

June 19, 1923.

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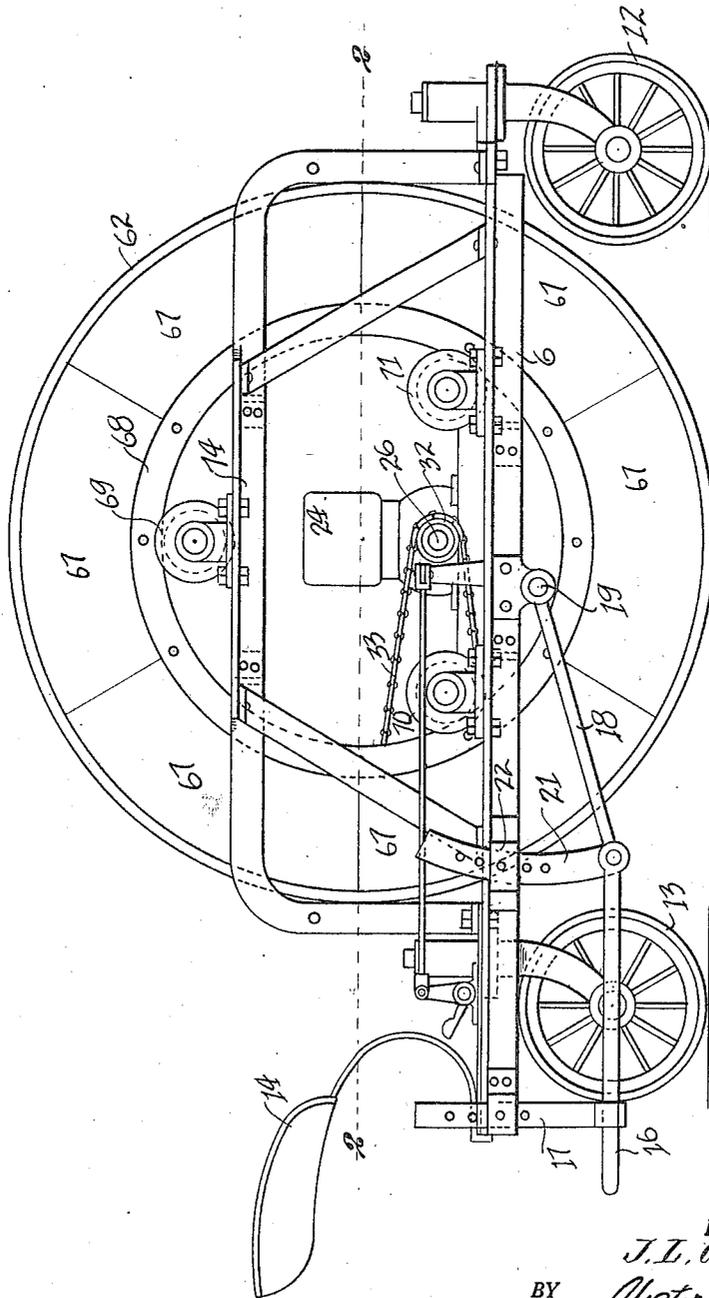
J. L. ALLEN

FARM TRACTOR

Filed Feb. 15, 1922

4 Sheets-Sheet 1

Fig. 1.



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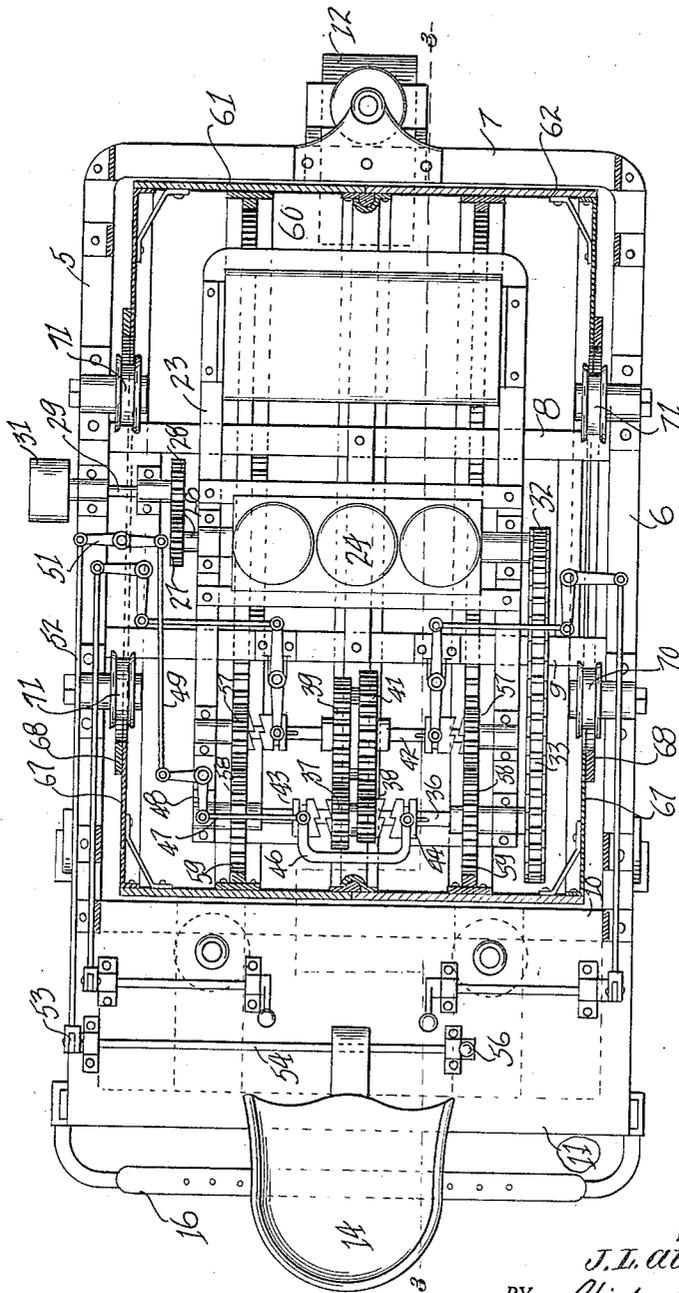
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Fig. 2.



