

No. 753,670.

PATENTED MAR. 1, 1904.

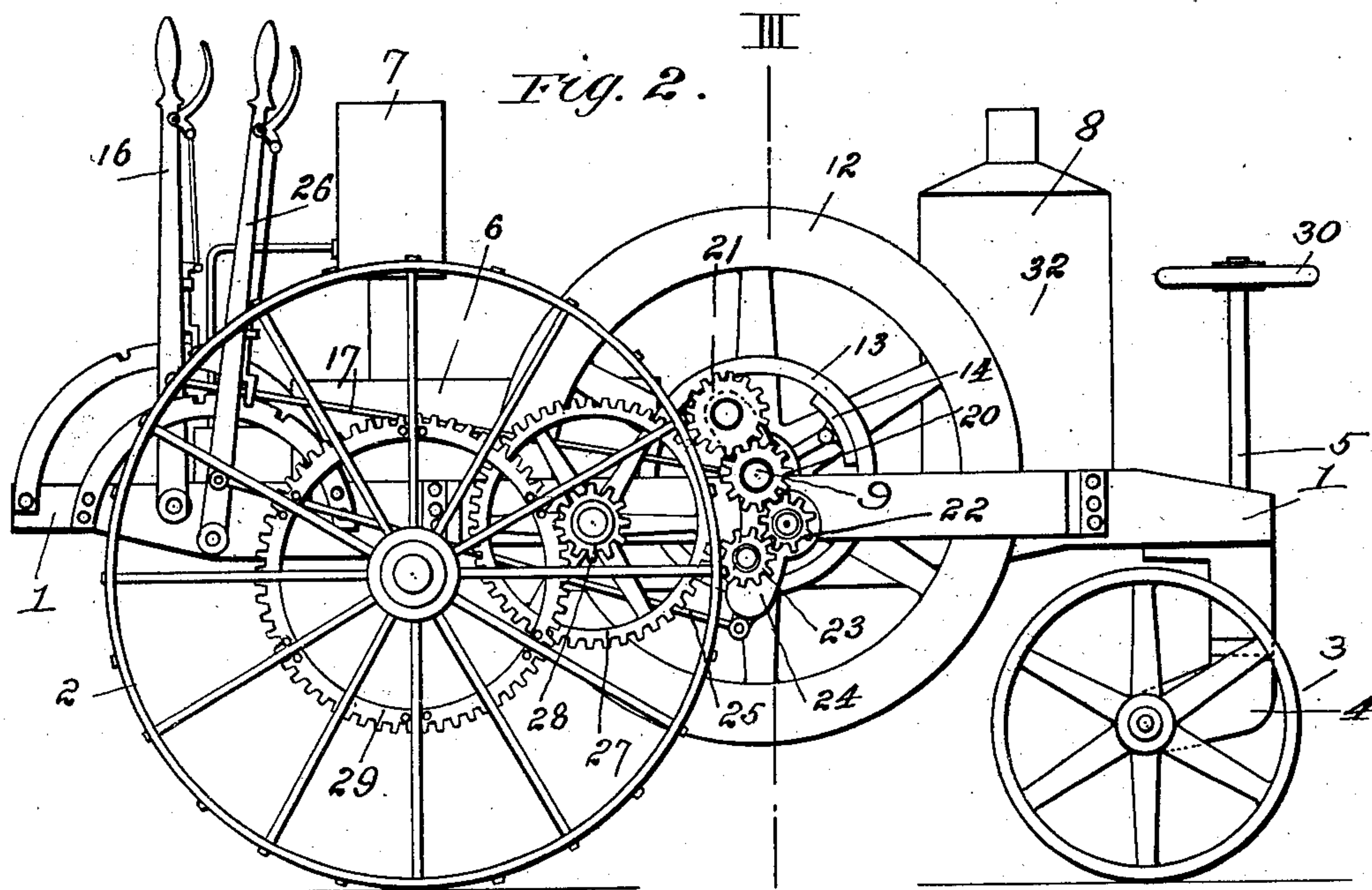
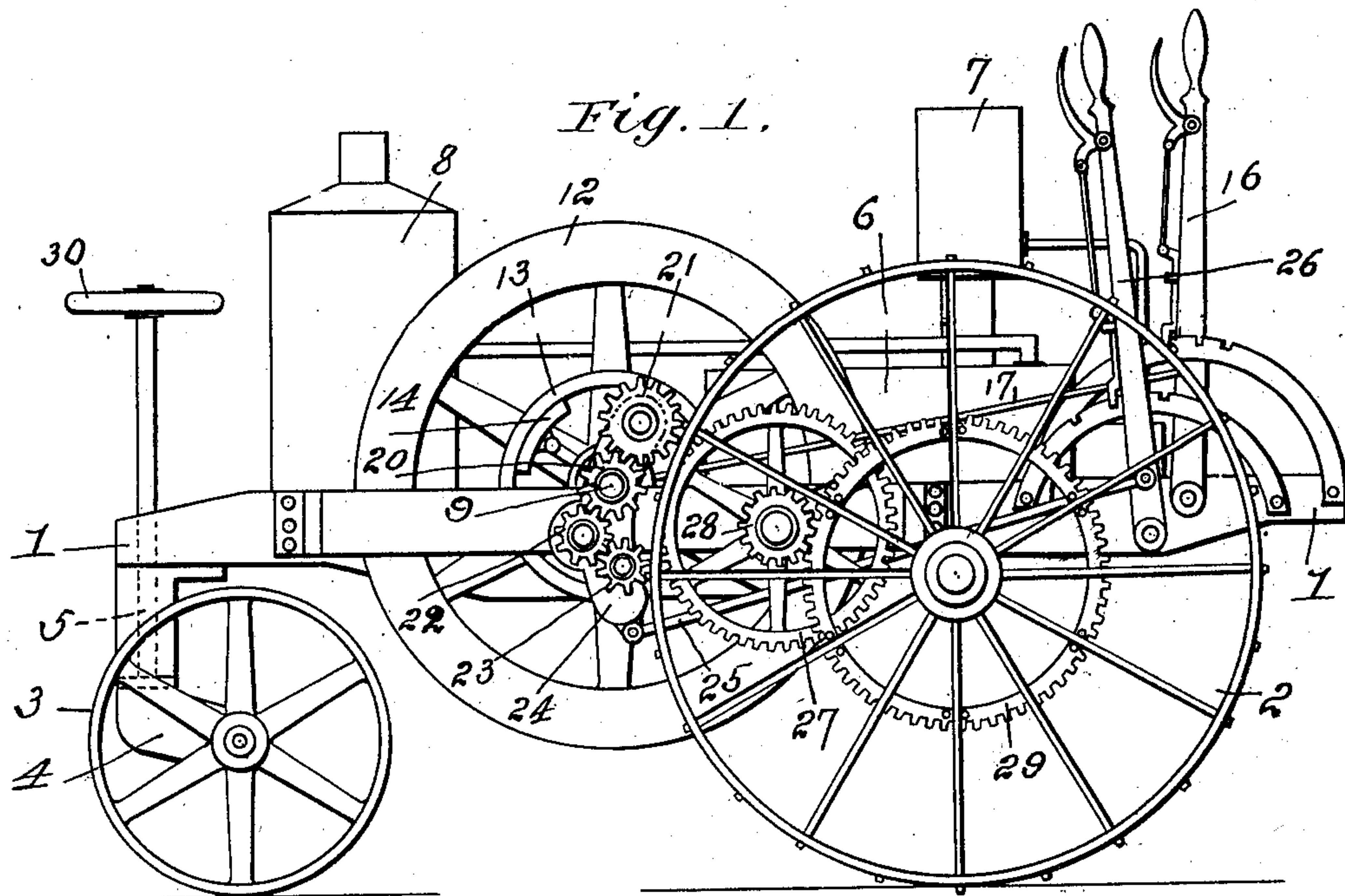
H. C. CLOYD.

