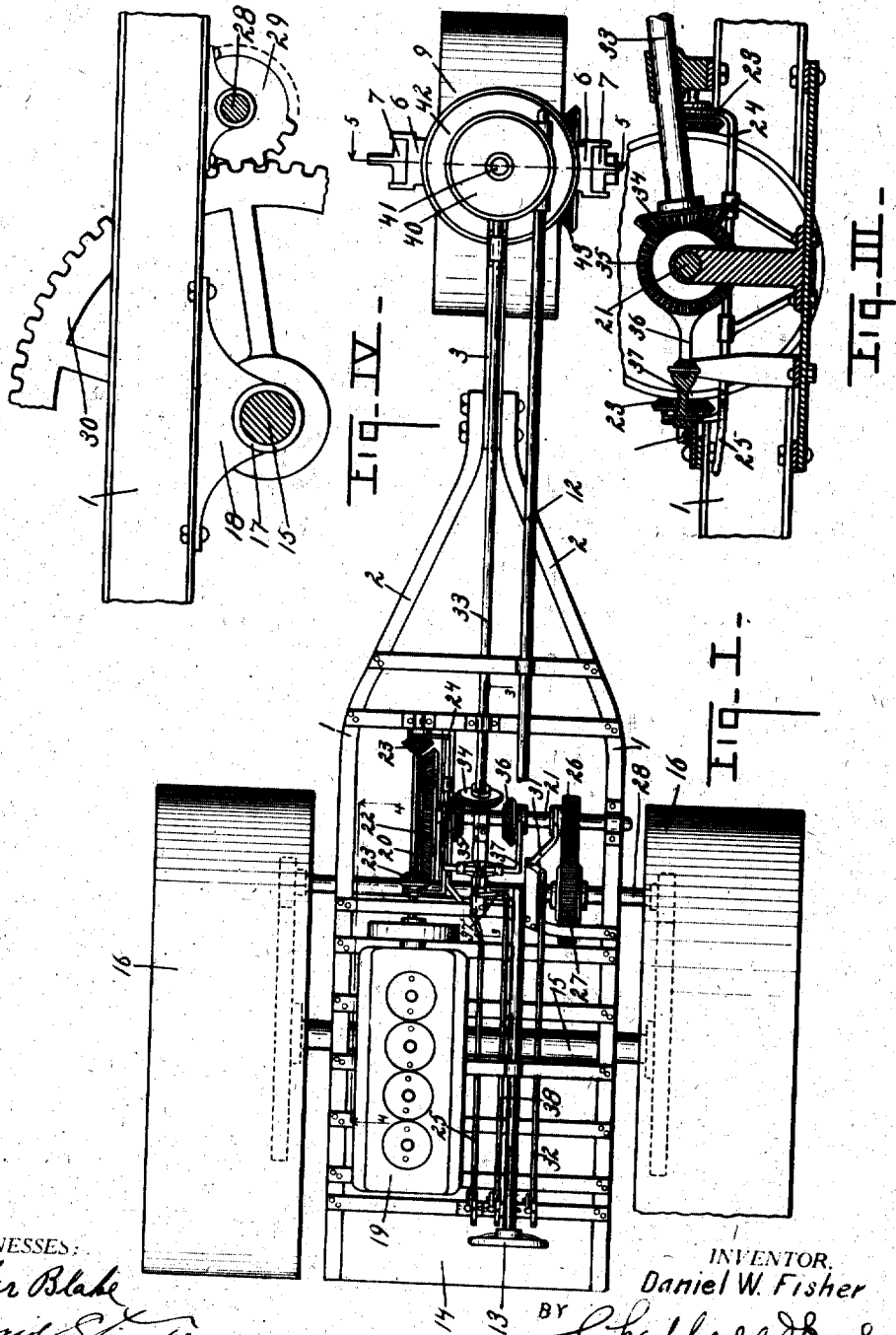


D. W. FISHER.
TRACTOR.
APPLICATION FILED JUNE 15, 1916.

1,234,148.

Patented July 24, 1917.
2 SHEETS—SHEET 1.