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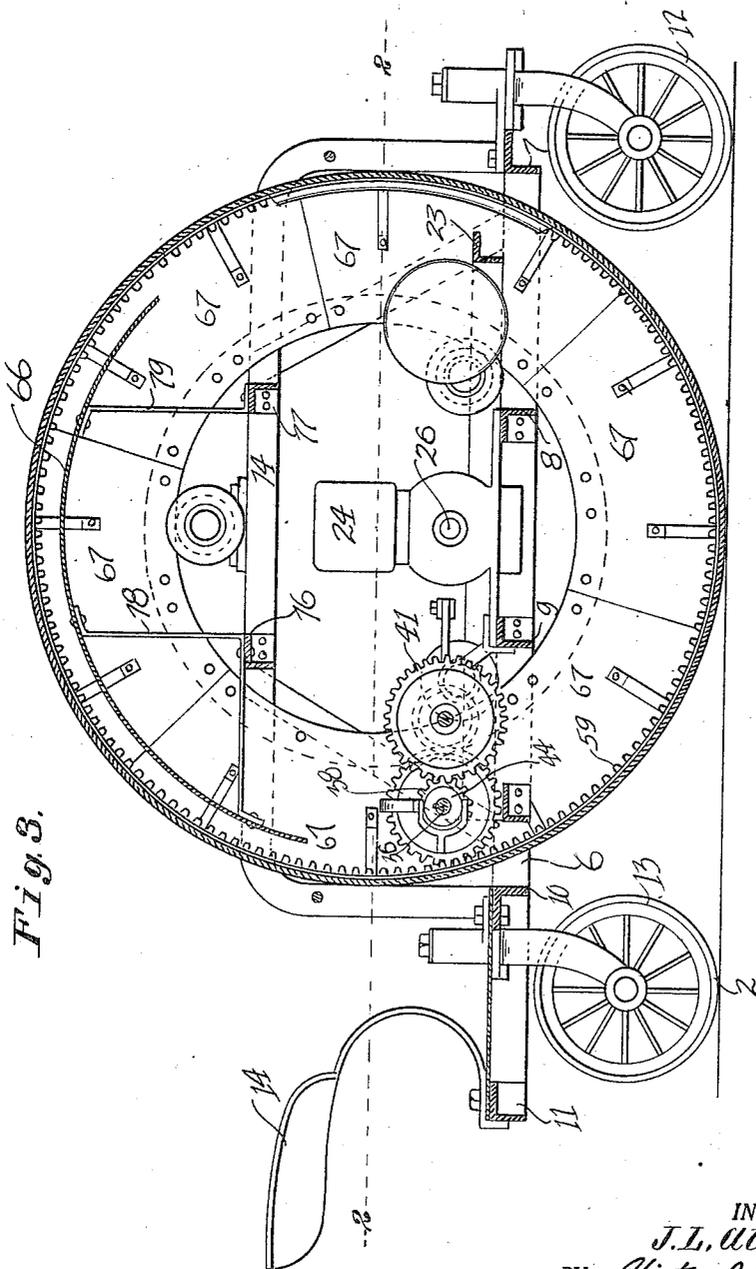


Fig. 3.

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Fig. 4.

