

No. 715,583.

Patented Dec. 9, 1902.

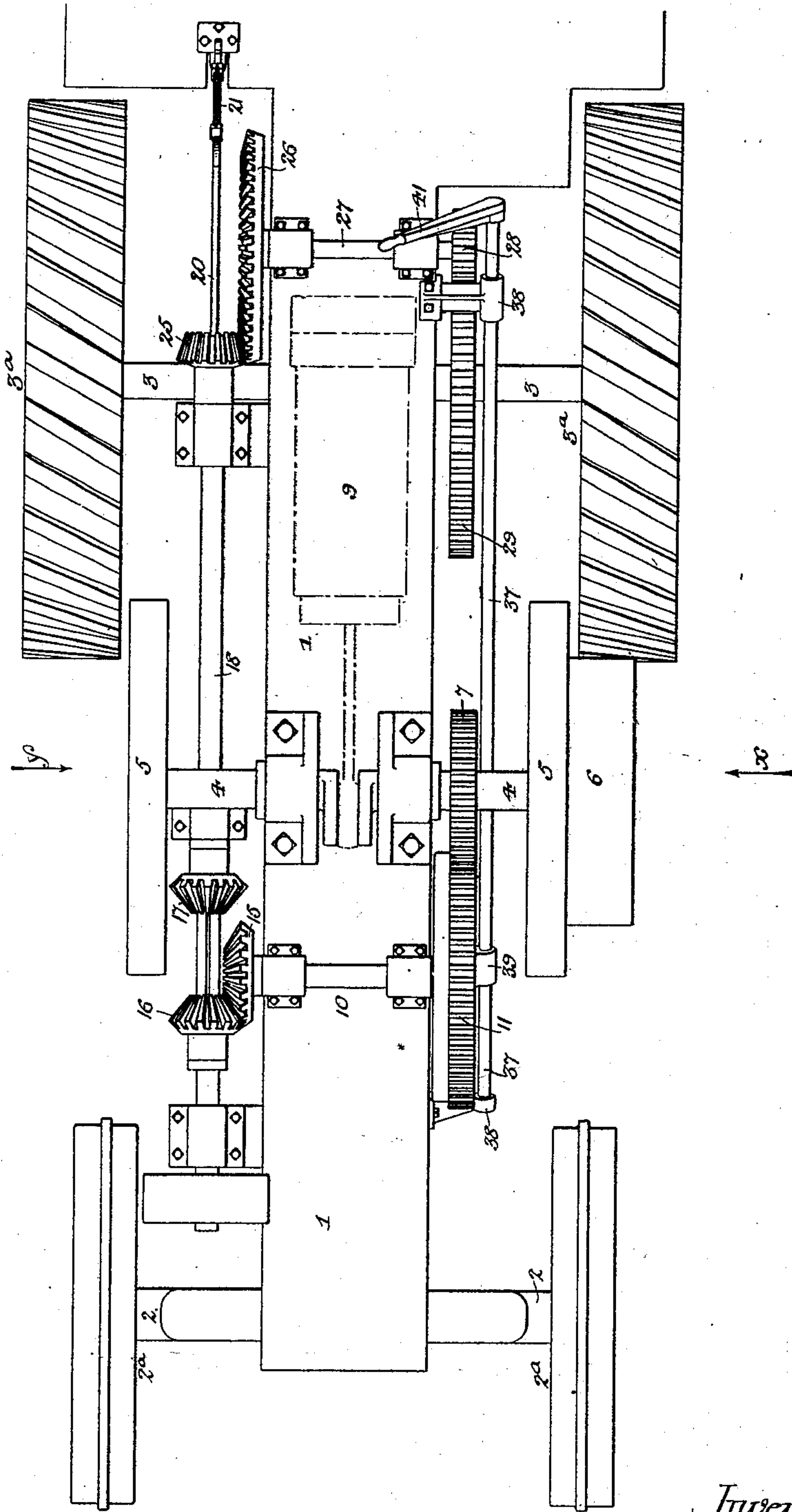
H. C. JONES.
TRACTION ENGINE.

