G. HIBACSKO.

TRACTOR.

APPLICATION FILED APR. 17, 1915.

1,169,153.

Patented Jan. 25, 1916.

3 SHEETS—SHEET 1.

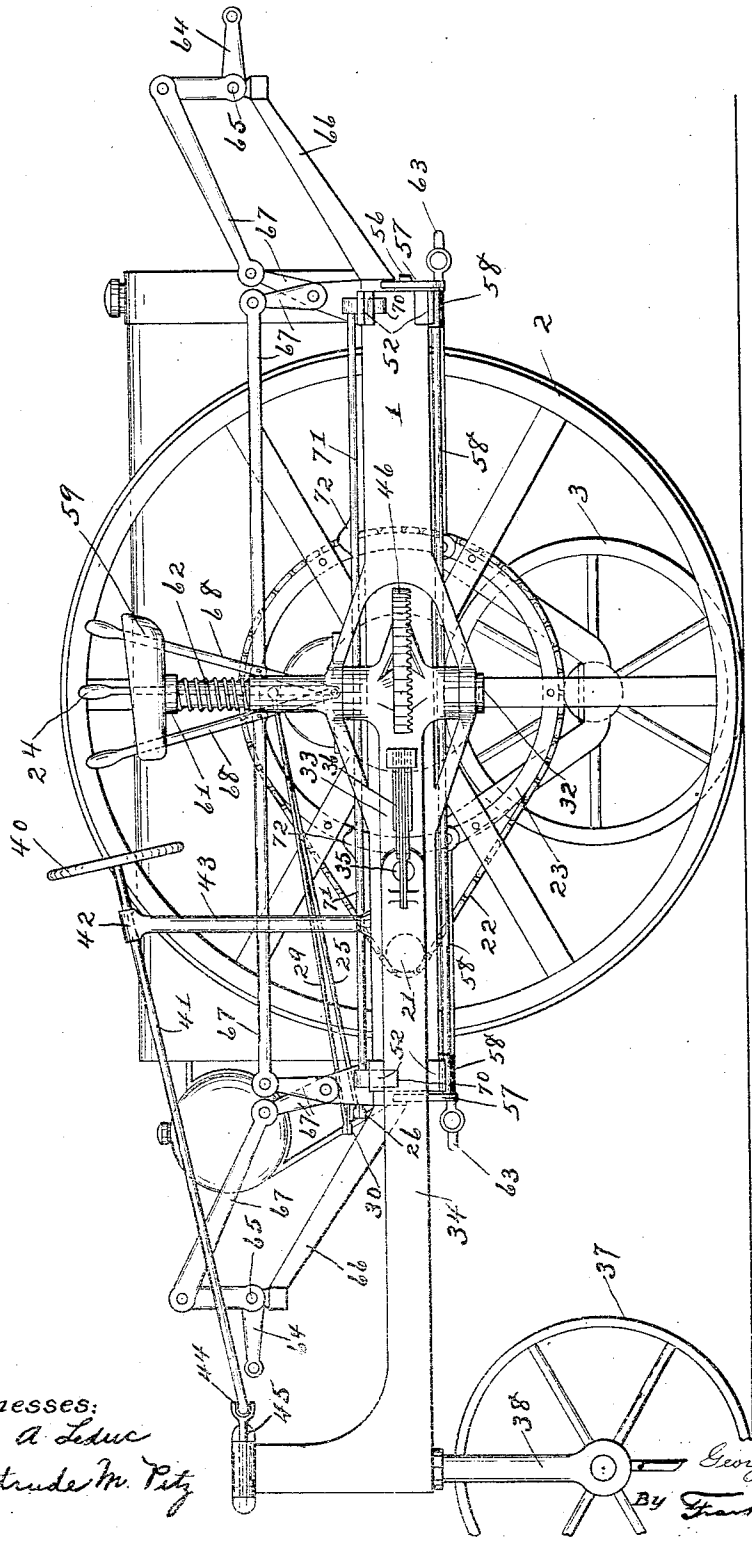


Fig. 1.

