June 5, 1928. 1,672,140

C. W. THARP

LAND LEVELER

Filed June 23, 1927 4 Sheets-Sheet 1

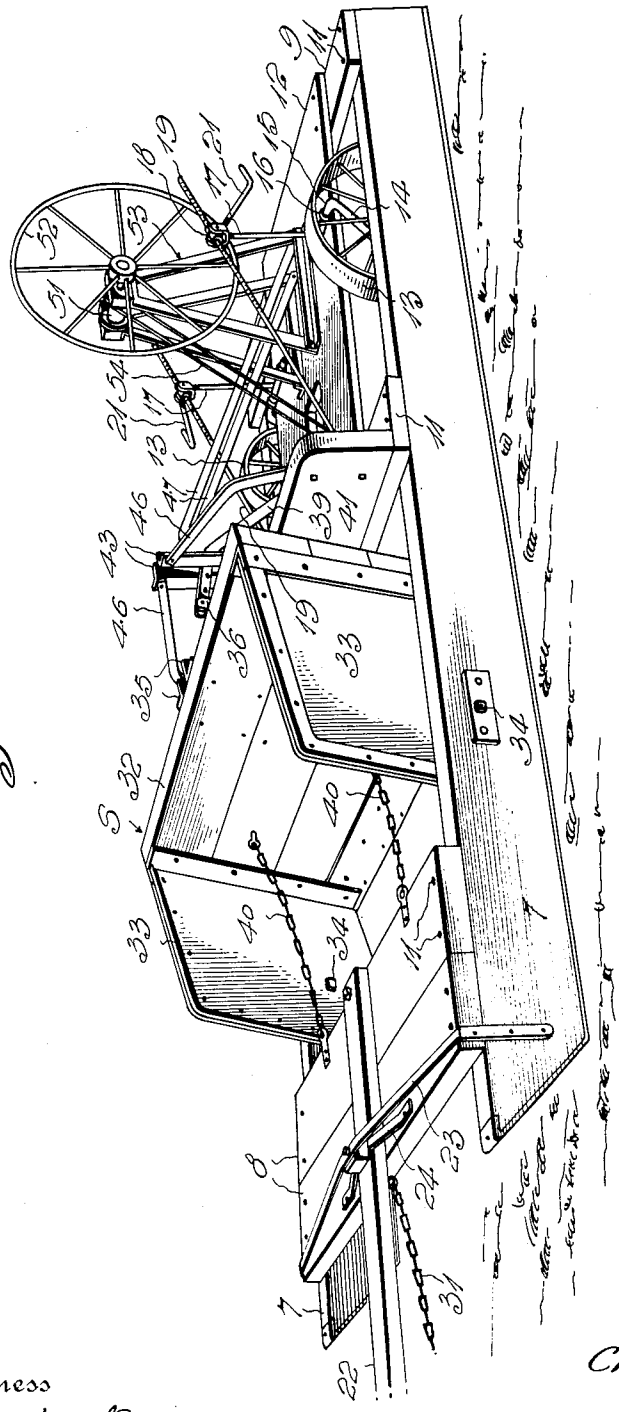


Fig. 1.

