W. L. POPE.

TWO-WAY TRACTOR.

APPLICATION FILED APR. 30, 1920.

1,409,772.

Patented Mar. 14, 1922.

3 SHEETS—SHEET 1.

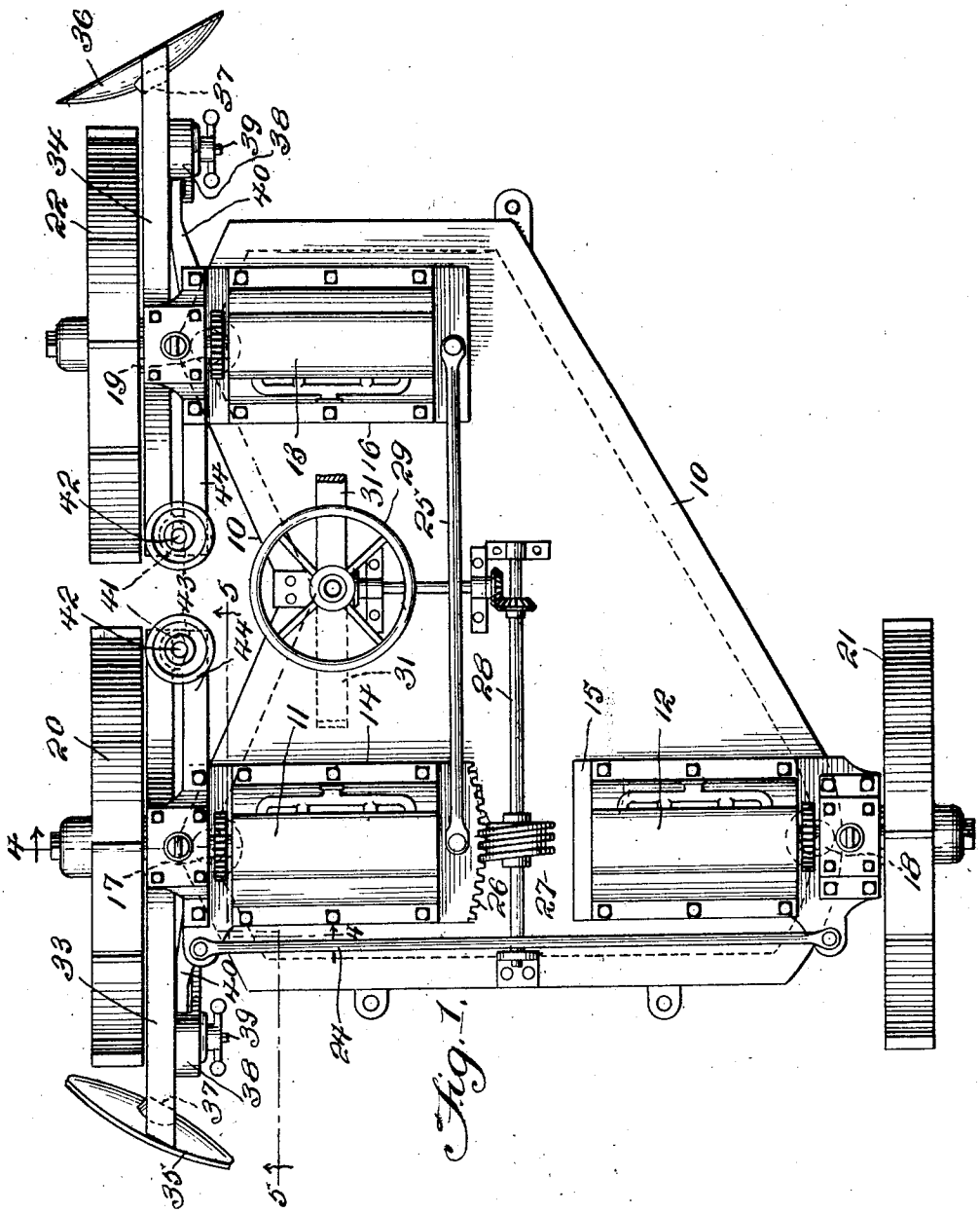


Fig. 1.

William L. Pope INVENTOR

BY Victor J. Evans ATTORNEY

J. L. Wright

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3 SHEETS—SHEET 2.

