E. J. PATTERSON & F. S. MOORE.

TRACTOR.

APPLICATION FILED DEC. 10, 1912.

1,127,503.

Patented Feb. 9, 1915.

3 SHEETS—SHEET 1.

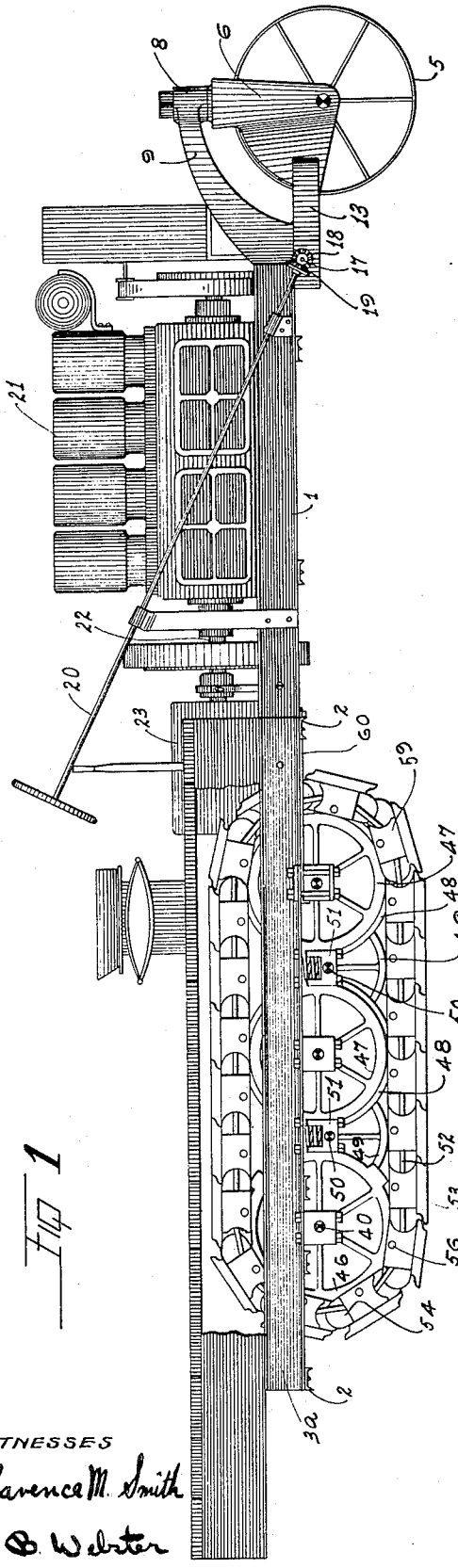


Fig 1

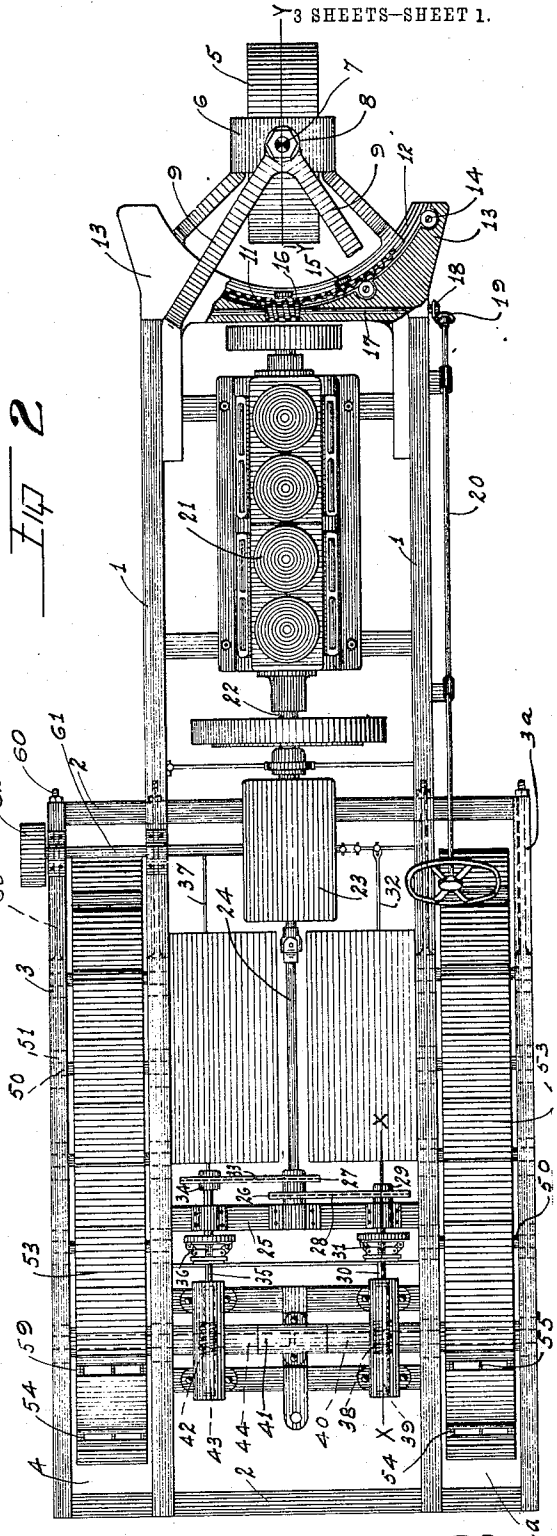


Fig 2

WITNESSES

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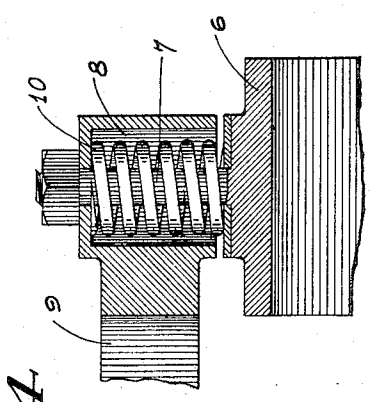