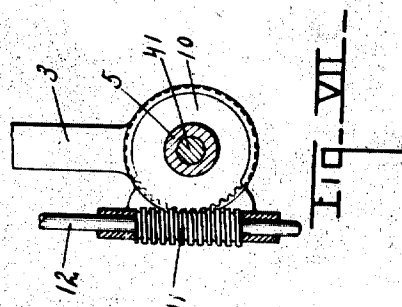
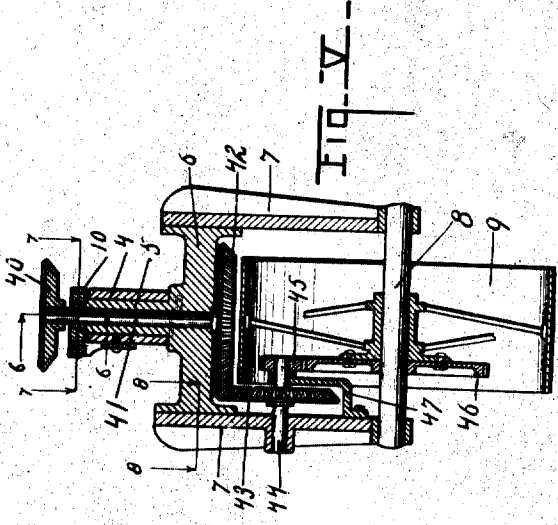
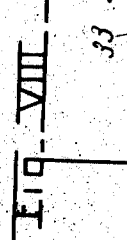
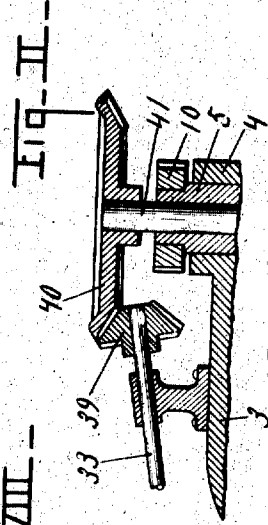
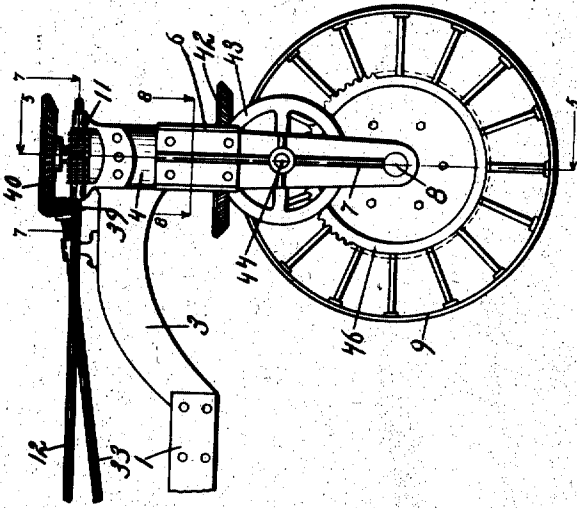
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TRACTOR.

1,234,148.

Specification of Letters Patent.

Patented July 24, 1917.

Application filed June 15, 1916. Serial No. 103,807.

To all whom it may concern:

Be it known that I, DANIEL W. FISHER, a citizen of the United States, residing at Moorepark, in the county of St. Joseph and State of Michigan, have invented certain new and useful Improvements in Tractors, of which the following is a specification.

This invention relates to improvements in tractors.

10 The main objects of my invention are:

First, to provide an improved three wheel tractor in which all three wheels are driven or traction wheels.

15 Second, to provide an improved three wheel tractor in which the front or signal wheel may be driven in either direction independently of the rear wheels to facilitate turning.

20 Third, to provide in a three wheel tractor an improved driving mechanism.

Fourth, to provide in a three wheel tractor an improved driving mechanism for the single front wheel.

25 Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is 30 clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing forming a part of this specification, in which:

35 Figure I is a plan view of my improved tractor, parts being omitted and certain parts being partially broken away for convenience in illustration.