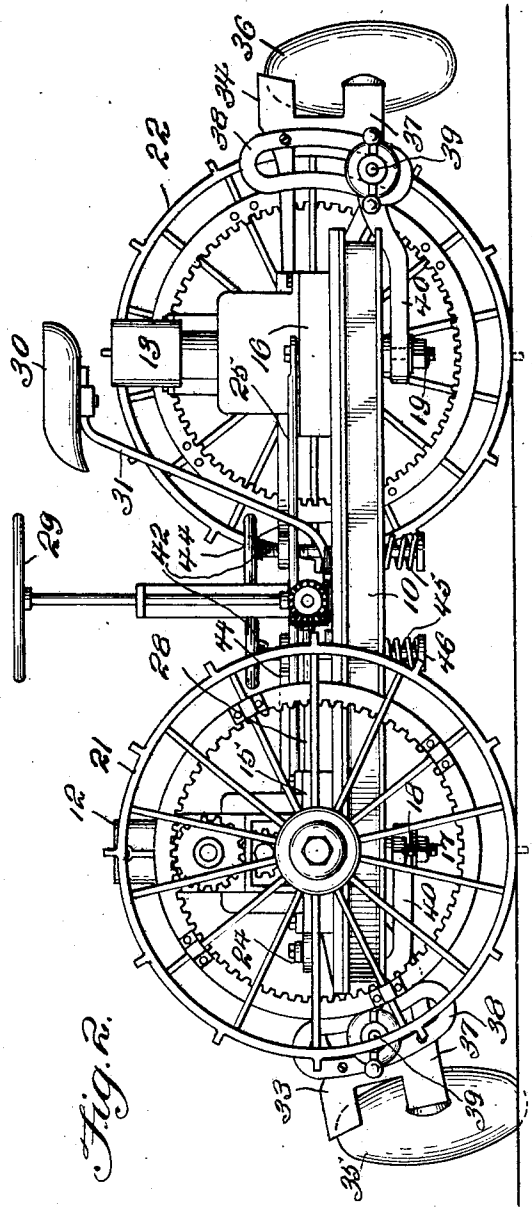


Fig. 2.

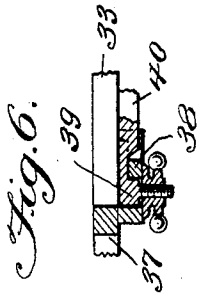


Fig. 6.

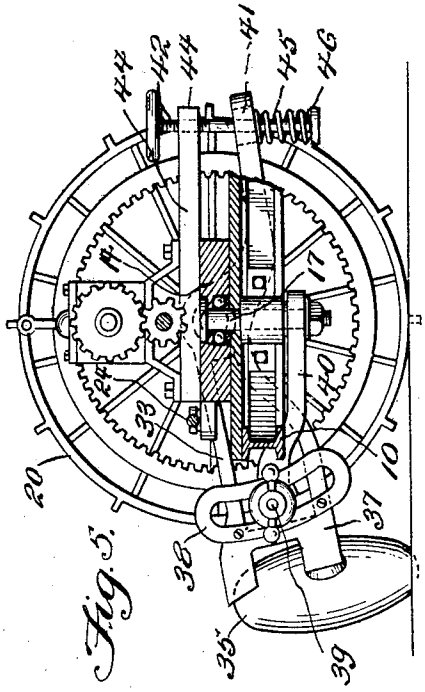


Fig. 5.

William L. Pope

INVENTOR

BY Victor J. Evans

ATTORNEY

J. L. Wright

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3 SHEETS—SHEET 3.

Fig. 3.