FIG 4

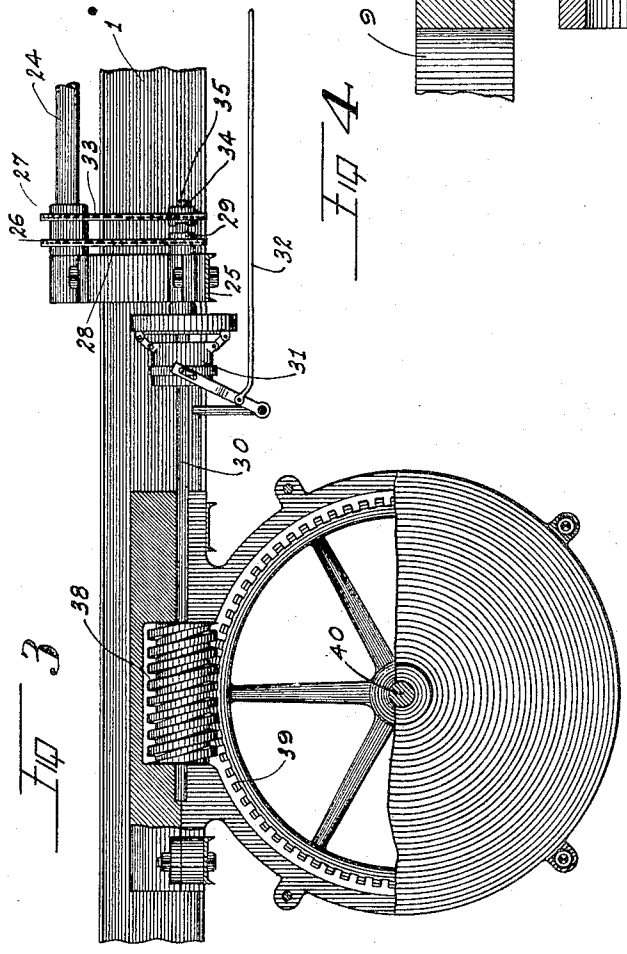


FIG 3

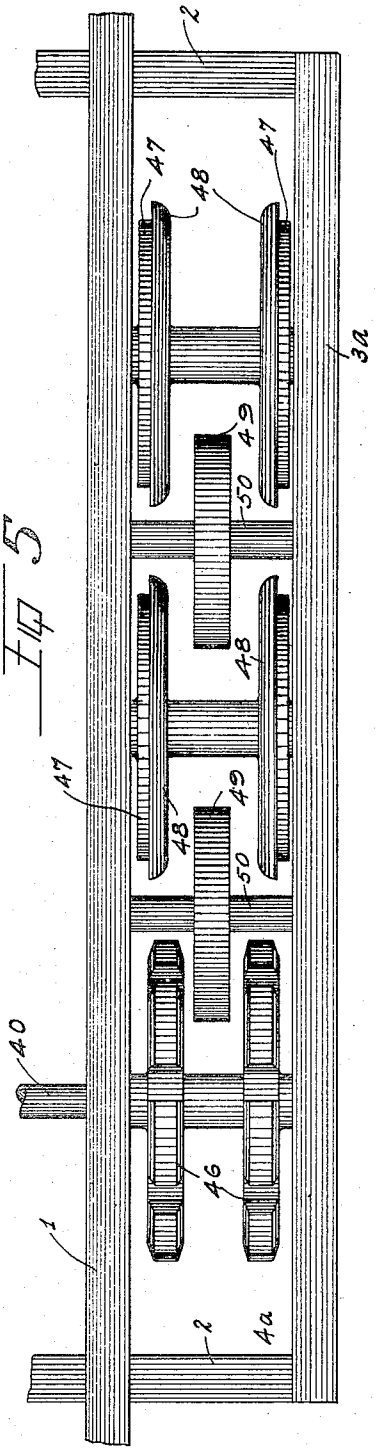


FIG 5

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3 SHEETS—SHEET 3.