(Application filed June 18, 1902.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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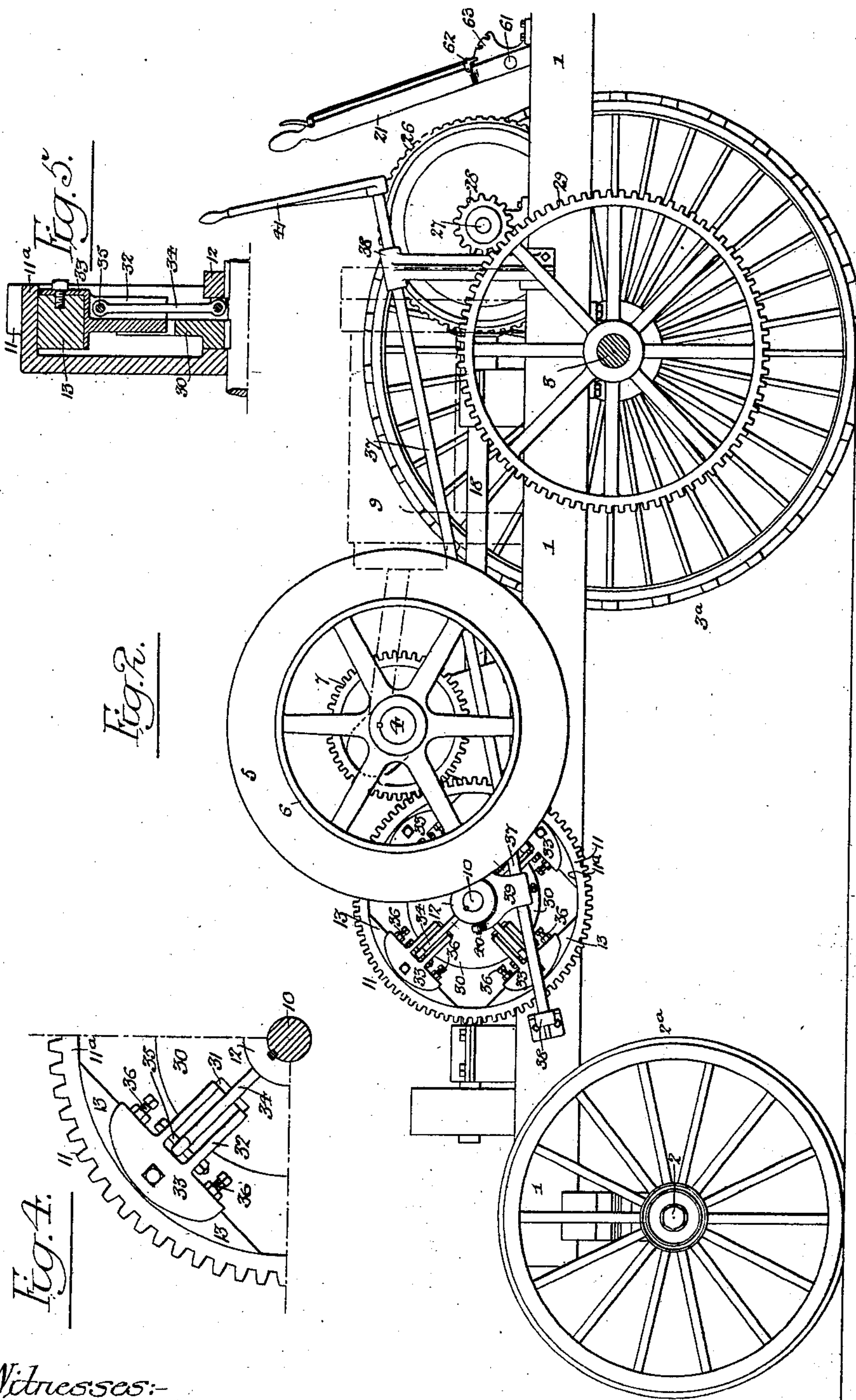
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(Application filed June 18, 1902.)

(No Model.)

3 Sheets—Sheet 2.



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Fig. 6.