Witness
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LAND LEVELER

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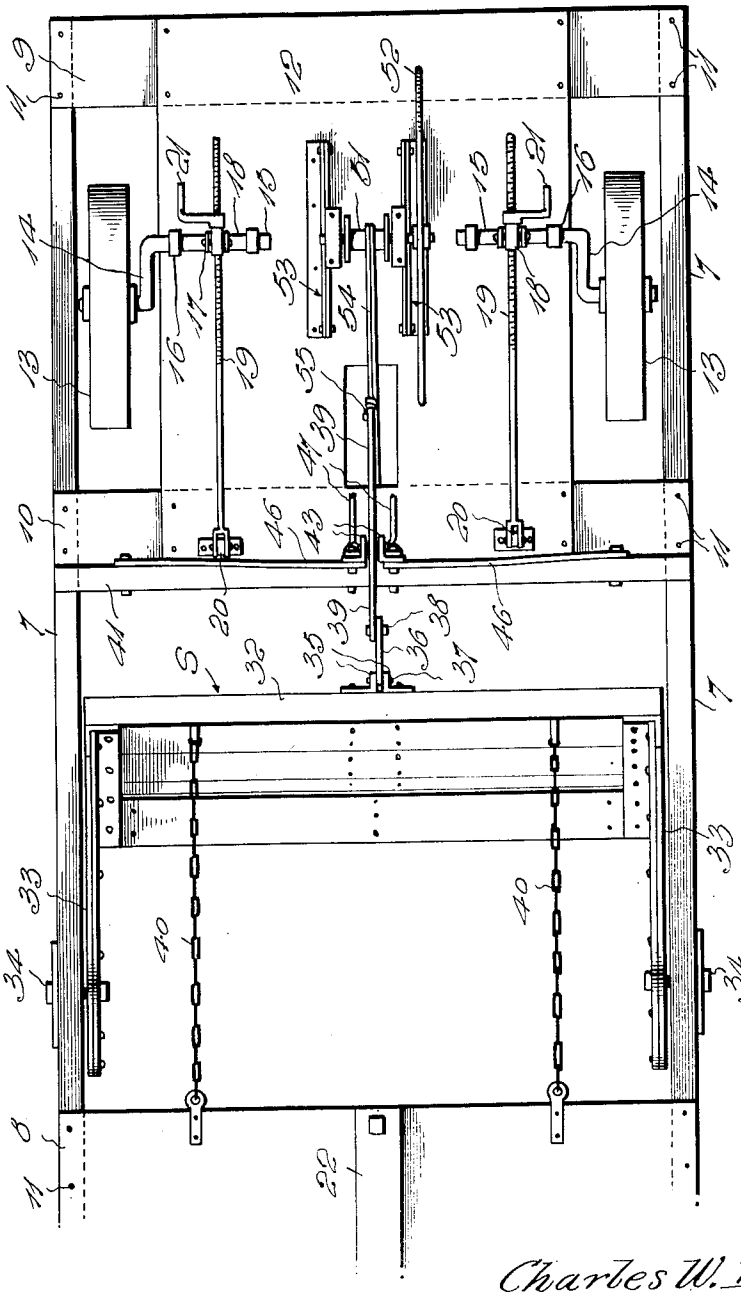


Fig. 2.

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Filed June 23, 1927 4 Sheets-Sheet 3

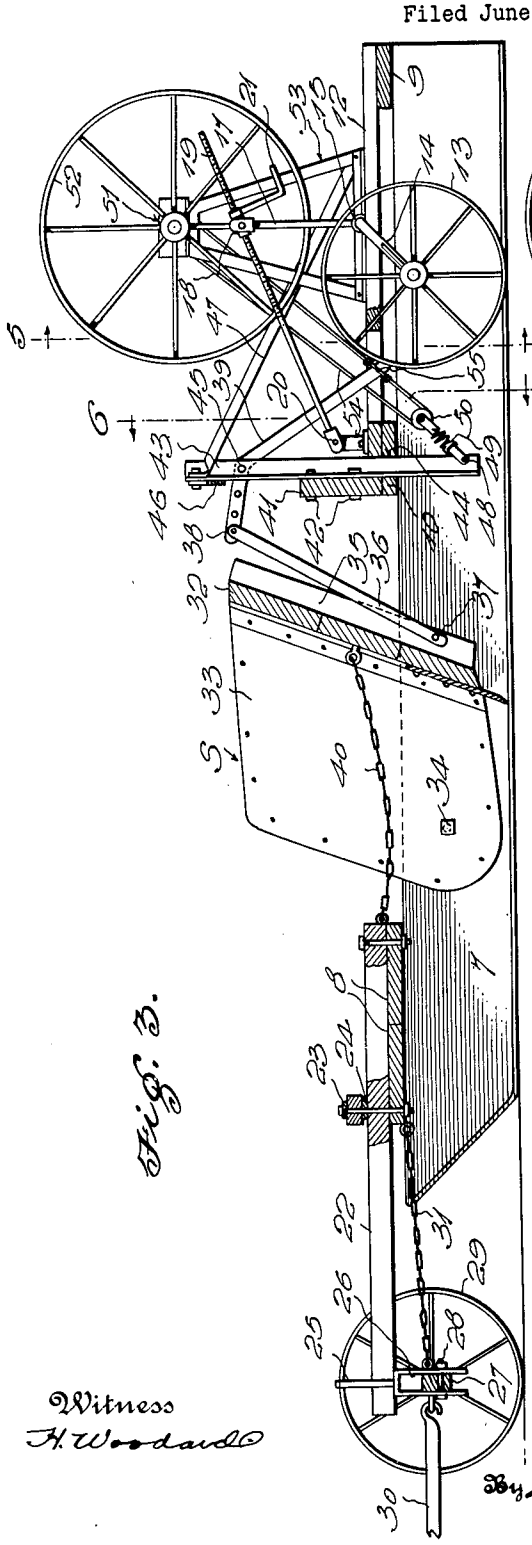


Fig. 3.