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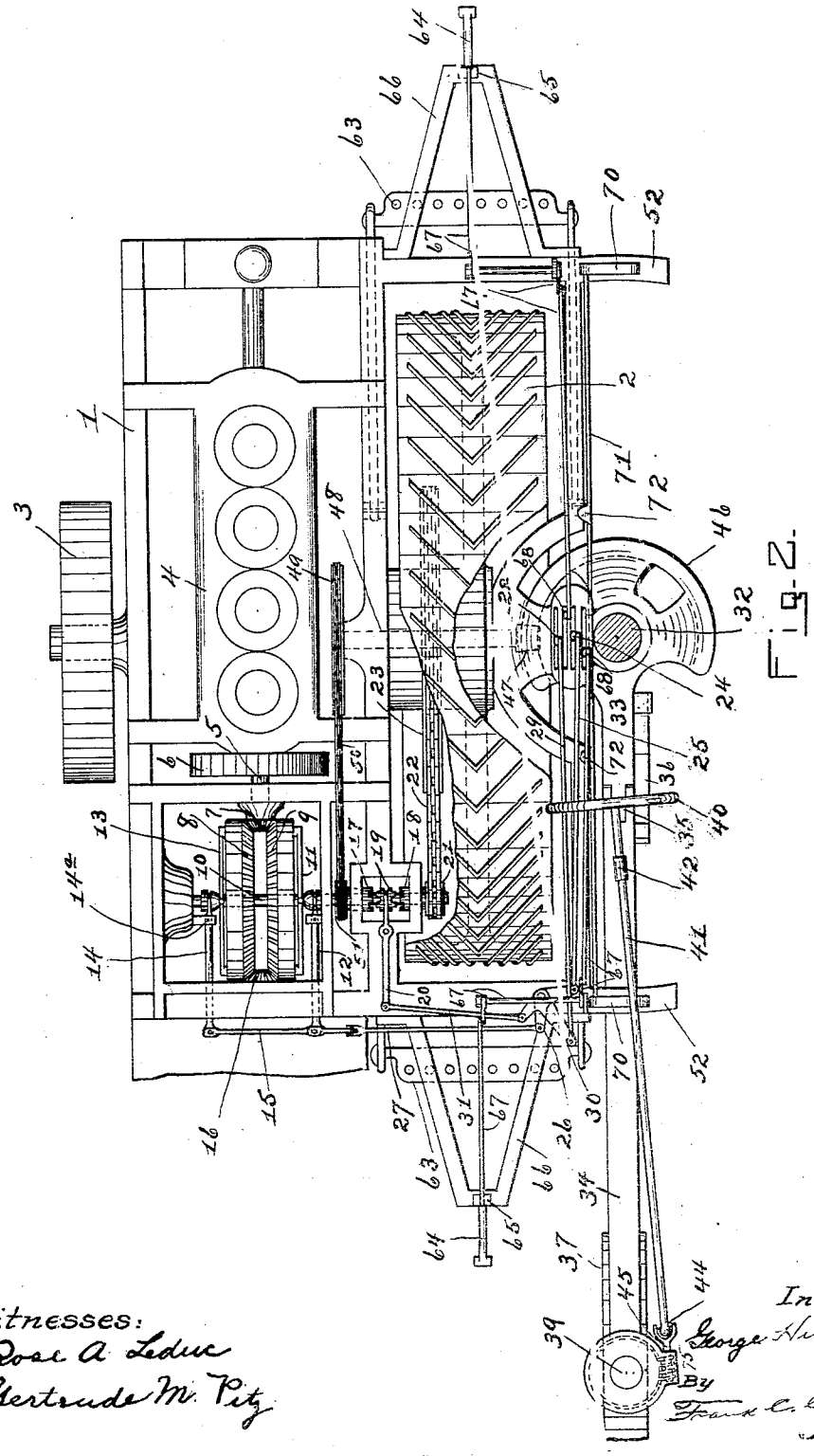


Fig. 2.

