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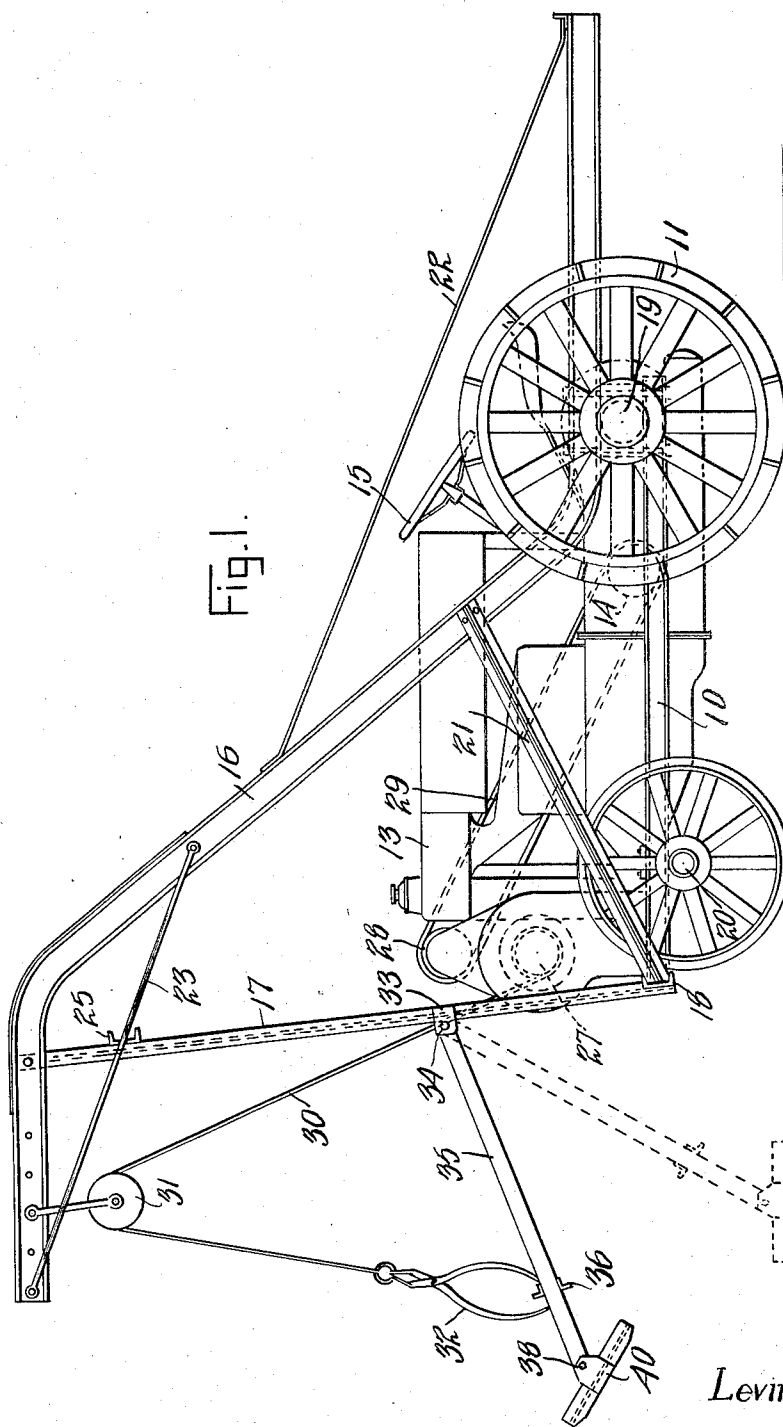
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L. FRASER

HOISTING MACHINE

Filed June 20, 1925

3 Sheets-Sheet 1



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Dec. 1, 1925.