40 Fig. II is a detail vertical side view of the front end of the tractor.

45 Fig. III is an enlarged detail section through the driving gear on a line corresponding to line 3—3 of Fig. I, showing details of the driving connections for the front wheel.

Fig. IV is a detail section on a line corresponding to line 4—4 of Fig. I, showing driving connections for one of the rear driving wheels.

50 Fig. V is a detail view, partially in vertical section, on a line corresponding to line 5—5 of Fig. I.

Fig. VI is a detail vertical section of the driving connections for the front wheel on 55 a line corresponding to line 6—6 of Fig. V.

Fig. VII is a detail horizontal section on a line corresponding to line 7—7 of Figs. V and VI, showing details of the steering gear.

Fig. VIII is a detail section on a line corresponding to line 8—8 of Figs. II and V, 60 showing details of the spindle yoke for the front wheel.

In the drawing, similar reference characters refer to similar parts throughout the several views, and the sectional views are 65 taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, the main frame of the machine comprises a pair of longitudinal sills 1 having converging portions 2 at 70 their front ends between which the rear end of the arched bar 3 is bolted. At its front end this bar or beam 3 is provided with a bearing 4 for the spindle 5 of the front wheel standard 6. This wheel standard is pro- 75 vided with a yoke comprising side members or arms 7 carrying the axle 8 for the front wheel 9. On its upper end the spindle 5 is provided with a gear 10 with which the worm 11 meshes. This worm 11 is driven 80 through the rod 12 from the hand wheel 13 positioned to be operated by the driver standing on the platform 14.

The frame has suitable cross pieces for supporting of the various operating parts. 85

The axle 15 for the rear wheels 16 is mounted on the bearings 17 supported by hangers 18 on the under sides of the longitudinal sills.

The engine 19 shown in conventional form 90 is suitably connected to the driving shaft 20. A driven or transmission shaft 21 is arranged transversely of the frame and provided with a beveled gear 22 with which the gears 23 on the driving shaft 20 are 95 adapted to mesh. These gears 23 are slidably mounted on the shaft 20 so that either one may be shifted into engagement with the gear 22. The gears 23 are connected by the shifting yoke 24 and the rod 25 to a 100 suitable operating mechanism in convenient reach of the operator.

The shaft 21 is connected by the gears 26 and 27 to a driving shaft 28 for the rear wheels 16 having pinions 29 thereon mesh- 105 ing with the gears 30 secured to the traction wheel. The gear 28 is splined to the shaft 21 to permit its being shifted into and out of mesh with the gear 27, it being shown in mesh therewith in Fig. I. 110

The shifting of the gear 26 is effected by the bell-crank lever 31 and the operating rod 32.

The front wheel is driven through the longitudinal driving shaft 33 having a beveled gear 34 on its rear end with which the gears 35, and 36 are adapted to be brought into mesh, the gears being splined to the shaft 21 so that either one or the other may be engaged to reverse the shaft 33.

A shifting yoke 37 is provided for these gears, the yoke being operated by the bell crank 37' having an operating rod 38.

On the forward end of the driven shaft 33 is a beveled gear 39 meshing with the beveled gear 40 on the upper end of the shaft 41 disposed vertically through the front wheel standard spindle 5. On the lower end of this shaft is beveled gear 42 meshing with the gear 43 on a stub shaft 44 carried by one of the yoke arms 7. This stub shaft 44 is provided with a pinion 45 at its inner end meshing with the gear 46 secured to the hub of the wheel 9. A bracket 47 is provided to support the inner end of the spindle 44. Various of these parts are shown in conventional form only, as their structural details from no part of my present invention, and their structure will be readily understood.

I desire also to mention that I have not attempted in the accompanying drawings to maintain the proper relative proportion of the parts, the drawing being intended to illustrate the general arrangement and relation thereof.

With the parts thus arranged all three of the tractor wheels may be driven, the front tractor wheel driven in either direction independently of the rear tractor wheels or the front tractor wheel thrown out of gear. This makes it possible to turn the tractor under various conditions to be met in land and farm work with great facility.

I have not attempted to illustrate or describe various modifications in structural details which might be found desirable under different circumstances and which I contemplate as I believe the disclosure made will enable those skilled in the art to which my invention relates to embody or adapt the same as conditions may require.