Fig 6

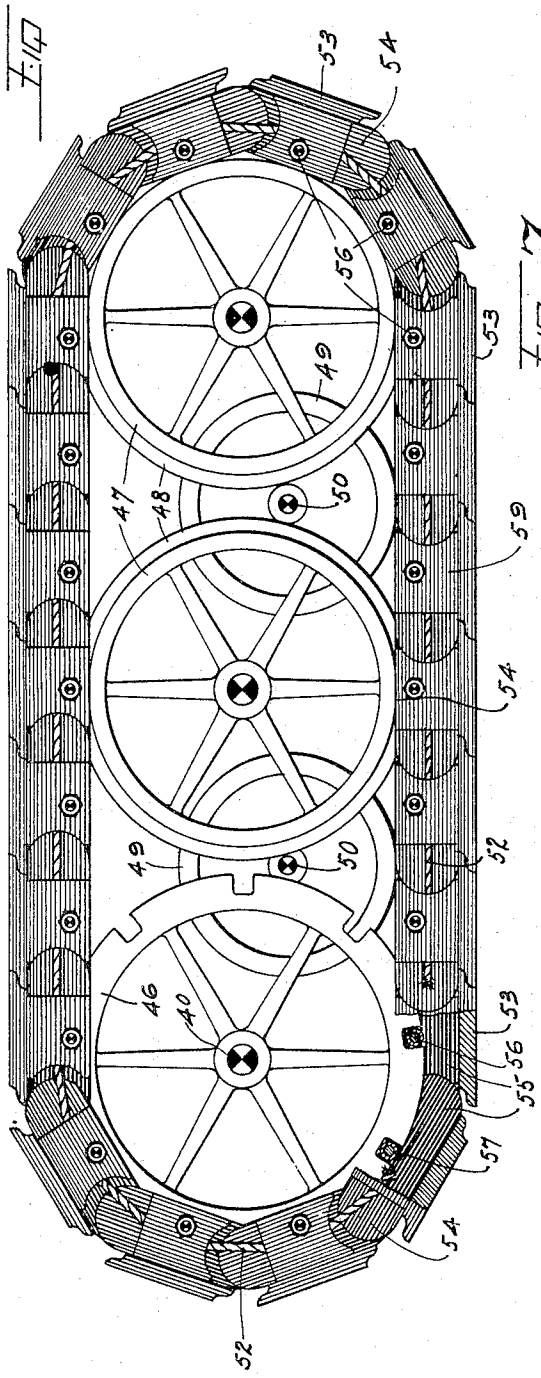


Fig 7

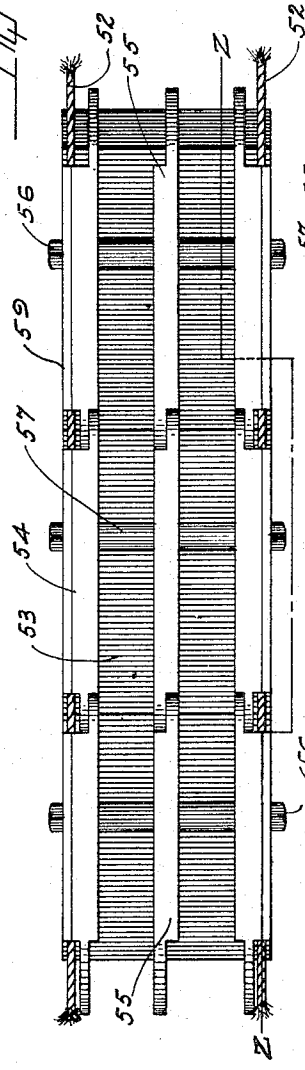
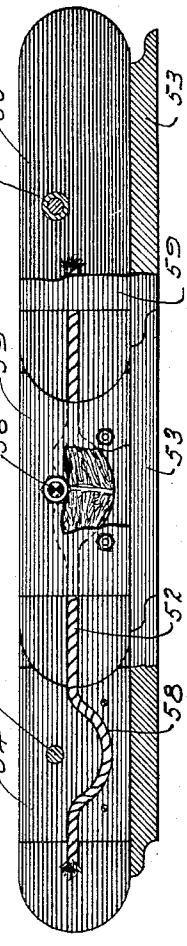