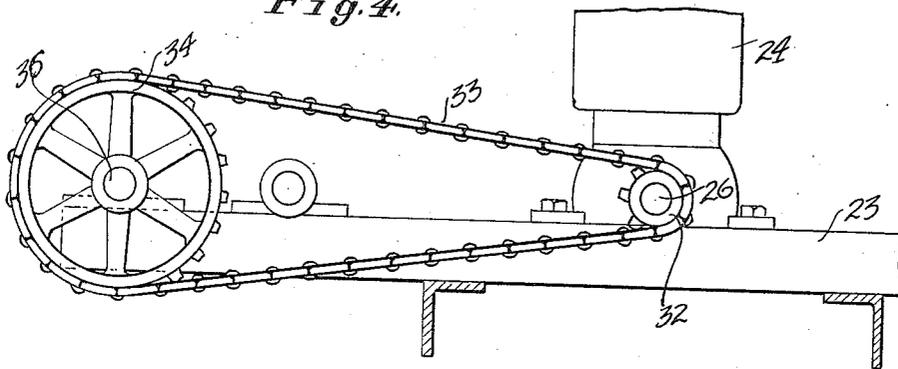


Fig. 5.

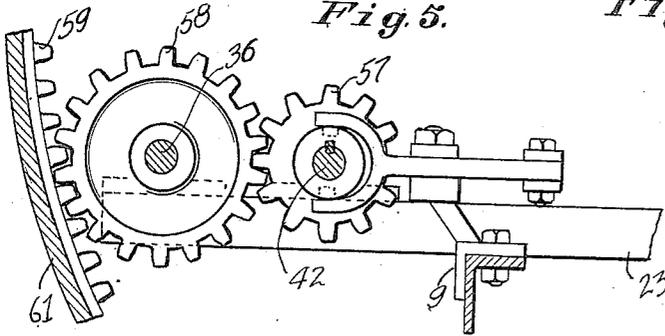


Fig. 8.

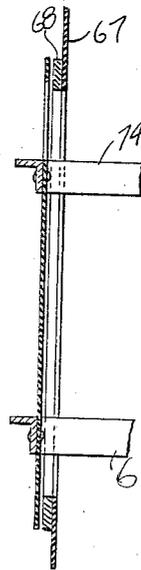


Fig. 6.

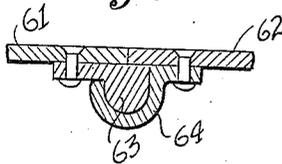
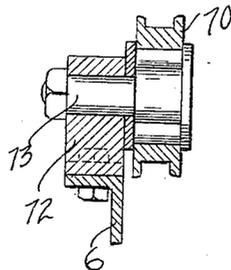


Fig. 7.



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UNITED STATES PATENT OFFICE.

JULIUS L. ALLEN, OF SACRAMENTO, CALIFORNIA.

FARM TRACTOR.

Application filed February 15, 1922. Serial No. 536,712.

To all whom it may concern:

Be it known that I, JULIUS L. ALLEN, a citizen of the United States, residing at Sacramento, in the county of Sacramento and State of California, have invented new and useful Improvements in Farm Tractors, of which the following is a specification.

This invention relates to improvements in farm tractors.

The principal object of this invention is to produce a tractor wherein the engine and working parts are located within the periphery of the driving wheel and consequently housed against dirt and other elements detrimental to the perfect working of an engine.

Another object of this invention is to produce a tractor having but a single drive wheel, thereby dispensing with the necessity for complicated differentials and expensive transmission means.

A further object of this invention is to utilize the engine for stationary purposes when desired.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a side elevation of my tractor,

Fig. 2 is a cross-section taken on the line 2—2 of Figure 1,

Fig. 3 is a vertical cross-section taken on the line 3—3 of Figure 2,

Fig. 4 is a fragmentary detail view showing the manner of mounting the engine on the auxiliary frame,

Fig. 5 is a fragmentary detail view of the driving gears,

Fig. 6 is a fragmentary detail view of the driving wheel joint,

Fig. 7 is a fragmentary detail view of one of the supporting rollers, and

Fig. 8 is a section view of a covering plate and its associated parts.

In the accompanying drawings wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numerals 5 and 6 refer to parallel frame members secured by cross pieces 7, 8, 9, 10 and 11. These side and cross pieces form a rectangular frame, to which are secured, at opposite ends, the tiller wheels, here designated by the numerals 12 and 13. These

tiller wheels are immaterial as far as my invention is concerned.

A seat 14 is provided for the operator, and is secured to the cross-piece 11, while a draw bar 16 is supported upon a sliding upright 17, which upright is adjustably secured to the cross piece 11. A link 18 serves to pivot the forward end of the draw bar 16 to the side pieces 5 and 6, as shown at 19. The numeral 21 designates a segment, which passing through suitable guides 22 serves to keep the draw bar 16 at a proper distance from the tractor-frame while a removable pin, passing through the segment, serves to prevent movement thereof.