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

1. In a structure of the class described, the combination of a running gear frame provided with a wheel standard spindle bearing at its front end, a pair of rear traction wheels and a front traction wheel, a standard provided with a yoke embracing the front traction wheel and with a spindle arranged in said standard bearing, said spindle being provided with a steering worm gear, a steering rod provided with a worm meshing with said steering worm gear on

said standard spindle, a shaft disposed longitudinally through said standard spindle and provided with a beveled gear at its upper end and a beveled gear in its lower end disposed within said standard yoke, a shaft mounted on said yoke at one side of said front wheel and provided with a beveled gear meshing with said gear on the lower end of said spindle shaft and with a pinion, said front traction wheel having a gear thereon with which such pinion meshes, a driving shaft having a pair of beveled driving gears splined for adjustment thereon, a transmission shaft disposed transversely of said driving shaft and provided with a pair of beveled gears splined for adjustment thereon and with a beveled gear with which said gears on said driving shaft coact whereby the transmission shaft may be driven in either direction, a front wheel driving shaft disposed longitudinally of the frame and provided with a beveled gear meshing with said gear on the upper end of said spindle shaft and with a beveled gear at its rear end with which said pair of gears on said transmission shaft coact whereby said front traction wheel driving shaft may be driven in either direction, a rear traction wheel driving shaft having driving connections to said rear traction wheels, and coacting gears on said transmission shaft and said rear traction wheel driving shafts, one of said gears being adjustable to connect and disconnect the same.

2. In a structure of the class described, the combination of a running gear frame provided with a wheel standard spindle bearing at its front end, a pair of rear traction wheels and a front traction wheel, a standard provided with a yoke embracing the front traction wheel and with a spindle arranged in said standard bearing, a shaft disposed longitudinally through said standard spindle and provided with a beveled gear at its upper end and a beveled gear in its lower end disposed within said standard yoke, a shaft mounted on said yoke at one side of said front wheel and provided with a beveled gear meshing with said gear on the lower end of said spindle shaft and with a pinion, said front traction wheel having a gear thereon with which such pinion meshes, a driving shaft having a pair of beveled driving gears splined for adjustment thereon, a transmission shaft disposed transversely of said driving shaft and provided with a pair of beveled gears splined for adjustment thereon and with a beveled gear with which said gears on said driving shaft coact whereby the transmission shaft may be driven in either direction, a front wheel driving shaft disposed longitudinally of the frame and provided with a beveled gear meshing with said gear on the upper end of said spindle shaft and with a beveled gear

at its rear end with which said pair of gears on said transmission shaft coact whereby said front traction wheel driving shaft may be driven in either direction, a rear traction wheel driving shaft having driving connections to said rear traction wheels, and coacting gears on said transmission shaft and said rear traction wheel driving shafts, one of said gears being adjustable to connect and disconnect the same.

3. In a structure of the class described, the combination of a running gear frame provided with a wheel standard spindle bearing at its front end, a pair of rear traction wheels and a front traction wheel, a standard provided with a yoke embracing the front traction wheel and with a spindle arranged in said standard bearing, said spindle being provided with a steering worm gear, a steering rod provided with a worm meshing with said steering worm gear on said standard spindle, a shaft disposed longitudinally through said standard spindle, a shaft mounted on said yoke at one side of said front wheel, driving connections for said shaft on said yoke to said front wheel and to said spindle shaft, a driving shaft having a pair of driving gears splined for adjustment thereon, a transmission shaft disposed transversely of said driving shaft and provided with a pair of gears splined for adjustment thereon and with a gear with which said gears on said driving shaft coact whereby the transmission shaft may be driven in either direction, a front wheel driving shaft disposed longitudinally of the frame and having driving connections with said spindle shaft and with a gear at its rear end with which said pair of gears on said transmission shaft coact whereby said front traction wheel shaft may be disconnected or driven in either direction, and a rear traction wheel driving shaft having driving connections to said rear traction wheels and to said transmission shaft.