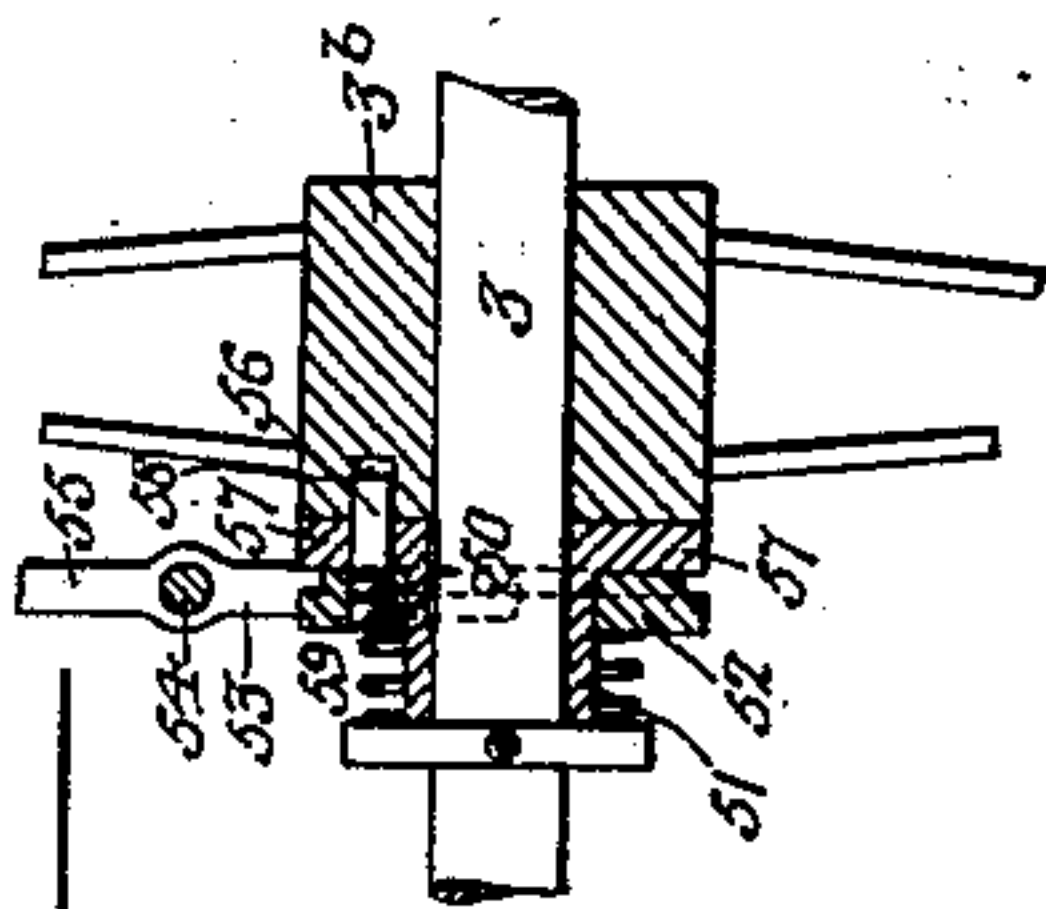
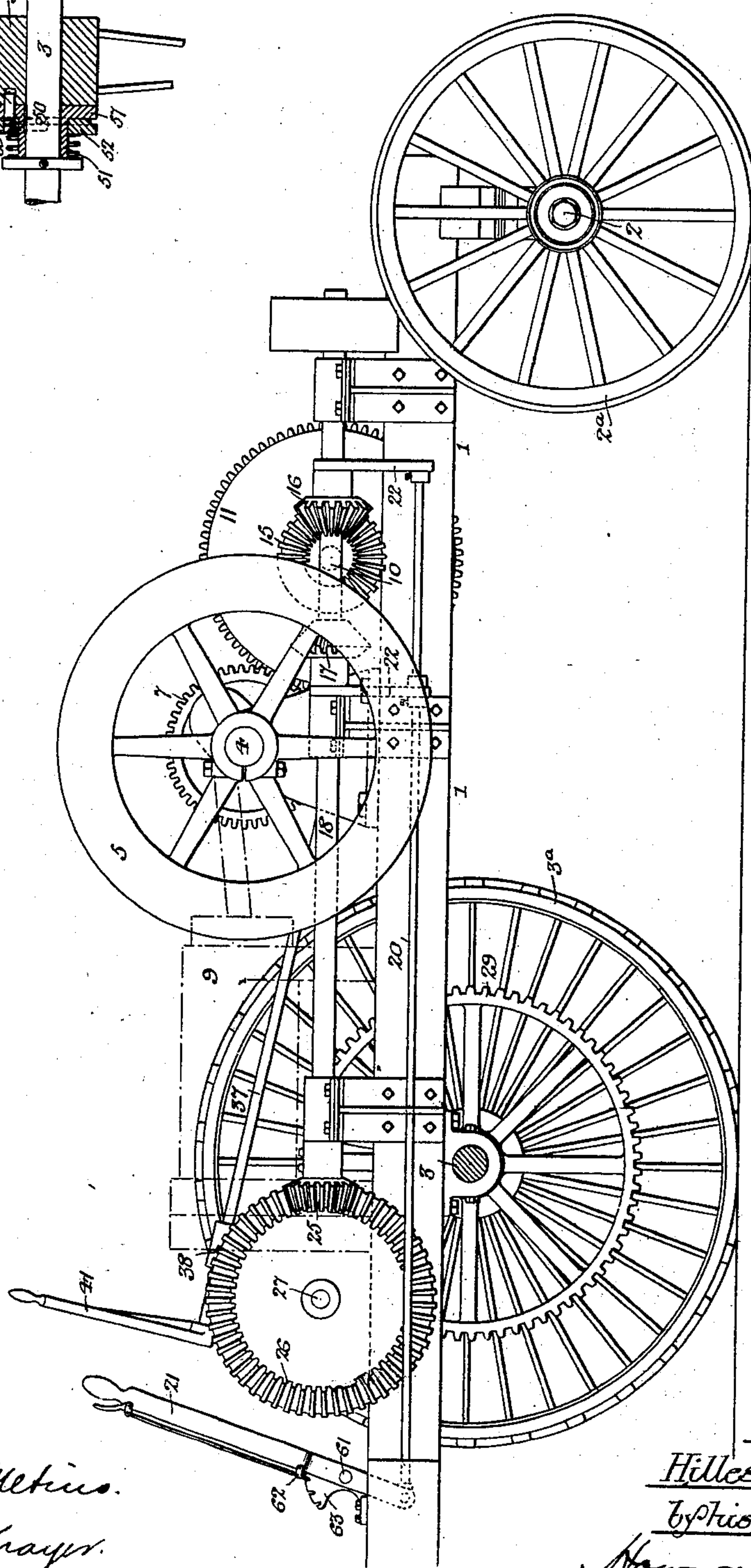