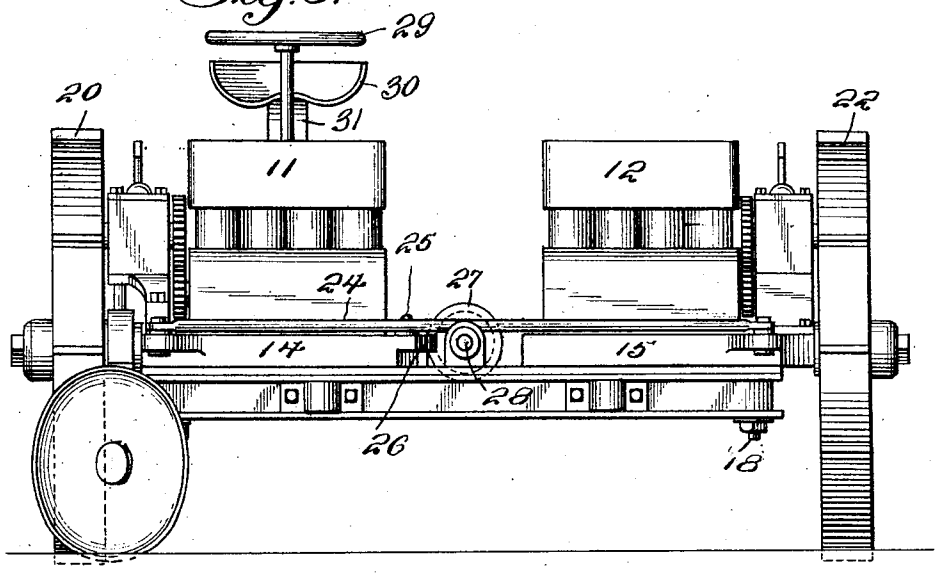


Fig. 4.

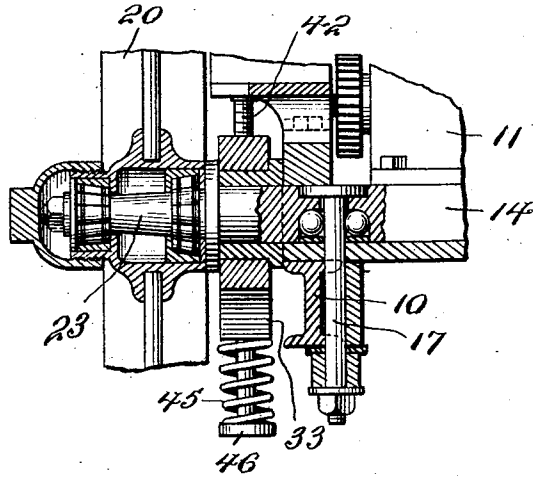
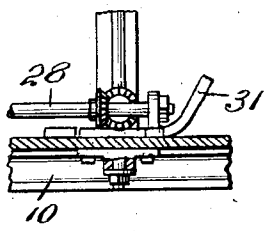


Fig. 7.



William L. Pope

INVENTOR

BY Victor J. Evans

ATTORNEY

J. L. Wright

WITNESS:

UNITED STATES PATENT OFFICE.

WILLIAM L. POPE, OF HUNTERSVILLE, NORTH CAROLINA.

TWO-WAY TRACTOR.

1,409,772. Specification of Letters Patent. **Patented Mar. 14, 1922.**

Application filed April 30, 1920. Serial No. 377,857.

To all whom it may concern:

Be it known that I, WILLIAM L. POPE, a citizen of the United States, residing at Huntersville, in the county of Mecklenburg and State of North Carolina, have invented new and useful Improvements in Two-Way Tractors, of which the following is a specification.

The object of the invention is to provide a two-way or reversible tractor adapted for use particularly in farm operation and adapted to be reversibly operated so as to progress in either direction, to minimize the amount of turning necessary in connection with agricultural operation, and designed more particularly to be used in connection with plowing, and embodying the principle of pushing rather than pulling the plow, disk or similar earth engaging bit or implement, on the theory that the pushing of the said implement is more effective in securing the desired result with the minimum tendency to cause divergence from the path which the operator desires to follow than is attainable with an apparatus heretofore employed, and with these objects in view the invention consists in a construction and combination of parts of which a preferred embodiment is shown in the accompanying drawing wherein:

In the drawing:—

Figure 1 is a plan view of the tractor.

Figure 2 is a side view of the same.

Figure 3 is an end view.

Figure 4 is a transverse vertical section on the plane indicated by the line 4—4 of Figure 1.

Figure 5 is a longitudinal section showing in elevation, the plow supporting means, the plane of the section being indicated by the dotted line 5—5 of Figure 1.

Figure 6 is a fragmentary section through the rocker guide and guide stud. Figure 7 is a fragmentary section showing the manner of connecting the operator's seat.

The main frame or supporting structure 10 is preferably of angle iron of which the elements are secured together in a substantial manner to maintain suitable bearings for the engine or motor elements or units of which three are shown in the apparatus illustrated namely 11, 12 and 13 having corresponding bed plates 14, 15 and 16 which are pivotally mounted or swiveled as indicated respectively at 17, 18 and 19, the bearing or ground wheels 20, 21 and 22 which correspond respectively with the engine or motor units and which are mounted respectively upon spindles 23, carried by the bed plates of said units are driven respectively thereby and consequently are capable of being actuated at varying rates of speed as may be found desirable in effecting the desired movement of the apparatus, particularly in following a curved path or in making a turn.