4. In a structure of the class described, the combination of a running gear frame provided with a wheel standard spindle bearing at its front end, a pair of rear traction wheels and a front traction wheel, a standard provided with a yoke embracing the front traction wheel and with a spindle arranged in said standard bearing, a shaft disposed longitudinally through said standard spindle, a shaft mounted on said yoke at one side of said front wheel, driving connections for said shaft on said yoke to said front wheel and to said spindle shaft, a driving shaft having a pair of driving gears splined for adjustment thereon, a transmission shaft disposed transversely of said driving shaft and provided with a pair of gears splined for adjustment thereon and with a gear with which said gears on said driving shaft coact whereby the transmission shaft

may be driven in either direction, a front wheel driving shaft disposed longitudinally of the frame and having driving connections with said spindle shaft and with a gear at its rear end with which said pair of gears on said transmission shaft coact whereby said front traction wheel shaft may be disconnected or driven in either direction, and a rear traction wheel driving shaft having driving connections to said rear traction wheels and to said transmission shaft.

5. In a structure of the class described, the combination of a running gear frame provided with a wheel standard spindle bearing at its front end, a pair of rear traction wheels, a front traction wheel, a standard provided with a yoke embracing the front traction wheel and with a spindle arranged in said standard bearing, said spindle being provided with a steering worm gear, a steering rod provided with a worm meshing with said steering worm gear on said standard spindle, a shaft disposed longitudinally through said standard spindle and provided with a beveled gear at its upper end and a beveled gear at its lower end disposed within said standard yoke, a shaft mounted on said yoke at one side of said front wheel and provided with a beveled gear meshing with said gear on the lower end of said spindle shaft and with a pinion, said front traction wheel having a gear thereon with which such pinion meshes, a front wheel driving shaft disposed longitudinally of the frame and provided with a beveled gear meshing with said gear on the upper end of said spindle shaft, driving means for said front driving wheel shaft whereby it may be driven in either direction or disconnected, and driving means for said rear traction wheels adapted to be connected or disconnected independently of said driving means for said front traction wheel.

6. In a structure of the class described, the combination of a running gear frame provided with a wheel standard spindle bearing at its front end, a pair of rear traction wheels, a front traction wheel, a standard provided with a yoke embracing the front traction wheel and with a spindle arranged in said standard bearing, a shaft disposed longitudinally through said standard spindle and provided with a beveled gear at its upper end and a beveled gear at its lower end disposed within said standard yoke, a shaft mounted on said yoke at one side of said front wheel and provided with a beveled gear meshing with said gear on the lower end of said spindle shaft and with a pinion, said front traction wheel having a gear thereon with which such pinion meshes, a front wheel driving shaft disposed longitudinally of the frame and provided with a beveled gear meshing with said gear on the upper end of said spindle shaft, driving

means for said front driving wheel shaft whereby it may be driven in either direction or disconnected, and driving means for said rear traction wheels adapted to be connected or disconnected independently of said driving means for said front traction wheel.

7. In a structure of the class described, the combination of a running gear frame provided with a wheel standard spindle bearing at its front end, a front traction wheel, a standard provided with a yoke embracing the front traction wheel and with a spindle arranged in said standard bearing, said spindle being provided with a steering worm gear, a steering rod provided with a worm meshing with said steering worm gear on said standard spindle, a shaft disposed longitudinally through said standard spindle and provided with a beveled gear at its lower end disposed within said standard yoke, a shaft mounted on said yoke at one side of said front wheel and provided with a beveled gear meshing with said gear on the

lower end of said spindle shaft and with a pinion, said front traction wheel having a gear thereon with which such pinion meshes, and means for driving said spindle shaft. 25

8. In a structure of the class described, the combination of a running gear frame provided with a pair of rear traction wheels, a single centrally disposed front traction wheel, driving means for said front traction wheel adapted to be driven in either direction or disconnected, and driving means for said rear traction wheels adapted for driving them in either direction or to be disconnected, the driving means being independently controlled for the purpose specified. 30 35

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses. 40

DANIEL W. FISHER. [L. S.]

Witnesses:

LUELLA G. GREENFIELD,
ANNIE E. PARRY.