Fig 8



WITNESSES

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EDIE J. PATTERSON AND FREDERICK S. MOORE, OF STOCKTON, CALIFORNIA.

TRACTOR.

1,127,503. Specification of Letters Patent. Patented Feb. 9, 1915.

Application filed December 10, 1912. Serial No. 735,946.

To all whom it may concern:

Be it known that we, EDIE J. PATTERSON and FREDERICK S. MOORE, both citizens of the United States, residing at Stockton, in the county of San Joaquin, State of California, have invented certain new and useful Improvements in Tractors; and we do declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in tractors and particularly to that type known as endless belt tractor, the object of the invention being to produce such a type of tractor as will be so constructed and arranged as to permit of the same to be used both as a tractor and truck, the same being permitted by reason of the adaptable arrangement of the motor, transmission and driving means.

The invention further embodies a simplified form of driving means and differential and also embodies an improved and simplified form of endless belt tract wheel which will present an uninterrupted smooth flat tread to the ground surface, the joints of such track being open flexible joints and not fitted joints as are now commonly used, the object of our improved structure being to provide such a track as can be readily assembled or disassembled and one which, due to its lack of fitted joints, will permit it to be readily cleared of dirt or debris which may collect between the joints.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purposes for which it is designed.

These objects, we accomplish by means of such structure and relative arrangement of the parts as will fully appear by a perusal of the following specification and claim.

On the drawings similar characters of reference indicate corresponding parts in the several views.

Figure 1 is a side elevation, partly broken out, of the complete tractor. Fig. 2 is a top plan view, partly broken out, of the complete device with the truck bed removed. Fig. 3 is a sectional view taken on a line X—X of Fig. 2. Fig. 4 is a sectional view taken on a line Y—Y of Fig. 2. Fig. 5 is a top plan view of the wheels or rollers upon which the endless belt wheel is mounted. Fig. 6 is a side elevation of the endless belt structure partly broken out. Fig. 7 is a top plan view of the underside of a portion of the endless belt. Fig. 8 is a sectional view taken on a line Z—Z of Fig. 7.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 designates the frame of the machine provided with cross members 2 having outside beams 3 and 3^a spaced on each side from the member 1 to form intervening channels 4 and 4^a to receive the endless belt wheel structure as will appear. The member 1 is supported at its forward end by means of a steering wheel 5 journaled in a frame 6 having a post 7 movable vertically through a guide 8 on the end of an arm 9 projecting from the frame 1, there being a spring 10 interposed between the members 6 and the member 8 to prevent any undue strain on the member 9 as the wheel 5 encounters uneven surfaces of the ground. On the member 6 is a geared quadrant 11 projecting into a slot 12 in a casting 13 and movable against horizontal rollers 14 and vertical rollers 15 to hold it in true and easy running position. Said quadrant engages a worm gear 16 mounted on a shaft 17 journaled in the member 13. On one end of the shaft 17 is a beveled gear 18 engaging a beveled gear 19 mounted on the steering post 20. By means of the above structure the wheel 5, which is the steering wheel of the device, may be turned easily and quickly in any direction desired.

The numeral 21 designates the motor of the device suitably mounted on the frame of the device and having the usual shaft 22 connected with a reversible transmission gearing 23 of any particular type, but preferably of that type shown by Patent No. 1,011,481, dated December 12th, 1911.

The numeral 24 designates the driving shaft leading from the transmission 23 and journaled in a cross beam 25 on the member 1. Mounted on the said shaft 24 are two gears 26 and 27. The gear 26 is connected by a chain 28 with a gear 29 mounted on a shaft 30 and provided with a clutch 31, such clutch having a suitable operating lever mechanism 32. The gear 27 is connected by a chain 33 with a gear 34 mounted

on a shaft 35 provided with a clutch 36, such clutch 36 having a suitable lever operating mechanism 37.