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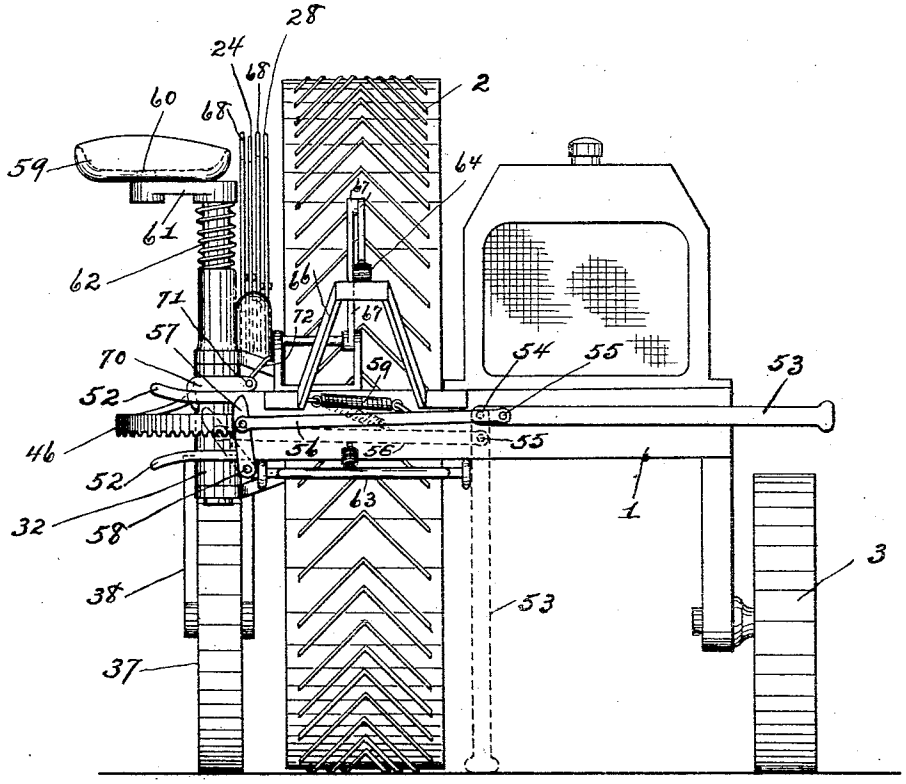
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3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE HIBACSKO, OF SCHENECTADY, NEW YORK.

TRACTOR.

1,169,153. Specification of Letters Patent. Patented Jan. 25, 1916.

Application filed April 17, 1915. Serial No. 22,096.

To all whom it may concern:

Be it known that I, GEORGE HIBACSKO, a citizen of the United States, residing at Schenectady, county of Schenectady, and State of New York, have invented certain new and useful Improvements in Tractors, of which the following is a specification.

The invention relates to such improvements and consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings, and the reference characters marked thereon, which form a part of this specification. Similar characters refer to similar parts in the several figures therein.

Figure 1 of the drawings is a view in side elevation of my improved tractor with the steering-truck-wheel partly broken away. Fig. 2 is a top plan view of the same with the seat removed, a portion of the traction-wheel broken away, and the seat-post shown in horizontal section. Fig. 3 is a view in elevation of the right-hand end of the machine, as shown in Fig. 1.

The principal object of the invention is to provide a tractor adapted for various uses, which can be self-propelled and guided back and forth over the ground without reversing the position of the body of the machine.

Other objects will appear in connection with the following description.

Referring to the drawings wherein the invention is shown in preferred form, 1 is the main-truck-frame supported upon a pair of wheels, 2 and 3, of which 2 is a relatively large traction-wheel. Mounted upon the main-truck-frame, 1, between the wheels, 2 and 3, is a motor, 4, which may be of any known type.

I have shown the motor in the conventional form of a four-cylinder gas-engine, of which 5 is the main-shaft, and 6 is the balance-wheel. On one end of the shaft, 5, is a beveled pinion, 7, which engages two beveled gears, 8 and 9, which are mounted to run idly upon the cross-shaft, 10. The beveled gear, 9, is adapted to be operatively connected in fixed relation with the shaft, 10, by means of a clutch, 11, operated by means of a lever, 12, and the beveled gear, 8, is, in like manner, adapted to be operatively connected in fixed relation with said shaft, 10, by means of a clutch, 13, operated by means of a lever, 14, fulcrumed at 14^a. The levers, 12 and 14, are operatively connected together by means of a link, 15, so that they operate simultaneously, one to engage and the other to disengage its respective clutch with relation to the respective beveled gear. The shaft, 10, can thus be alternately driven in opposite directions from the engine-shaft through the respective beveled gears, 8 and 9, one of said gears being held by its clutch in fixed relation to said shaft, 10, while the other of said gears runs idly upon said shaft, said arrangement of gears and clutches providing reversible mechanism whereby the shaft, 10, can, at will, be driven in opposite directions or reversed. An idle beveled pinion, 16, is interposed between the beveled gears, 8 and 9, diametrically opposite the beveled pinion, 7, to serve as a balance-wheel.