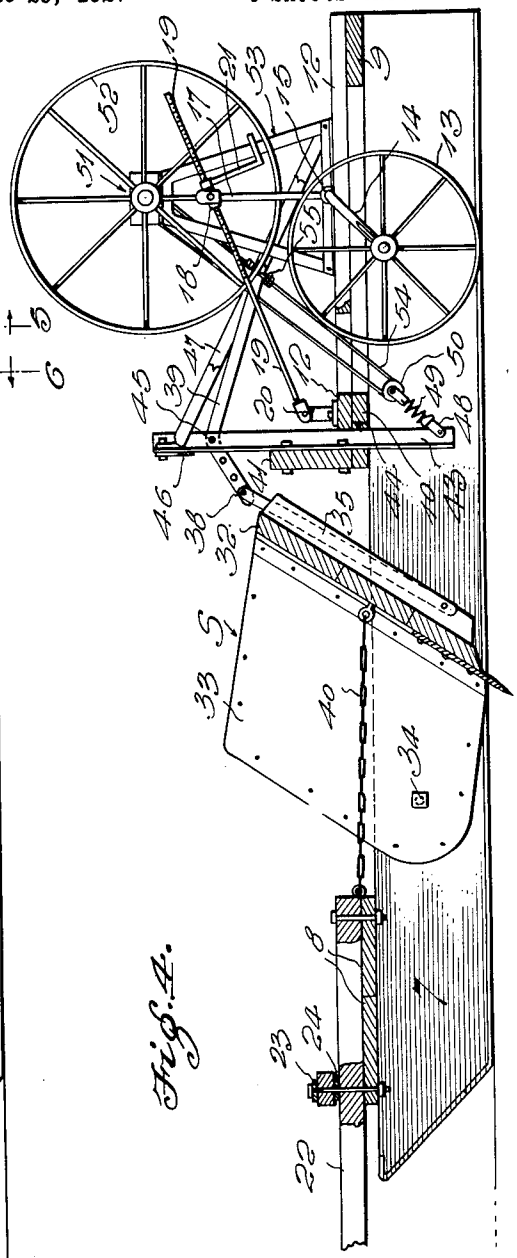


Fig. 4.

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LAND LEVELER

Filed June 23, 1927 4 Sheets-Sheet 4

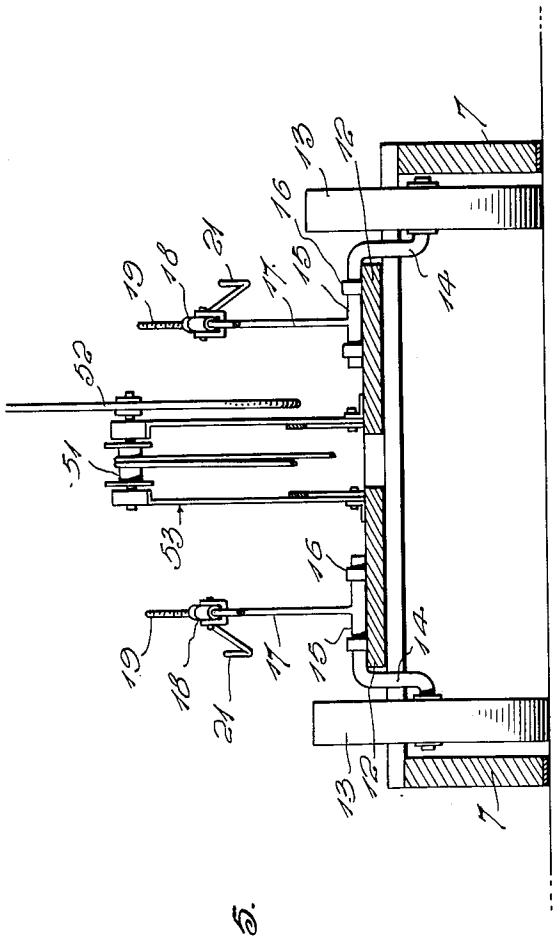


Fig. 5.

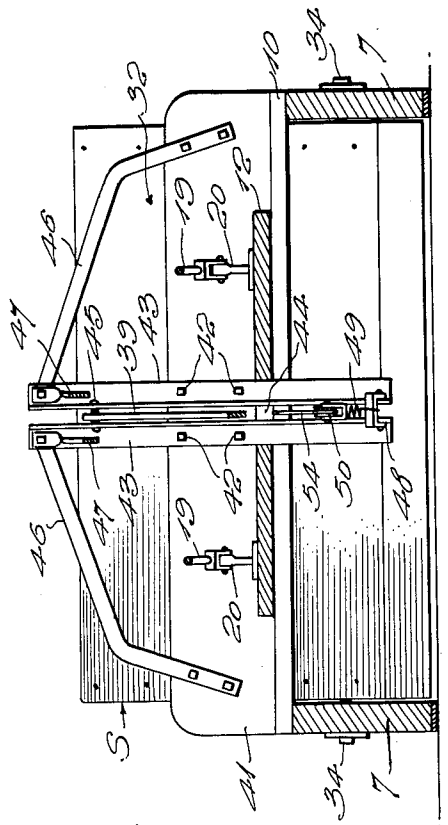


Fig. 6.