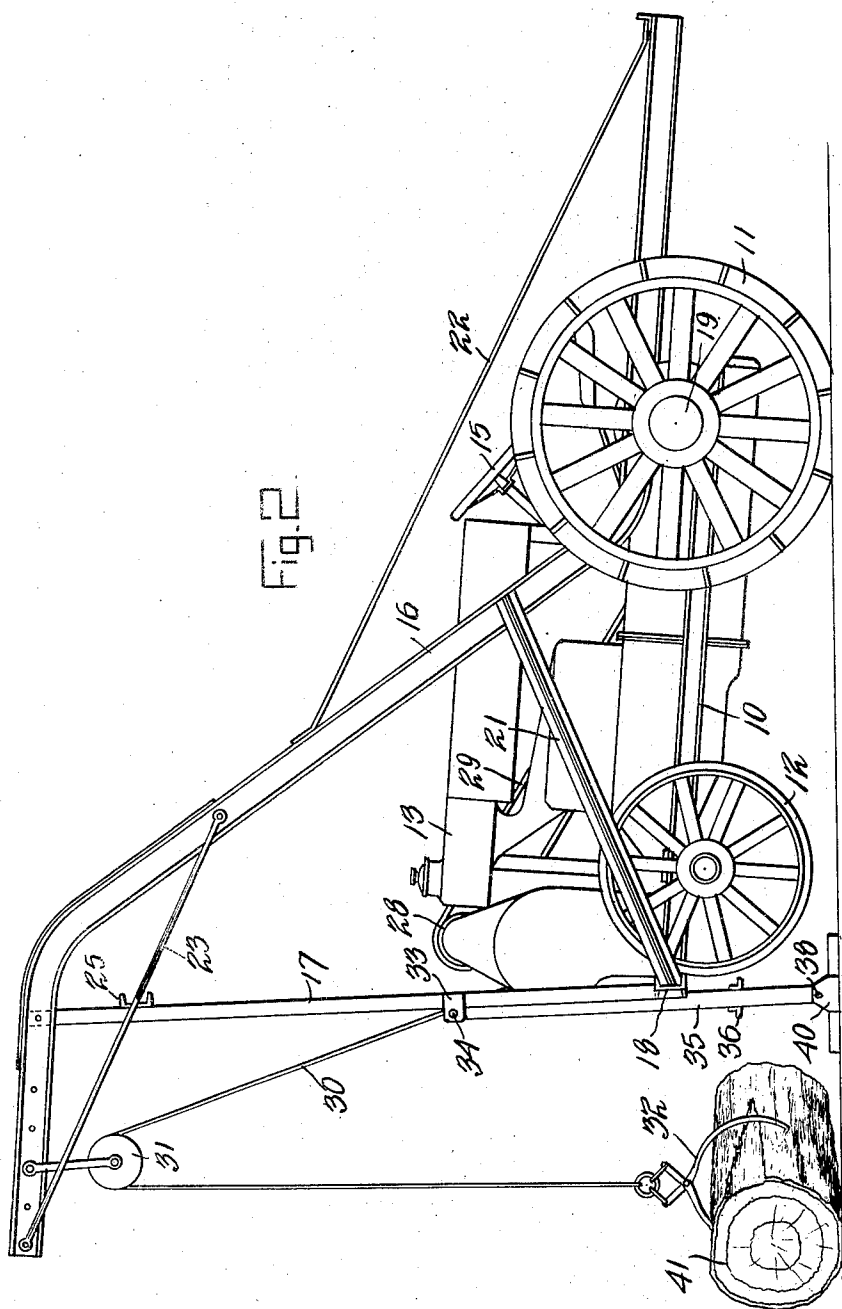
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3 Sheets-Sheet 2



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Dec. 1, 1925.