Fig. 5.



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UNITED STATES PATENT OFFICE.

HILLES C. JONES, OF ALLENTOWN, NEW JERSEY.

TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 715,583, dated December 9, 1902.

Application filed June 18, 1902. Serial No. 112,182. (No model.)

To all whom it may concern.

Be it known that I, HILLES C. JONES, a citizen of the United States, and a resident of Allentown, Monmouth county, New Jersey, have
5 invented certain Improvements in Traction-Engines, of which the following is a specification.

My invention relates to automatic or self-driving traction-vehicles; and it consists of
10 certain improvements whereby I can connect the engine of such vehicle which is normally employed for another purpose to drive said vehicle independent of its other and usual work.

15 My invention further includes a special form of clutch for use with traction-vehicles of this character, and also includes special means for engaging and releasing one of the rear driving-wheels of the vehicle.

20 The details of my invention will be fully pointed out hereinafter, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a traction-vehicle to which the structure forming the subject of my invention has been applied. Fig. 2
25 is an elevation, partly in section, looking in the direction of the arrow *x*, Fig. 1. Fig. 3 is an elevation, partly in section, looking in the direction of the arrow *y*, Fig. 2. Figs.
30 4 and 5 are respectively an enlarged face view and section of a portion of the clutch illustrated in Fig. 2; and Fig. 6 is a sectional view of the hub of one of the rear driving-wheels of the vehicle, illustrating a detail of
35 my invention.

In the accompanying drawings, 1 represents the usual base of a traction-vehicle to which my invention has been applied, which base is supported in any suitable manner
40 upon the front and rear axles 2 and 3, which carry the wheels 2^a and 3^a, the former wheels having the usual steering mechanism attached thereto, which, however, is not shown in the accompanying drawings.

45 Upon the base or bed frame of the machine 1 I mount a suitable gasoline motor or engine, which in the present instance is shown in dotted lines and indicated at 9, and this engine is attached by suitable connections to
50 the crank-shaft 4. This crank-shaft 4 carries the usual fly-wheels 5 and the pulley 6, by means of which latter power is transmitted

to the other machinery it is desired to drive by the aid of the motor—such, for instance, as a threshing-machine.