Any known form of reversible gear-mechanism may be interposed between the shafts, 5 and 10, in place of that shown.

Loosely mounted upon the shaft, 10, are a pair of sleeves, 17 and 18, adapted to be operatively connected alternately in fixed relation to the shaft, 10, by means of a clutch, 19, operated by a lever, 20. A sprocket-wheel, 21, on the sleeve, 18, is connected by a sprocket-chain, 22, with a sprocket-wheel, 23, fixed upon the traction-wheel, 2, whereby said traction-wheel is rotated to propel the machine when the clutch, 19, is in engagement with the sleeve, 18; and by means of the reversible gear-mechanism, above described, the traction-wheel can thus be rotated in either direction at will. The clutch-operating levers, 12 and 14, are adapted to be operated by a hand-lever, 24, through the medium of a link, 25, bell-crank-lever, 26, and link, 27. The clutch, 19, is adapted to be operated by means of a hand-lever, 28, through the medium of a link, 29, bell-crank-lever, 30, and link, 31.

Pivotally mounted upon a vertical axis upon the main-truck-frame, above described, at about the middle thereof, at 32, is a steering-truck-frame comprising an inner member, 33, and an outer member, 34, said two

members being pivotally connected at 35 upon a horizontal axis. A leaf-spring, 36, tends to hold the two members, 33 and 34, of the steering-truck-frame in alinement with each other. A steering-wheel, 37, is swiveled upon the outer end of the outer member, 34, of the steering-truck-frame, being mounted in a yoke, 38, having a vertical shaft, 39, rotatively mounted in a bearing in the outer end of the outer member, 34. A steering-hand-wheel, 40, is fixed upon a steering-shaft or rod, 41, which is rotatively mounted in a bearing, 42, in the upper end of a post, 43, erected from the frame-member, 34. The outer end of the steering-rod, 41, has a universal-joint-connection at 44 with a shaft, 45, which shaft is operatively connected by suitable mechanism, such as worm-gear-mechanism, 75, (Fig. 2), with the vertical shaft, 39, whereby the steering-wheel, 37, can be operated by means of the hand-wheel, 40.

The steering-truck-frame is reversible due to its pivotal mounting at 32, and is adapted to be moved through a semi-circular path to locate the steering-wheel, 37, at certain times at one end of the machine and at certain times at the other end of the machine, as desired, and by thus reversing the position of the steering-truck-frame from time to time and reversing the direction of rotation of the traction-wheel, the machine can be moved back and forth over the ground and properly steered in either direction without necessity for reversing the position of the main-truck or body of the machine.

As a means for reversing the position of the steering-truck-frame, I have shown a semi-circular gear-segment, 46, fixed upon the steering-truck-frame-member, 33, concentric with the axis of its pivotal connection, 32, which gear-segment is in engagement with a pinion shown by dotted lines 47, in Fig. 2, which pinion is fixed upon a pinion-shaft, 48, rotatively mounted in bearings upon the main-truck-frame and having fixed upon its inner end a sprocket-wheel, 49, connected by a sprocket-chain, 50, with a sprocket-wheel, 51, fixed upon the sleeve, 17, heretofore referred to.

When the clutch, 19, is in engagement with the sleeve, 17, the engine, 4, can thus be used to drive the pinion, 47, and thereby to rotate the gear-segment, 46, and the steering-truck-frame about the axis, 32; and the reversible gear-mechanism, including the bevel gears, 8 and 9, permits the steering-truck-frame to be thus rotatively moved about its axis, 32, in opposite directions, as desired.