On the end of the shaft 30 is a worm gear 38 engaging a cog wheel 39 mounted on a shaft 40 disposed in a sleeve 41. Said shaft 40 is journaled in said sleeve 41 and in the members 1 and 3^a for a purpose as will appear. Similarly the shaft 35 is provided with a worm gear 42 intermeshing with a gear 43 on a shaft 44 journaled in the sleeve 41 and in the members 1 and 3. Each of the shafts 40 and 44, in the channels 4^a and 4 respectively, is provided with a pair of spaced cog wheels 46 adapted to receive the endless belt structure and drive the same, which endless belt structure is constructed as follows, namely: Disposed in the channels 4 and 4^a just ahead of the wheels 46 are two pair of wheels 47 provided with flanges 48. Mounted between the members 46 and the center members 47 and between the center and outer members 47 are rollers 49 mounted on shafts 50 journaled in spring pressed journaled boxes 51. The endless belt consists of two cables 52 mounted on which are independent belt sections, each section comprising a tread plate 53 having outer track sections 54 and a center tread section 55, all of such tread sections being joined by means of bolts 56. Sleeves or rollers 57 are mounted on the bolt 56 between the rail sections and are adapted to be received by the cog wheels 46 to drive the belt. The cables 52 project through and are secured to the rail sections 54 in a curved slot 58 and are held therein by removable side plates 59 held against the members 54 by means of the bolts 56. This curvature 58 permits of a partial conforming of the endless belt to the circumference of the wheels 46 and 47 as the rail sections move over each end of the wheel. At this point it might be well to state that instead of the particular form of cable 52 as shown in the drawings, we may use in practice, a cable on each side of the belt sections or we might use three or more small cables on each side held in the same way as is the single cable or we might use a flat cable adapting the clamping means to fit the same. Fig. 6 also shows a portion of one of the belt sections broken out and showing the method of connecting the ends of the cables therein.

The tread sections 53 are alternately tongued and grooved at their ends in order that adjacent sections may over-lap as shown in Figs. 1 and 6 in order to provide a smooth flat uninterrupted surface as the same moves over the ground and similarly the rail sections 54 and 55 are alternately tongued and grooved as shown to form closed joints to maintain the track and tread surfaces always in true and active operative position and at the same time keep them free from clogging with dirt or other debris. The forward wheels 47 are provided with a suitable spring tension mechanism 60 consisting of spring pulled draw bolts which hold the endless belt from sagging. The spring pressed rollers 49 press against the central track sections 55 to maintain the tread sections against the ground surface in a horizontal manner and at the same time to permit the same to conform to and to compensate for any roughness or unevenness of the ground surface. The wheels 47, as will be apparent, receive the outer track sections 54, the flanges 48 bearing against the sides of said track sections to maintain them in proper position laterally.

By means of the independent shafts 40 and 44, one for each of the endless belt wheels, and each shaft having an independent power transmitting means provided with independent clutches, this permits both endless belt wheels to be driven at one time or by disconnecting one of said clutches, only one of said wheels may be driven, thus permitting the proper turning of corners or the like, due to the fact that the disengaged worm gear locks its corresponding belt wheel against action. Also for any conditions desired the said worm gears will lock their corresponding connected wheels against action whenever the clutch is disconnected and thus when going down steep hills the clutch may be thrown out whenever desired which would bring the tractor to a stop should it travel too fast. Also in going up hill if the engine should be pulling hard and it was desired to ease the same, the clutch could be thrown out and such worm gears and their connections would lock the device against further movement and at the same time save whatever distance had already been covered without choking the engine. This is one of the most important features of the invention as it gives an absolute control of the tractor under all conditions. Connected with the transmission gearing 23 is a shaft 61 provided with a pulley 62 for use in stationary work such as the driving of other machines, such as threshers or the like, by means of the power of our improved tractor.

From the foregoing description it will be readily seen that we have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention.

Having thus described our invention what we claim as new and useful and desire to secure by Letters Patent is:

A device of the type described comprising

a pair of tractors spaced apart and each having an independent driven shaft, such shafts projecting approximately end to end in the same plane, a pinion on each shaft, a shaft disposed transversely of each of said first named shafts and each having a worm gear meshing with one of said pinions, a driving shaft, independent means connecting each of said worm gear shafts with said driving shaft, a clutch means interposed in each of said independent connecting means whereby each worm gear shaft may be disassociated from said driving shaft independently of the other.

In testimony whereof we affix our signatures in presence of two witnesses.

EDIE J. PATTERSON.
FREDERICK S. MOORE.

Witnesses:
JOSHUA B. WEBSTER,
CLARENCE M. SMITH.