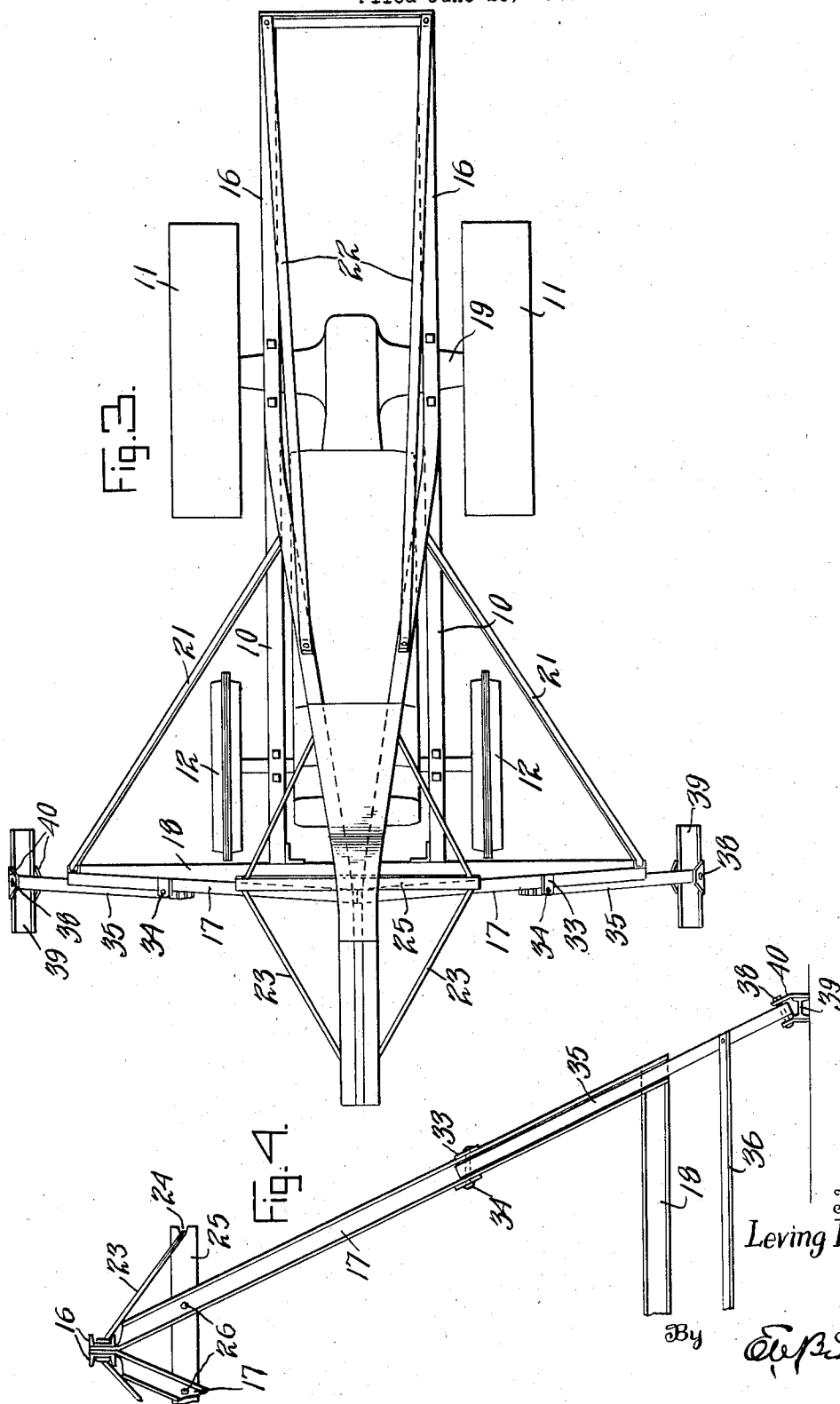
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UNITED STATES PATENT OFFICE.

LEVING FRASER, OF OSCEOLA, ARKANSAS.

HOISTING MACHINE.

Application filed June 20, 1925. Serial No. 38,552.

To all whom it may concern:

Be it known that I, LEVING FRASER, a citizen of the United States, residing at Osceola, in the county of Mississippi and State of Arkansas, have invented certain new and useful Improvements in Hoisting Machines, of which the following is a specification.

My said invention relates to a hoisting machine embodying a system of spuds and it is an object of the same to provide means in connection with a movable power plant, such as a tractor, whereby the power plant itself may be made much lighter in weight than in the ordinary practice without loss of efficiency in the operation of the device for purposes involving handling of material by lifting or hoisting operations.

The question of moving large quantities of material from one location to another in the shortest possible time and with minimum expense has assumed constantly increasing importance within recent times and attempts have been made along various lines looking toward the solution of the problem. The most satisfactory proposition of this character has involved the use of hoisting or excavating machines operated by power in various ways. Such machines when stationary had, of course, a limited range of operation and materials have therefore necessarily been stored or concentrated in large and inconvenient stock piles so as to be within working reach of the hoisting machine.

Another proposed solution has been to utilize portable hoisting or excavating machines. For various reasons it has seemed necessary to make such portable machines of such enormous weight that the cost of their use on any but the largest jobs was prohibitive. Where the machines were made smaller and lighter, it was necessary to anchor or guy them so that they would hold their position while under the stress of operation. In this connection, it has been proposed to utilize small tractors for transporting material over a short distance and various efforts have been made to provide such tractors with hoisting devices, but these have not been completely satisfactory.

