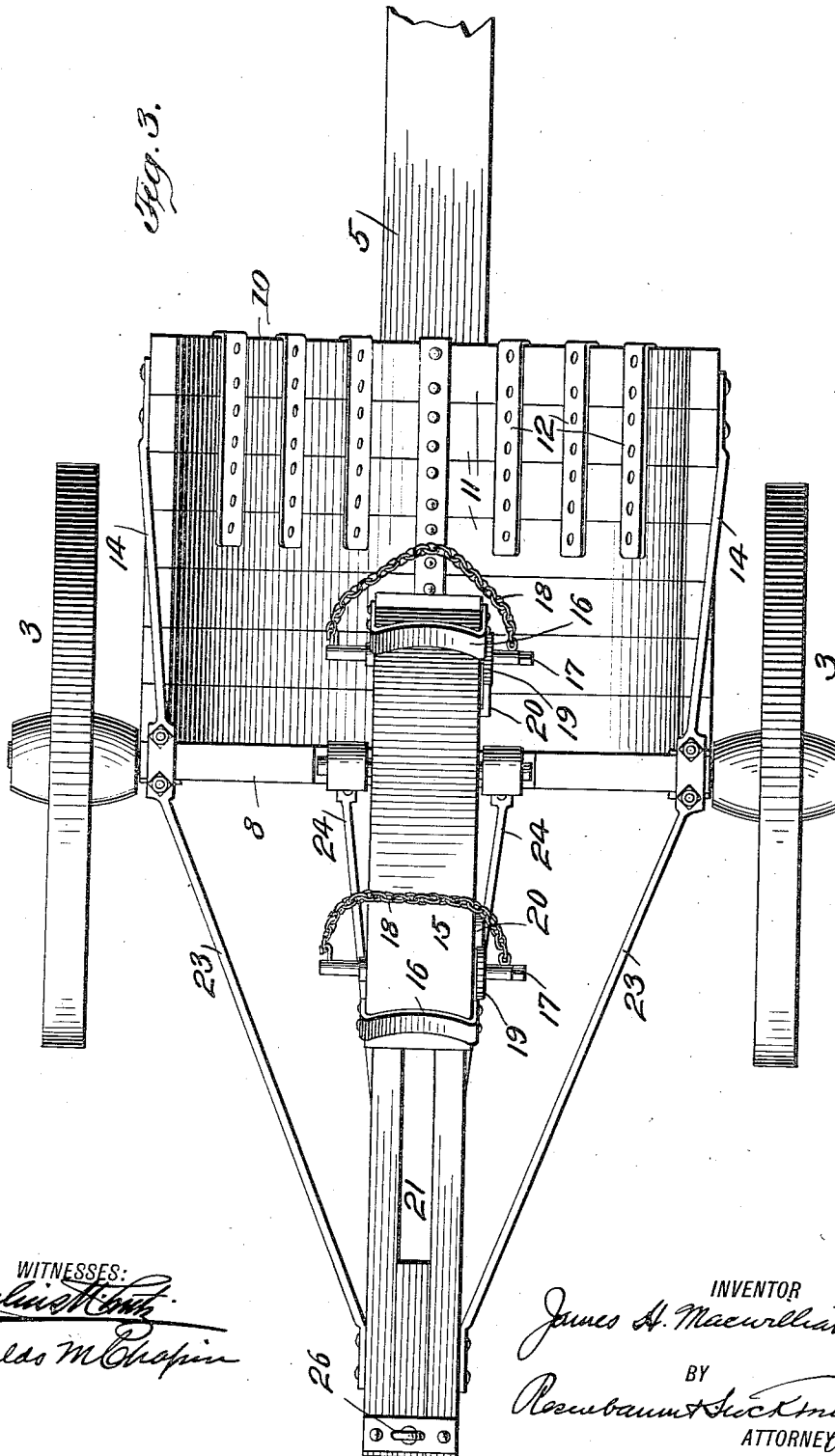
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ATTORNEY

J. H. MACWILLIAM.
 TREE REMOVER.
 APPLICATION FILED JAN. 27, 1912.

1,061,094.

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3 SHEETS—SHEET 2.