At one side, the main-truck-frame is provided at its opposite ends with flaring seats, 52, adapted to receive the outer member, 34, of the steering-truck-frame and support the same in proper relationship to the main-truck-frame. The seats, 52, are flaring so as to gradually guide the steering-truck-frame into proper relationship to the main-truck-frame where inequalities in the ground might tend to prevent such proper relationship. Thus when the machine is used on rough ground, the outer steering-truck-frame-member, 34, can turn more or less upon its pivot, 35, as the steering-wheel, 37, traverses the irregular ground in its circular path, yet at the end of the reversing movement of the steering-truck-frame, said member, 34, will be guided by the flaring seats back into proper relationship to the main-frame.

To maintain the equilibrium of the main-truck-frame during the operation of reversing the steering-truck-frame, I mount at the heavier end of the main-truck-frame, or at each end if desired, a foldable leg adapted to uphold the end of the main-truck-frame. I have shown in Fig. 3 such a leg, 53, pivotally mounted at 54, upon the main-truck-frame and pivotally connected at 55 with one end of a link, 56, the opposite end of which link, 56, is pivotally connected with a trip, 57, fixed upon one end of a shaft, 58, upon the main-truck-frame adjacent to the neighboring flaring seat, 52, and in the path of the steering-truck-frame-member, 34. A similar trip is fixed upon the opposite end of the shaft, 58, adjacent to the other seat, 52. A coil-spring, 59, connected with the link, 56, tends to unfold the leg, 53, to vertical position indicated by dotted lines in Fig. 3, and to force the trips, 57, into the path of the steering-truck-frame-member, 34. Said truck-frame-member, 34, however, in entering either of its flaring seats, 52, forces back the neighboring trip, 57, to operate the shaft, 58, and fold the leg, 53, to horizontal position as shown by solid lines in Fig. 3. If such a folding leg is employed at each end of the machine, each can be operated in the manner above described by the same two trips, 57.

The operation of the machine is as follows: The steering-wheel-frame being located in one of its flaring seats, 52, the machine is propelled by means of the traction-wheel, 2, as far as desired in the direction in which the steering-truck-frame points. The clutch, 19, is then disengaged from the sleeve, 18, by means of the hand-lever, 28, and the hand-wheel, 40, is operated to turn the steering-wheel, 37, substantially at right angles to the steering-truck-frame. The clutch, 19, is then by means of the hand-lever, 28, thrown into engagement with the sleeve, 17, causing the pinion, 47, to operate the gear-segment, 46. The initial movement of the steering-truck-frame-member, 34, induced by the pinion, 47, immediately releases the trip, 57, permitting the leg, 53, to be unfolded through the influence of the

spring, 59, at the heavy end, or at each end, of the main-truck to support the same. The steering-truck-frame continues to move through a semi-circular path until it enters the seat, 52, at the opposite end of the machine, in entering which seat it automatically forced back the trip, 57, to again fold the leg, 53. As soon as the steering-truck-frame is fully seated in its seat, 52, the clutch, 19, is disengaged from the sleeve, 17, and then the direction of rotation of the shaft, 10, is reversed by means of the hand-lever, 24, and the clutch, 19, is thrown into engagement with the sleeve, 18, causing the traction-wheel to propel the machine in the opposite direction under the guidance of the steering-wheel, 37.

A seat, 59, for the driver or operator of the machine may be pivotally mounted at 60, upon an arm, 61, offset from a seat-post, 62, spring-supported on the main-truck-frame, which seat can be rotatively moved by the occupant as the steering-truck-frame, 34, is reversed. The hand-wheel, 40, will thus be always in front of the occupant of the seat; and the levers, 24 and 28, will, when the machine is moving in one direction, be at the right-hand of the occupant of the seat, and when the machine is moving in the opposite direction, will be at the left-hand of the occupant of the seat.