The cross-pieces 8 and 9 support an auxiliary frame 23, upon which an engine 24 is mounted. This engine 24 is provided with a shaft 26 having a gear 27 at one end thereof, which meshes with a gear 28 mounted upon a shaft 29, which shaft passes through a suitable bearing on the side piece 5 and is provided with a pulley 31 upon its outer end. The opposite end of the engine shaft 26 is equipped with a sprocket wheel 32, over which a chain 33 passes, which chain, in turn, passes around a sprocket wheel 34 mounted upon a shaft 36, suitably journaled at one end of the auxiliary frame 23.

Gears 37 and 38 are mounted upon the shaft 36 and, in turn, mesh with gears 39 and 41 respectively, mounted upon a shaft 42. The gears 37 and 38 are freely rotatable on the shaft 36, and are connected therewith through the medium of clutches 43 and 44 controlled by a yoke 46 moved through the medium of a link 47, rocker arm 48, link 49, rocker arm 51, link 52, lever 53, rod 54 and handle 56.

As shown to advantage in Figure 5, the gears 39 and 41 are rigidly secured to the shaft 42. The numerals 57 and 58 designate gears mounted upon opposite ends of the shafts 36 and 42. These gears are floating upon said shafts. The gears 58 each mesh with an internal rack 59 mounted upon the interior of a drive wheel 60, to be later described.

A clutch is mounted upon each end of the shaft 42 and is adapted to connect said shaft to either or both of the gears 57. These clutches are operated in the usual manner through a system of levers and links controllably from a point near the driver's seat.

The numeral 60 above referred to designates a drive wheel as a whole of considerable height and breadth. This drive wheel may be made in one section or in several, as here shown, the numeral 61 representing one section and the numeral 62 the other section. These sections are secured as by a sliding joint, best shown in Figures 2 and 6, wherein the numeral 63 designates a member preferably riveted to the member 61 and the numeral 64 designates a member preferably riveted to the member 62, this member 64 overlapping the member 63 and forming a slidably, but fairly tight, joint, which prevents sand and other foreign substances working there-through.

In order to further protect the machinery within the drive wheel, I provide a guard 66.

The driving wheel is provided with side flanges 67, preferably made up of sections. These flanges are of considerable width and are joined together by a ring 68, which ring forms a track for a series of supporting rollers 69, 70 and 71. The rollers 70 and 71 are supported on the side pieces 5 and 6 as is best shown in Figure 7.

The numeral 72 designates a block which is bolted to the side piece 6 and a stubshaft 73 secured therein supports the roller 70. The rollers 69 are supported upon a frame, such as shown at 74, carried by the side members 5 and 6, and suitably braced therefrom. Additional braces 76 and 77 extend through the drive wheel as is best shown in Figure 3. The braces also carry the uprights 78 and 79, which support the guard 66.

The operation of my device is as follows:—

The operator, seated upon the seat 14, after having started the engine, grasps the handle 56 and pushes the same away from him. This causes the clutch 43 to engage the gear 37 and connects the same to the shaft 36, which is receiving power from the engine 24, through the medium of the sprockets 32, chain 33 and sprocket 34. This causes power to be delivered to the gear 39 and shaft 42. By now throwing in the clutches carried upon this shaft, the gears 57 are caused to transmit power to the gears 58. These gears, in turn, transmit power to the driving wheel 60.

If it is a divided driving wheel, as shown in Figure 2, power is delivered to both racks

59, or if it is a single drive wheel, but one rack is necessary. Should it be necessary to turn the vehicle, one of the clutches on the shaft 42 is thrown out of engagement with its gear, with the result that power is only transmitted to the opposite side of the drive wheel, this resulting in one section traveling forward while the other stands idle, thus causing the tractor to turn about. By intermittently engaging these last named clutches, the tractor may be steered to either the right or the left.

It will thus be seen that I have produced a tractor wherein all the working parts are extremely simple, thus permitting the power of the engine to be transmitted to draw-bar pull with very small loss by friction or for propelling itself, also that the working parts are all fully protected against dust, dirt and other elements, which in tractor work are detrimental owing to their abrasive qualities, which very rapidly wear out the driving mechanism.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described my invention, I claim:—

In a tractor, the combination of a frame, driving wheels mounted within said frame, the combined width of said wheels being substantially that of said frame, a sliding joint between said wheels, an auxiliary frame mounted within said wheels, flanges formed on the outer edges of said wheels, rollers adapted to contact said flanges and to support said frames thereon, power means mounted on said auxiliary frame, racks formed on the interior of said driving wheels, gears mounted on said auxiliary frame and meshing with said racks, means for transmitting power from said power means to said gears, and means for preventing foreign substances from dropping from the upper half of said wheels to the power means and gears contained within said wheels.

In testimony whereof I affix my signature.
JULIUS L. ALLEN,