The bed plates of the several engine or motor units are connected for simultaneous movement upon their pivotal point of suspension by means of connecting rods 24 and 25 of which the former connects the bed plates of the units 11 and 12 while the latter connects the bed plates of the units 11 and 13, to the end that the angular adjustment of one of the engine beds will effect the corresponding adjustment of all of the other beds and will correspondingly vary the positions of the ground or supporting wheels which are mounted respectively upon said engine bed. In the construction illustrated the engine bed 14 is provided with a segmental gear or rack 26 with which engages an operating worm 27 carried by a shaft 28 with which is connected the steering wheel 29. The operator's seat 30 is mounted upon a reversible standard or support 31 which may be adjusted to dispose the seat upon either side of the plane of the steering wheel and so as to face in either direction, to the end that the occupant of the seat may face in the direction of progress of the apparatus and may alter his position in that respect with the minimum loss of time and effort, to the end that, at the end of a row or furrow, the apparatus may be driven in the opposite direction to operate upon the next row or form the next furrow, without turning the machine and without requiring any other adjustment than to reverse the direction of operation of the engines or motors so as to drive the wheels in the opposite direction.

Mounted upon the spindles of the ground wheels at the furrow side of the machine, that is the wheels 20 and 22, and preferably having a ball or roller or other anti-friction bearing thereon, are the rockers 33 and 34 corresponding in construction and operation, and having similar related and co-operating parts so that a detailed description of one will suffice for both, with the understanding as will be obvious, that the change

in direction of the machine by the alteration of the engine bed, to vary the position of the ground wheels, will correspondingly vary the plane of operation of said rockers and with the further understanding that when said rockers, as shown in the drawings, are equipped with furrow opening disks 35 and 36 for use in plowing operations, the operative disk or equivalent plowing or ground engaging element or implement, is attached to the forward end of the rocker, that is to say the forward end of the rocker as related to the direction of movement of the machine, such attachment as shown in the drawings being made at the remote or outer ends of both rockers, to the end that one may be used when the machine is progressing in one direction while the other is adapted for action when the direction of movement of the machine is reversed.

Referring particularly to the rocker 33 it will be noted that it is free to tilt upon the spindle of the ground wheel 20 to vary the extent of depression of the soil engaging implements represented by the disk 35 which is mounted upon a depending standard 37, said rocker having a segmental slotted guide 38 which engages and operates in connection with a guide stud 39 carried by an arm 40 which is preferably secured to the lower end of the pivot bolt by which the adjacent engine bed plate is mounted upon the frame of the machine. At its inner end the rocker is provided with an opening 41 through which extends an adjusting bolt 42 having engagement with a nut 43 carried by a retaining arm 44 also supported by the engine bed plate, a cushioning spring 45 being interposed between the head 46 of said bolt and the underside of the end of the rocker, to cause a yielding downward tendency to the front or outer end of said rocker and hence a yielding depression of the soil engaging implement carried thereby.

By the adjustment of the bolt it is obvious that the downward tendency of the outer end of the rocker, modified to an extent by the action of the cushioning springs, may be either increased or diminished, and the effect of the spring is to enable the soil engaging implement to pass over or avoid objects which offer such resistance thereto as would be likely to cause breakage or distortion of the implement.

It will be understood moreover that in addition to its use as a plowing apparatus the machine may perform the function of an ordinary tractor for which purpose it is particularly adapted by reason of the fact that it can be driven in either direction with equal facility and may be arranged either to push or to pull the vehicle or machine which it is designed to propel, to suit the convenience of the operator and the immediate object in view.

The steering of the apparatus if effected positively by the movement synchronously of all of the ground or supporting wheels due to the corresponding movement of the engine bed plate by the steering apparatus, and the arrangement of the ground or driving wheels directly upon the shaft of the engine or motor unit avoids all intermediate gearing and hence lost motion and friction and provides for the utilization of the maximum power of the motors, which obviously may be of any of the well known or preferred type utilizing as motive agents either steam, gasoline or electricity.

Having described the invention what is claimed:—

A tractor embodying a main substantially triangular supporting frame, motors having bed plates mounted for independent pivotal movement in horizontal planes at each corner of the frame, ground wheels mounted upon the bed plates and operatively connected respectively with the motors carried thereby, right angularly arranged rods pivotally connected to the bed plates for insuring synchronous movement in a common direction thereof, a horizontally arranged segmental rack carried by one of the bed plates, a worm engaging said rack and means whereby the worm may be rotated.

In testimony whereof I affix my signature.

WILLIAM L. POPE.