The machine above described is adapted for use as a traction-engine or tractor, and may be so used for many purposes. It may be so used in connection with various farm implements, such as plows, cultivators, harrows, etc., and I have shown the main-truck-frame provided at opposite ends with means for supporting and drawing along the ground such implements. The means shown comprise a draft-bar, 63, with which the implements can be connected by bolts, chains, or the like, and an angle-lever, 64, pivotally mounted at 65 upon a bracket, 66, extending from the end of the main-truck, one arm of which angle-lever is adapted to be connected by chain, link, or cable with the implement attached to the draft-bar, 63, to raise and lower said implement. Each angle-lever, 64, is connected by suitable link-and-lever mechanism, 67, with a hand-lever, 68, adjacent to the seat, 59, whereby the occupant of the seat can raise the implement at the front end of the machine and lower the implement at the rear end of the machine, with reference to the direction in which the machine is moving, or can raise both implements from the ground if desired.

Adjacent to each flaring seat, 52, I have shown a latch 70, fixed upon a shaft, 71, rotatively mounted upon the main-truck, which latch has a beveled end projecting through the upper wall of the flaring seat, 52, into the path of the steering-truck-frame. The latch, 70, is adapted to be automatically raised by engagement of the steering-truck-frame with the beveled end of latch as the frame enters the flaring seat; and when the frame is fully seated in the flaring seat, the latch, 70, automatically drops into position to lock the frame in the seat.

A step, 72, on the shaft, 71, serves as a means whereby the occupant of the seat, 59, can operate the shaft, 71, to raise the latch, 70, out of the path of the steering-truck-frame when it is desired to reverse the position of the steering-truck.

What I claim as new and desire to secure by Letters Patent is—

1. In a tractor, and in combination, a main-truck having a traction-wheel; a reversible steering-truck-frame pivotally mounted upon a vertical axis on the main-truck; an adjustable steering-wheel mounted upon the steering-truck-frame; a motor mounted upon the main-truck; and reversible gear-connections between said motor and said traction-wheel.

2. In a tractor, and in combination, a main-truck having a traction-wheel; a reversible steering-truck-frame pivotally mounted upon a vertical axis on the main-truck on one side of said traction-wheel; a motor mounted upon said main-truck on the opposite side of said traction-wheel; reversible gear-connections between said motor and said traction-wheel; and an adjustable steering-wheel mounted upon said steering-truck-frame.

3. In a tractor, and in combination, a main-truck-frame; a traction-wheel and an auxiliary wheel mounted upon said frame; a motor mounted upon said frame between said wheels; reversible gear-connections between said motor and said traction-wheel; a reversible steering-truck-frame pivotally mounted upon a vertical axis on said main-truck-frame on the opposite side of said traction-wheel from said motor; and an adjustable steering-wheel on the steering-truck-frame.

4. In a tractor, and in combination, a main-truck-frame having at its opposite ends steering-truck-frame-engaging seats; a traction-wheel mounted on said main-truck-frame; a motor mounted on said main-truck-frame; reversible gear-connections between said motor and said traction-wheel; a reversible steering-truck-frame pivotally mounted upon a vertical axis on said main-truck-frame and adapted to engage severally said seats on the main-truck-frame; and an adjustable steering-wheel on said steering-truck-frame.

5. In a tractor, and in combination, a main-truck-frame having on one side at its opposite ends outwardly flaring seats adapted to engage a steering-truck-frame; a traction-wheel mounted upon said main-truck-frame; a motor mounted on said main-

truck-frame; reversible gear-connections between said motor and said traction-wheel; a reversible steering-truck-frame pivotally mounted upon a vertical axis on said main-truck-frame and adapted to engage severally said seats on the main-truck-frame; and an adjustable steering-wheel on said steering-truck-frame.

6. In a tractor, and in combination, a main-truck-frame having on one side at its opposite ends outwardly flaring seats adapted to engage a steering-truck-frame; a traction-wheel mounted upon said main-truck-frame; a motor mounted upon said main-truck-frame; reversible gear-connections between said motor and said traction-wheel; a reversible steering-truck-frame pivotally mounted upon a vertical axis on said main-truck-frame having inner and outer members pivotally connected together upon a horizontal axis, the outer of said members being adapted to engage severally said seats on the main-truck-frame; spring-mechanism tending to hold in alinement said pivotally connected members of the steering-truck-frame; and a steering-wheel mounted on said steering-truck-frame.