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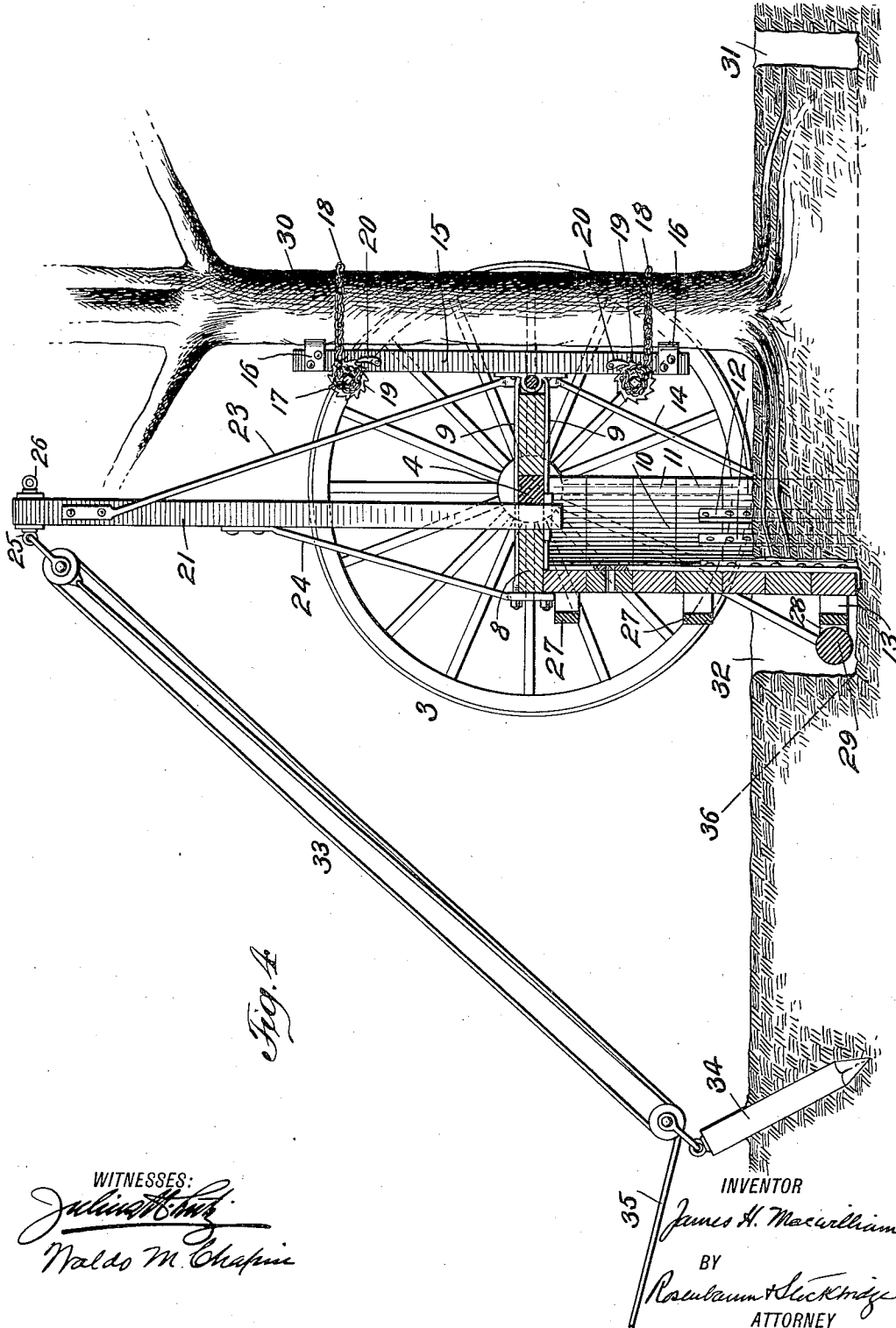
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

JAMES H. MACWILLIAM, OF NEW YORK, N. Y., ASSIGNOR TO SIEBRECHT & SON, OF
NEW YORK, N. Y.

TREE-REMOVER.

1,061,094.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed January 27, 1912. Serial No. 673,845.

To all whom it may concern:

Be it known that I, JAMES H. MACWILLIAM, a citizen of the United States, residing at the city of New York, in the borough of Bronx and State of New York, have invented certain new and useful Improvements in Tree-Removers, of which the following is a full, clear, and exact description.

This invention relates to machines for moving and transplanting trees, the object being to provide a machine by which the location of a growing tree can be changed with the least possible disturbance of its roots and damage to the tree.

A further object is to provide such a machine which shall be of simple construction, easy to manipulate and require but little manual labor in its operation.

My improved machine will be described in connection with the accompanying drawings, in which:

Figure 1 is a side elevation of the complete machine. Fig. 2 is a section taken on the line II—II of Fig. 1. Fig. 3 is a plan of the machine with the forward truck removed. Fig. 4 is a vertical central section of the machine showing it in engagement with a tree ready for the removal operation.