The machine of my invention overcomes the various difficulties found in connection with the mechanisms above discussed in that it can be light and easily moved, is self-contained, self-supporting, and will do

its work without danger of getting out of operative position under any ordinary working conditions.

Referring to the accompanying drawings which are made a part hereof and on which similar reference characters indicate similar parts,

Figure 1 is a side elevation of my device arranged for traveling under its own power,

Figure 2, a similar elevation with parts in position for lifting operations, such as hoisting or excavating,

Figure 3, a plan, and

Figure 4, a fragmentary rear elevation.

In the drawings reference character 10 indicates the side members of the main frame or body of the machine (which may be a tractor of any approved type) supported by rear traction wheels 11 and front wheels 12 which may or may not be arranged as traction wheels in any of the various ways known to those skilled in the art of manufacturing tractors and like machinery. The traction wheels are driven by an engine 13 in any convenient or desirable manner and this engine also drives a pulley 14 by any suitable power connections. A steering apparatus is indicated at 15.

A pair of beams 16 are supported on the rear axle and project rearwardly therefrom some distance, the purpose being to provide adequate means for supporting additional counterweights if the work being done requires such. These beams are united at their forward end and are supported at this point by a pair of diagonal beams 17 united at their upper ends to the combined beams 16 and at their lower ends to a frame member 18 secured to the respective side members 10. It may be noted at this point that the said members 10 project underneath the rear axle 19, whereas the front axle 20 is beneath said side members. Braces 21 extend diagonally from the frame member 18 to the beams 16. Braces 22 are positioned above the respective beams 16 to re-enforce the same at their rearmost bend adjacent the axle 19. Shorter braces 23 perform a similar function for the bend in the forward parts of said beams 16. The braces 23 are in the form of cables or bent rods engaging at their intermediate parts in notches 24 at the ends of a cross-bar 25 secured at 26 to the respective diagonal beams 17.

A drum 27 is supported in any convenient

manner on the forward end of the machine frame, or any convenient location on the machine frame, said drum being driven by any convenient gearing, such as a pulley at 28 driving a belt 29 passing at the other end over the pulley 14. A cable 30 is wound on the drum and said cable passes from the drum over an idle pulley 31 suspended from the forward end of the beams 16. At its free end the cable 30 has secured thereto any convenient gripping or grappling device, such as a pair of skidding tongs 32. It will be understood, however, that many other devices may be substituted for the skidding tongs such, for example, as hay forks, clam shell dredges, a weight for driving piles, a magnet for lifting iron and steel, a well bailer, wire stretching devices, and other devices too numerous to mention.

The oblique beams 17 are provided with abutments 33 in the form of a strip of flat metal bent so as to project forward at each side of each beam, the forwardly projecting parts being connected by hinge pins or rivets 34 providing pivots for bars or rods 35 which are the legs of the spuds of my system. The legs 35 are connected by channel irons 36 which cause them to move in unison and brace them against lateral strains. At their free ends the legs are provided with feet pivoted to the legs at 38. These feet are conveniently formed by an I beam, as indicated at 39 in Fig. 4 and have side strips 40 by which the I beams are fastened to the legs.

The operation of the device will apparently be clear from the above description in connection with the drawings. The device will be arranged as in Fig. 1 for transportation from place to place, the spuds comprising the legs and feet being held in the position indicated in solid lines, by any convenient means, such as, in the present embodiment of the invention, by engagement of the tongs 32 with one of the angle irons 36. When the machine, which may be power operated or drawn by horses, or otherwise, has reached the point of operations the spuds are lowered to the dotted line position in Fig. 1 and the machine is then moved further forward, whereby the spuds are caused to assume the position illustrated in Fig. 2, straightening the toggle comprising the spuds and the beams 17 lifting the front end of the tractor bodily from the ground swinging the entire device about the rear axle 19. In this position practically the entire weight of the device acts as a counter-balance to the weight of the load, here indicated as consisting of a log 41, which may be quickly grappled by the skidding tongs and moved up to the machine or to any desired intermediate position. With my machine it is possible to use a light weight high powered tractor as the source of power

and the system of spuds for suitable anchorage, this system also affording the correct center of balance. All the materials used in the construction of the tractor and attachments may be of the toughest strain-resistant material and of the lightest weight consistent with the actual work required of the finished machine, instead of making the parts of adequate weight for balance or ballast as has heretofore been the case. By reason of its light weight and small size such a machine can easily be maneuvered over the roughest roads and into places inaccessible to machines of the older and cumbrous designs.