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Patented June 5, 1928. 1,672,140

UNITED STATES PATENT OFFICE.

CHARLES W. THARP, OF WATSONVILLE, CALIFORNIA.

LAND LEVELER.

Application filed June 23, 1927. Serial No. 200,949.

The invention aims to provide a new and generally improved machine which may be advantageously used for leveling land, novel provision being made whereby the leveling scoop may be raised or lowered as occasion may demand, and whereby the runners of the machine may be raised clear of the ground, enabling the machine to be moved from place to place totally upon wheels, when desired.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawing.

Fig. 1 is a perspective view.

Fig. 2 is a bottom plan view partly broken away.

Figs. 3 and 4 are substantially central longitudinal sectional views showing different positions of parts.

Figs. 5 and 6 are vertical transverse sections on the correspondingly numbered lines of Fig. 3.

In the drawing above briefly described, the preferred form of construction has been illustrated, and while this construction will be herein specifically set forth, it is to be understood that within the scope of the invention as claimed, variations may be made.

The numerals 7 denote a pair of parallel runners which are rigidly connected by front, rear, and intermediate beams 8, 9 and 10 respectively, these beams being secured by lag screws, bolts or the like 11, to said runners. Resting on and suitably secured to the beams 9—10, is a longitudinal platform 12 upon which the operator stands, the longitudinal edges of said platform being spaced inwardly from the runners 7. Interposed between these platform edges and runners, are two rear ground wheels 13, said wheels being rotatably mounted on the cranks 14 of a pair of cranked axles 15. These axles are turnably received in bearings 16 suitably secured to the platform 12 and they are provided with upstanding arms 17 carrying pivoted guides 18 at their upper ends, through which a pair of forwardly declined rods 19 pass slidably. The front ends of these rods are pivotally connected at 20 with the front end of the platform 12 in any desired manner. Hand cranks 21 are threaded upon the rods 19 and contact with the rear ends of the guides 18 and it will be observed that while the operator is standing on the platform 12, he may rotate the cranks 21 in either direction, thus turning the cranked axles 15 with respect to the remainder of the machine, and hence causing raising or lowering of the rear end of such machine, as occasion may demand.

A longitudinal beam 22 is rigidly secured at its rear end upon the transverse beam or beams 8, and to assist in rigidly securing said end of said beam, appropriate metal braces 23—24, may be provided. The front end of this beam 22 receives a king-pin 25 which projects upwardly from an arched yoke 26, the latter being connected with a front axle 27 by a bolt 28 passing through appropriate openings. If desired, the arms of the yoke 26 may have vertically spaced openings permitting vertical adjustment of the beam with respect to the axle 27. The ends of this axle are provided with suitable ground wheels 29 and appropriate draft means 30 may be connected with said axle to permit pulling of the machine either by draft animals or by a tractor. A brace chain 31 preferably connects the front beam 8 with the yoke 26 to hold it against forward springing.

A scoop S is disposed between the beams 8—10, said scoop comprising a back wall 32 and a pair of side wings 33, the latter being pivoted at 34 to the runners 7 so that said back wall may raise or lower as required. This back wall is reinforced between its ends by two parallel vertical angle metal bars 35 suitably secured thereto, and other reinforcements may be employed where necessary. A substantially vertical link 36 has its lower end pivoted at 37 between the lower ends of the bars 35 and the upper end of said link is pivoted at 38 to the front end of a longitudinally disposed lever 39 which may be operated to effect raising or lowering of the scoop as occasion may require. When said scoop is in the lowered operative position shown in Fig. 4, strain is taken from the pivots 34 and rearward bowing of the wall 32, is prevented by a pair of draft chains 40 which connect said wall with the front beam or beams 8.