As a transporting device the machine is a four wheeled truck or vehicle, 1 being the forward wheels, mounted on the axle 2, and 3 being the rear wheels, mounted on axle 4. The two sets of wheels are to be connected together by means of a reach 5 fastened to the middle point of the axle 2 by the usual king-bolt connection, not shown herein, and to the rear wheels and axle by means of a pin 6, which will be referred to hereinafter.

7 is a tongue to which horses may be hitched for hauling the vehicle from place to place.

On the rear axle 4 is mounted a vertical board 8, extending the length of the axle between the hubs of wheels 3 and above and below the axle some considerable distance, the board being reinforced by straps 9. Projecting forward from the lower half of this board 8 is a cradle 10 of a width about equal to that of the board, and of a length which will reach substantially beyond the rim of wheels 3. This cradle is preferably arc-shaped and made of a series of bent-

wood sections 11—11, secured together by suitable straps 12 and 13, so as to form a very rigid and strong structure capable of sustaining the weight of a large tree. For additional strength this cradle is braced by the rods 14, reaching from its forward end to the top of the board 8.

15 is a bolster, consisting of a plank from six to ten inches in width hinged at some intermediate point of its length to the top of the board 8 so as to swing in a vertical plane transverse to the axle 4, and midway between the wheels 3. At each end of this bolster curved seats 16 are provided and intended to fit against the curved surface of the trunk of a tree. Adjacent to each seat and underneath the bolster is a shaft 17 comprising a windlass upon which to wind at each end the respective ends of a chain 18. For this purpose one end of shaft 17 is squared to receive a crank by which it can be rotated, and by means of a ratchet wheel 19 on the shaft, and a pawl 20 on the bolster the chain can be held at any tension to which it may be brought by means of the crank.

21 is a heavy lever extending horizontally rearward from the board 8, and to which it is attached at a point beneath the axle by passing through holes in the board and being held by pins 22 therein. To give this lever additional strength two braces 23 extend to the upper corners of the board 8 and additional braces 24 extend to middle portions of the lower edge of this board 8. The outer extremity of the lever is fitted with two eyes 25 and 26, below and above, for a purpose which will hereinafter appear.

The reach 5 is a stout plank adapted to pass freely through loops 27 formed as a part of the straps 13 on the under side of the cradle, and at its rear end it is provided with a vertical hole to receive the pin 6, which likewise passes through a hole in the cradle 10, at a point near the board 8. Thus by means of the king-bolt at the forward axle and the pin 6, the reach 5 forms a rigid stout connector between the two axles of the machine. The forward strap 13 located under the lip of the cradle is provided with depending ears 28 which furnish bearings for the axle of a stout roller 29 arranged to roll in contact with any surface upon which

it may rest, in any direction in which the vehicle may be moved.

The manner of using the machine is as follows: Referring to Fig. 4 a tree to be moved is shown at 30. First a trench 31 is dug around the tree at such a distance therefrom as to surround the roots of the tree, or as much of them as it may be desired to carry away. A portion of this trench at one side is to be widened as shown at 32, then the rear portion of the machine from which the forward wheels and axle of the reach 5 have been removed, is moved up to the tree until the roller 29 drops into the enlarged portion 31 of the trench and the lip of the cradle 10 likewise enters the curved trench. This causes the cradle to assume a substantially vertical position with the lever 21 projecting upward and the bolster 15 presented vertically against the trunk of the tree, and the wheels 3 resting upon the surface of the ground. The chains 18 at each end of the bolster are then passed around the trunk of the tree and connected to the shafts 17; the cranks are applied to the shafts and the chains wound up until the tree is firmly secured to the bolster and is resting against the seats 16 thereon. The fact that the bolster is pivoted to the vehicle permits it to seat firmly against the tree trunk notwithstanding that the latter may be not exactly vertical. For additionally binding the machine to the tree, a chain may be passed from the eye 26 around the trunk of the tree at a convenient point directly opposite. Next a block and fall, such as shown at 33, is rigged between the eye 25 at the upper end of lever 21 and a stake 34, or other anchorage in the ground. By drawing upon the free end 35 of the tackle the upper end of lever 21 is pulled to the left (Fig. 4) and the whole frame swings upon the axle 4, the tree being lifted and at the same time canted toward the lever 21 until the ball of earth containing the roots of the tree is torn loose. As the tree assumes an inclined position the roller 29 bears upon the bottom of the trench and sustains the weight of the ball of earth until the cradle is brought to a horizontal position, which, however, does not occur until the roller has been lifted out of the trench and the forward wheels and reach 5 have been again connected. This is facilitated by first cutting the wall of the trench 32 away along the dotted line 36 to form an incline, and inserting a short length of board against the face of the incline up which the roller can run. The truck can then be drawn to the left (Fig. 4) until the roller 29 passes up the incline to the surface of the ground where it may drop onto another board to prevent it from sinking into the soft earth. With the truck thus located at the edge of the opening from which the tree was removed, the reach 5 can