It will be obvious to those skilled in the art that numerous changes may be made in my device without departing from the spirit of the invention, and that attachments of various sorts may be made according to the need of the work desired to be done. It will also be obvious that the machine with suitable attachments may be utilized for a great diversity of operations, and therefore I do not limit myself to the specific embodiment as shown in the drawings and described in the specification but only as indicated in the appended claims.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent is:

1. The combination of a tractor having a front axle, a rear axle, and means for driving the same, of a drum carried by the tractor, means for driving the drum, a pair of beams secured to the rear axle and extending upward and forward therefrom beyond the front axle, a pulley at the forward ends of said beams, a cable passing from the drum over said pulley, and spuds attached to the forward end of the frame in position to supplant the front wheels for supporting a greater or less portion of the weight of the machine and adapted to contact with parts of the frame for preventing additional forward movement of the tractor, substantially as set forth.

2. The combination of a tractor or the like having a frame, means on the frame for performing hoisting or analogous operations, driving means therefor, a pair of spuds pivoted at the front of the machine in spaced relation to each other, each spud comprising a leg of greater length than the normal distance from its pivot to the ground and adapted to contact with parts of the frame for preventing additional forward movement of the tractor, a foot pivotally connected to the lower end of the leg and bracing means connecting said legs adjacent the lower end thereof, substantially as set forth.

3. The combination of a tractor, a frame, a pair of beams projecting beyond the rear end of the tractor for supporting counter-

weights said beams extending upwardly and forward and supporting a pulley adjacent their forward ends, a brace for each of said beams adjacent the forward end of the tractor, a spud pivotally connected to each of said braces intermediate its ends whereby when said spuds are in engagement with the ground they will contact the braces adjacent their lower ends, substantially as set forth.

4. The combination of a tractor, a frame, a pair of beams having horizontally disposed rear portions projecting beyond the end of the tractor for supporting counterweights said beams being inclined forwardly and upwardly from said rear portions and terminating in horizontally disposed forward portions, uprights having their lower ends fastened to said frame in spaced relation and having their upper ends attached to said beams for supporting and bracing the same, spuds pivotally connected with said uprights intermediate their ends whereby when said spuds are in engagement with the ground they will contact the lower portion of the uprights and prevent forward movement of the tractor, substantially as set forth.

5. The combination of a tractor, a frame, a pair of beams having horizontally disposed rear portions projecting beyond the end of the tractor for supporting counterweights said beams being inclined forwardly and upwardly from said rear portions and terminating in horizontally disposed forward portions, uprights having their lower ends fastened to said frame in spaced relation and having their upper ends attached to said beams for supporting and bracing the same, spuds pivotally connected with said uprights intermediate their ends whereby when said spuds are in engagement with the ground they will contact the lower portion of the uprights and prevent forward movement of the tractor, and a bar connect-

ing said spuds adjacent their free ends for causing them to move simultaneously and to brace them against lateral movement, substantially as set forth.

6. The combination of a tractor, a frame, a pair of beams having horizontally disposed rear portions projecting beyond the end of the tractor for supporting counterweights said beams being inclined forwardly and upwardly from said rear portions and terminating in horizontally disposed forward portions, uprights having their lower ends fastened to said frame in spaced relation and having their upper ends attached to said beams for supporting and bracing the same, spuds pivotally connected with said uprights intermediate their ends whereby when said spuds are in engagement with the ground they will contact the lower portion of the uprights and prevent forward movement of the tractor, a bar connecting said spuds adjacent their free ends for causing them to move simultaneously and to brace them against lateral movement, and braces for said beams forming connection between said horizontal portions and said inclined portions, substantially as set forth.

7. A vehicle having a frame, means on the frame for performing hoisting or analogous operations, driving means therefor, a pair of spuds pivoted on the machine in spaced relation to each other, each spud comprising a leg of greater length than the normal distance from its pivot to the ground and adapted to contact with parts of the frame for preventing additional forward movement of the tractor, and bracing means connecting said legs adjacent the lower end thereof, substantially as set forth.

In witness whereof, I have hereunto set my hand and seal at Memphis, Tennessee, this 18th day of June, A. D. nineteen hundred and twenty-five.

LEVING FRASER. [L. s.]