A transverse plank 41 stands on edge up-

on the front portion of the beam 10 and is secured to it to hold this beam against downward springing. Secured by bolts or the like 42 to this plank 41, are two parallel vertical angle metal bars 43 which project both upwardly and downwardly from the beam 10, the latter being formed with an opening 44 through which these bars pass. The lever 39 passes between the upper ends of the bars 43 and said lever is fulcrumed between its ends to said bars as shown at 45. These upper bar ends are connected with the plank 41 by appropriate braces 46 and said ends are connected also with braces 47 whose rear ends are anchored either directly or indirectly to the platform 12. Between the lower ends of the bars 43, a connection 48 is located, connecting one end of a coiled tension spring 49 with said bars, the other end of this spring being connected with an appropriate sheave 50. Above and behind this sheave, is a transverse drum 51 having a hand-wheel 52 disposed to be readily rotated by the operator standing upon the platform 12, said drum being mounted on an appropriate frame structure 53 which is secured to and rises from said platform. An endless cable 54 is trained around the drum 51 and the sheave 50 and is wrapped a number of times about said drum, one reach of this cable being connected at 55 with the rear end of the lever 39. Thus, by rotating the hand-wheel 52, movement of the cable 54 is effected to cause upward or downward swinging of the lever 39 to raise or lower the scoop 33 as may be required. During upward swinging of the lever from the position of Fig. 3 to effect lowering of the scoop, the rear end of said lever must move rearwardly to quite an extent and the cable reach connected to said lever end must similarly move. Similar movements must take place to a more or less degree when the lever 39 is swung to any but an infinitesimal extent. During such movements of the cable, the spring 49 yields, permitting such movements without placing undue strain upon the cable or other parts of the machine.

It will be seen from the foregoing that while a rather simple and inexpensive construction has been provided, such construction is efficient and very desirable. As the machine is drawn over the ground, high portions of the latter are scraped off by the scoop 33 and the soil thus removed is forwardly conveyed by said scoop to be deposited in low places. Whenever necessary or advisable, the scoop may be either raised or lowered by operation of the hand-wheel 52. Also, the entire weight of the machine may be permitted to rest upon the runners 7 or upon the wheels 13—29, or may be jointly borne by said runners and wheels, as desired.

Excellent results have been obtained from the general construction herein disclosed, and it is therefore preferably followed. However, within the scope of the invention as claimed, variations may be made.

I claim:

1. In a land leveler, a pair of runners, front, rear and intermediate beams extending transversely between and rigidly secured to said runners, a scoop mounted for vertical movement between said front and intermediate beams, a longitudinally disposed operator's platform secured to said intermediate and rear beams and spaced inwardly from both of said runners, rear ground wheels mounted between said platform and runners, means for raising and lowering the rear ends of the runners with respect to said ground wheels, said means having operating members near said platform, raising and lowering means for the aforesaid scoop having an operating member mounted on said platform, a longitudinal beam rigidly secured at its rear end to the aforesaid front transverse beam, and a wheeled front axle upon which the front end of said longitudinal beam is supported.

2. In a land leveler, a pair of runners, a scoop mounted for vertical movement between said runners, a transverse beam rigidly secured to said runners behind said scoop, a vertical bar rigidly mounted at the center of said beam and projecting both upwardly and downwardly therefrom, a longitudinal lever fulcrumed between its ends to the upper end of said bar, a link connecting the front end of said lever with said scoop, a sheave connecting to the lower end of said bar, a drum mounted above and behind the aforesaid beam, an endless cable trained around said drum and sheave and having one of its reaches connected to the rear end of said lever, and means for rotating said drum.

3. In a land leveler, a pair of runners, a scoop mounted for vertical movement between said runners, a transverse beam rigidly secured to said runners behind said scoop, a vertical bar rigidly mounted at the center of said beam and projecting both upwardly and downwardly therefrom, a longitudinal lever fulcrumed between its ends to the upper end of said bar, a link connecting the front end of said lever with said scoop, a coiled tension spring connected to the lower end of said bar, a sheave connected to said spring, a drum mounted behind and above the aforesaid beam, an endless cable trained around said drum and sheave and having one of its reaches connected to the rear end of said lever, and means for rotating said drum, the aforesaid spring permitting lateral pulling of said cable reach from a straight line as said lever is swung about its fulcrum.

4. In a land leveler, a pair of runners, a scoop mounted for vertical movement between

said runners, a transverse beam behind said scoop and secured to said runners, two vertical bars rigidly mounted in parallel relation at the center of said beam and projecting both upwardly and downwardly therefrom, a longitudinally disposed lever fulcrumed between its ends between the upper ends of said bars, a sheave connected with the lower ends of said bars, a link connecting the front end of said lever with said scoop, a transverse drum mounted above and behind the aforesaid beam, an endless cable trained around said sheave and drum, said cable having one of its reaches connected to the rear end of the aforesaid lever, and means for rotating said drum.

In testimony whereof I have hereunto affixed my signature.

CHARLES W. THARP.