be easily passed through the loops 27 under the cradle, the forward end of the reach dropping into the excavation to permit it to assume the inclined position necessary to be thus passed through the loops. Then by placing a jack under the forward end of the reach it may be lifted to a horizontal position where it can be connected by means of the king-bolt with the forward axle. The machine is then ready to convey the tree to the new location where it is to be transplanted. Arrived at the new location, an excavation is dug of a proper size to receive the ball of earth at the roots of the tree. One side of this excavation is shaped with an incline similar to 36 and with an enlargement similar to 32 to allow the roller and lip of the cradle to enter one side of the excavation. The vehicle is then moved up to the edge of the excavation and the front wheels and the reach moved with the aid of the jack as before, and then, while restraining the rear end of lever 21 by means of the same tackle as before or otherwise, the roller 29 and the lip of the cradle are allowed to drop into the excavation under the weight of the ball of earth in the cradle, the tree meanwhile assuming an upright position and finally resting on the bottom of the excavation. The chains 18 are then removed and the truck is wheeled out of the way, nothing more remaining to be done except to straighten the tree and fill in the trench around it.

It will be observed that the length of the cradle is such that the root end of the tree will always slightly overbalance the limbs, so that there will be no tendency, while the tree is in a horizontal position, to lift the forward trucks from the road. It may be found necessary at times to remove one or more branches from the trunk of the tree in order to find a seating for the bolster, and it may also be necessary to lower the surface of the ground upon which the wheels 3 rest in order that the lip of the cradle may enter deep enough into the trench. Likewise, some allowance will have to be made at times in cutting the trench 31 around the tree so that when the lip of the cradle is in the trench the bolster will be approximately against the trunk of the tree; that is to say, the radius of the trench may be made greater or less at the point where the cradle enters it, than it is at other points. These manipulations are all within the skill of intelligent workmen who may handle the machine. Two or three men, and one pair of horses can operate this machine without any difficulty, and it is found that a tree can thus be taken up, conveyed away and replanted with very little expenditure of labor and only slight disturbance to the tree, which increases the probability that the tree will live.

When evergreens, or trees whose branches

grow close to the ground, are to be moved with this machine, the bolster may be provided with extension seats for the trunk of the tree. That is to say, seats similar to the
5 seats 16 may be carried upon the end of screws which are threaded through the bolster. By screwing them outward the seats are projected beyond the face of the bolster and can be directed between the
10 branches of a tree until they engage the trunk thereof, the branches then intervening between the trunk and the face of the bolster will not be crushed by contact with the bolster.

15 Having described my invention, I claim:

1. In a tree remover, the combination of a pair of wheels with an axle, a board pivotally mounted upon said axle, a cradle carried by said board and adapted to engage
20 the roots of the tree, and a bolster pivotally connected to said board and adapted to engage the trunk of the tree, and means whereby said board may be swung upon its pivot.

2. In a tree remover, the combination of
25 a pair of wheels and an axle, a board pivotally mounted upon the axle, a cradle carried by said board upon one side of the axle and adapted to receive the roots of a tree, and a

support under the free end of said cradle, substantially as described.

3. In a tree remover, the combination of a pair of wheels and an axle, a cradle supported by and extending in one direction from said axle, a lever supported by and extending in the opposite direction from
35 said axle, and a bolster also carried by said axle but pivotally mounted with respect to the cradle and lever and having means for securing the trunk of the tree thereto, substantially as described.

4. In a tree mover, the combination of a pair of wheels and an axle, a board carried by and extending above and below the axle, a cradle attached to the board below the axle and extending substantially beyond the rim
45 of the wheels and a bolster pivotally connected with the board above the axle and having means at each end for securing it to the trunk of a tree, substantially as described.

In witness whereof, I subscribe my signature, in the presence of two witnesses.

JAMES H. MACWILLIAM.

Witnesses:

WALDO M. CHAPIN,
JAMES D. ANTONIO.