7. In a tractor, and in combination, a main-truck-frame; a traction-wheel mounted on said frame; a motor mounted upon said frame; reversible gear-connections between said motor and said traction-wheel; a reversible steering-truck-frame pivotally mounted upon a vertical axis on said main-truck-frame at substantially the middle of the latter; an adjustable steering-wheel on said steering-truck-frame; and foldable legs mounted upon opposite ends of the main-truck-frame.

8. In a tractor, and in combination, a main-truck-frame; a traction-wheel mounted on said frame; a motor mounted upon said frame; reversible gear-connections between said motor and said traction-wheel; a reversible steering-truck-frame pivotally mounted upon a vertical axis on said main-truck-frame at substantially the middle of the latter; an adjustable steering-wheel on said steering-truck-frame; foldable legs mounted upon opposite ends of the main-truck-frame; and means actuated by said steering-truck-frame at the completion of its reversing movement for automatically folding said legs.

9. In a tractor, and in combination, a main-truck-frame; a traction-wheel mounted upon said frame; a motor mounted upon said frame; reversible gear-mechanism driven by said motor; a steering-truck-frame pivotally mounted upon a vertical axis on said main-truck-frame; gear-mechanism whereby said steering-truck-frame can be oscillated upon its pivotal connection with the main-truck-frame; clutch-mechanism for connecting the reversible motor-driven gear-mechanism interchangeably with said traction-wheel and with said gear-mechanism for oscillating the steering-truck-frame; and an adjustable steering-wheel on said steering-truck-frame.

10. In a tractor, and in combination, a main-truck-frame; a traction-wheel mounted upon said frame; a motor mounted upon said frame; reversible gear-mechanism driven by said motor; a steering-truck-frame pivotally mounted upon a vertical axis on said main-truck-frame; a semi-circular gear-segment in fixed relation to said steering-truck-frame; a pinion-shaft rotatively mounted upon the main-truck-frame having a pinion engageable with said gear-segment; clutch-mechanism for connecting the reversible motor-driven gear-mechanism interchangeably with said traction-wheel and with said pinion-shaft; and an adjustable steering-wheel mounted upon said steering-truck-frame.

11. In a tractor, and in combination, a main-truck-frame; a traction-wheel mounted on said frame; a motor mounted on said frame; reversible gear-connections between said motor and said traction-wheel; a reversible steering-truck-frame pivotally mounted on said main-truck-frame; gear-mechanism whereby said steering-truck-frame can be oscillated upon its pivotal connection with the main-truck-frame; clutch-mechanism for connecting the reversible motor-driven gear-mechanism interchangeably with said traction-wheel and with said gear-mechanism for oscillating the steering-truck-frame; an adjustable steering-wheel mounted upon said steering-truck-frame; a seat rotatively mounted upon a vertical axis; a hand-wheel mounted upon said steering-truck-frame in connection with said steering-wheel; and a pair of levers mounted upon said main-truck-frame in connection respectively with said reversible gear-mechanism and with said clutch-mechanism, said lever and said hand-wheel being adjacent to said seat.

12. In a tractor, and in combination, a main-truck-frame; a traction-wheel mounted upon said frame; a motor mounted upon said frame; a reversible steering-truck-frame pivotally mounted upon a vertical axis on said main-truck-frame; a steering-wheel mounted on said steering-truck-frame; reversible gear-connections between said motor and said traction-wheel; vertically adjustable implement-supports mounted upon the opposite ends of the main-truck-frame; and levers for operating the respective implement-supports.

13. In a tractor, and in combination, a main-truck-frame having at its opposite ends steering-frame-engaging seats; a traction-wheel mounted on said main-truck-frame; a motor mounted on said main-truck-

frame; reversible gear-connections between said motor and said traction-wheel; a reversible steering-truck-frame pivotally mounted upon a vertical axis on said main-truck-frame and adapted to engage severally said seats on the main-truck-frame; an adjustable steering-wheel on said steering-truck-frame; and automatic latch-mechanism for holding the steering-truck-frame in the several said seats.

In testimony whereof, I have hereunto set my hand this 9th day of January, 1915.

GEORGE HIBACSKO.

Witnesses:
ROSE A. LEDUC,
GERTRUDE M. PITZ.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."