10 represents a counter-shaft arranged parallel to the crank-shaft 4 and mounted somewhat nearer to the bed or base frame 1 of the machine. Loose on said shaft 10 is a gear-wheel 11, which receives its motion from
60 another gear-wheel 7, carried by the crank-shaft 4. Splined to said shaft 10 is the moving member 12 of a clutch, which clutch is provided with the usual engaging segments 13, arranged to fit against the inner face of
65 the flange 11^a of the gear-wheel 11, suitable connections between said segments and the moving member splined to the shaft being provided. The means for operating this clutch will be shortly described. On the opposite
70 end of the counter-shaft 10 a bevel gear-wheel 15 is secured, and adapted to be engaged by this bevel gear-wheel are a pair of bevel gear-wheels 16 and 17, carried by a shaft 18, which may be called the “reversing-shaft,” said
75 wheels being splined to said shaft, so as to be longitudinally movable thereon, but fixed to said shaft, so far as rotative movement is concerned, so as to move therewith. For the purpose of shifting these wheels into and out of
80 engagement with the bevel gear-wheel 15 I provide a rod 20, which may be operated by a lever 21 at the rear of the machine, and from each of the gear-wheels 16 and 17 arms 22 are
85 suspended, to which said rod 20 is connected. By this means said wheels 16 and 17 may be moved alternately into and out of engagement with the bevel gear-wheel 15. In the present
90 instance the bevel gear-wheels are shown in position to reverse the movement of the vehicle. The reversing-shaft 18 carries at its opposite end a bevel-pinion 25, which meshes with a bevel gear-wheel 26, mounted on a
95 cross-shaft 27, carried in suitable bearings on the bed of the machine at the rear of the same, and at the opposite end of this shaft 27 a gear-pinion 28 is mounted, which pinion meshes with a gear-wheel 29, mounted on the
100 rear axle 3 of the machine, and through this system of gearing just explained the said rear axle is turned to drive the machine.

The clutch which I propose to use is shown in front elevation in Fig. 2 and part of the same on an enlarged scale in Figs. 4 and 5.

All of the members of this clutch are carried directly by the counter-shaft 10, and these members are operated by the movable piece 12, which is splined to said shaft. Fixed to the counter-shaft 10 is an annular disk 30, which is slotted at 31 for the reception of the arms 32 of the brackets 33, carrying the clutch-segments 13. These arms move in the slots of the disk 30, and they are grooved, as shown, the connecting-links 34 extending from the moving member 12 to the outer ends of the arms 32, directly adjoining the segments 13, lying in said grooves. The segments 13 are preferably of wood, and the brackets 33, which carry the same, are connected to the links 34 by means of the bolts 35, such brackets carrying in addition the adjusting-screws 36, so that the engaging segments 13 can be properly positioned with relation to the inner face of the flange 11^a. For the purpose of actuating the clutch I provide the rock-shaft 37, which is mounted in suitable bearings 38, carried by the frame of the machine, and this rock-shaft has a yoke-piece 39, engaging pins 40, carried by the moving member 12 of the clutch. To move the rock-shaft, I provide the lever 41, located at the opposite end of the same. When the movable member 12 is in and the segments are engaging the face of the flange 11^a, the yoke-piece 39 is rocked past its center in the one direction, and when said movable member is out and the segments are disengaged said yoke-piece is rocked past the center in the opposite direction. In either position the movable member 12 is held by said yoke-piece against accidental movement.

In traction-vehicles of this character it is necessary to provide some means for throwing one of the rear wheels out of engagement with the axle, especially when it is desired to turn the vehicle. For the purpose of keying this wheel to the axle when running in the usual way and for releasing it when it is desired to turn the vehicle I provide the mechanism shown in Fig. 6. In this view 3 represents the rear axle, and 3^b the hub of the rear wheel. Secured to the axle 3 by a key 50 is a flanged sleeve 51, and mounted on this sleeve is a collar 52, to which a yoke-arm 53 is connected, such yoke-arm being pivoted at 54 and having an operating-lever 55. The collar carries a pin 56, which passes through an aperture in the flange 57 of the sleeve 51 and is adapted to engage any one of a series of recesses 58, formed in the hub 3^b. To keep these parts in such position that the pin 56 will engage the hub of the wheel, a coiled spring 59 is employed, which spring is interposed between the movable collar 52 and the collar 60, fixed to the axle 3. When it is desired to release the wheel when turning the machine, it is only necessary to move the lever 55 in the direction of the arrow, and the pin 56 is immediately moved out of engagement with the hub 3^b of the wheel. Means may be provided for holding the lever in this position, though this is not necessary.

The transmitting bevel-gearing, comprising the pinions 16 and 17, which are controlled by the rod 20, is freely movable longitudinally on its shaft 18, and the said rod 20 is provided, as before noted, with a suitable hand-lever 21, which is pivoted at 61 and which lever is provided with a spring-pawl 62, engaging notches in the quadrant 63, whereby said lever may be held when the rod 20 is shifted.

It will be understood that I may shift the transmitting-gearing to the opposite side of the crank-shaft, and thereby reduce the number of parts necessary to transmit the movement of said crank-shaft to the axle of the vehicle. I may also provide such transmitting-gearing with a clutch of any suitable construction, or I may instead mount the clutch upon the gear-wheel 29, which is carried by the rear axle of the machine. I may also arrange the reversing mechanism at the rear of the machine by extending the shaft 18 across the face of the bevel gear-wheel 26, and mount two bevel-pinions on said shaft in lieu of the single bevel-pinion 25, such wheels being movable longitudinally on said shaft into and out of engagement with the bevel-wheel 26 in the same manner as the bevel-pinions 16 and 17 are movable into and out of engagement with the bevel gear-wheel 15.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. In a traction-vehicle of the character described, the combination of a prime motor, a crank-shaft, a driven shaft carrying slidably-mounted gear-wheels for transmitting movement in two directions, means between said shaft and the crank-shaft for driving the former, a rear axle upon which traction-wheels are mounted, and means including a clutch for transmitting the movement of said driven shaft to the rear axle.

2. In a traction-vehicle of the character described, the combination of a prime motor, a crank-shaft, a gear-wheel carried by said crank-shaft, a bevel gear-wheel driven from said crank-shaft, a shaft carrying gear-wheels for transmitting movement in two directions, said gear-wheels being movable on said shaft and arranged to be brought into engagement with said bevel gear-wheel, a rear axle upon which the traction-wheels are mounted, and means for transmitting the movement of said shaft to said rear axle, said means including a clutch carried by a part of the transmitting-gearing.

3. In a traction-engine of the character described, the combination of a prime motor, a crank-shaft carried and operated thereby, a gear-wheel carried by said crank-shaft, a bevel gear-wheel driven from said crank-shaft, a reversing-shaft arranged at right angles to said crank-shaft, bevel-pinions fixed to rotate with said shaft, but longitudinally movable on the same, said pinions adapted to engage the bevel gear-wheel and transmit

the movement of the same in two directions, a bevel-pinion fixed to the opposite end of said reversing-shaft, a bevel gear-wheel engaged by said pinion, a rear axle, a gear-wheel
5 on the same, mechanism for moving the same from said bevel gear-wheel, and a clutch carried by a part of the transmitting-gearing.

4. In a traction-vehicle of the character described, the combination of a prime motor
10 carried thereby, a crank-shaft driven by said prime motor, a gear-wheel carried by said crank-shaft, a counter-shaft, a gear-wheel mounted on said counter-shaft, and meshing with the gear-wheel of the crank-shaft, a
15 bevel gear-wheel mounted on the opposite end of the counter-shaft, a reversing-shaft for transmitting the movement of said counter-shaft, said latter shaft having a pair of bevel-pinions slidably mounted thereon, said wheels

being fixed to rotate with said shaft, a bevel- 20 pinion carried at the opposite end of the reversing-shaft, a shaft mounted at the rear of the engine-frame, said shaft having at one end a bevel gear-wheel with which the bevel-pinion of the reversing-gear meshes, and at 25 the opposite end a spur-pinion, a main driving-axle of the vehicle, a gear-wheel carried by said axle and meshing with said spur-pinion, and a clutch carried by a portion of the transmitting-gearing. 30

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HILLES C. JONES.

Witnesses:

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H. D. BUNTING.