DRIVING MECHANISM FOR TRACTION ENGINES.

APPLICATION FILED JUNE 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
R. I. White
Frederick D. Herbert.

III Henry C. Cloyd
Inventor
By his Attorneys Davis & Davis

No. 753,670.

PATENTED MAR. 1, 1904.

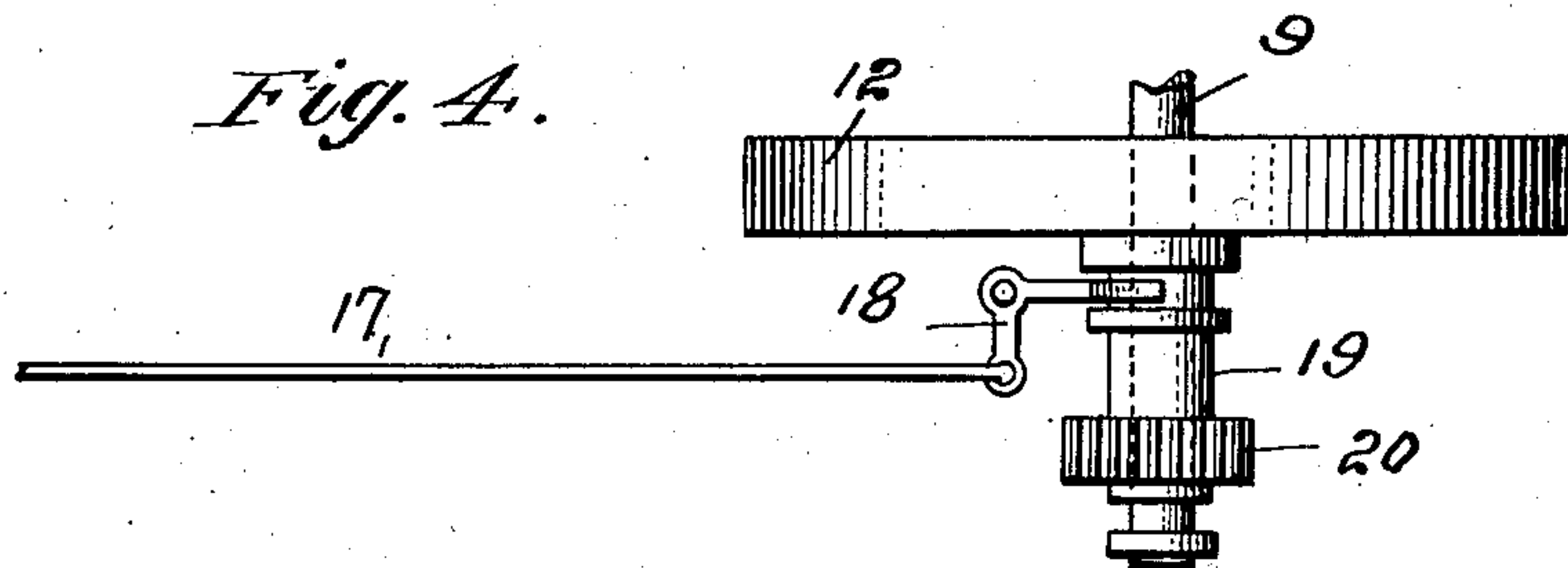
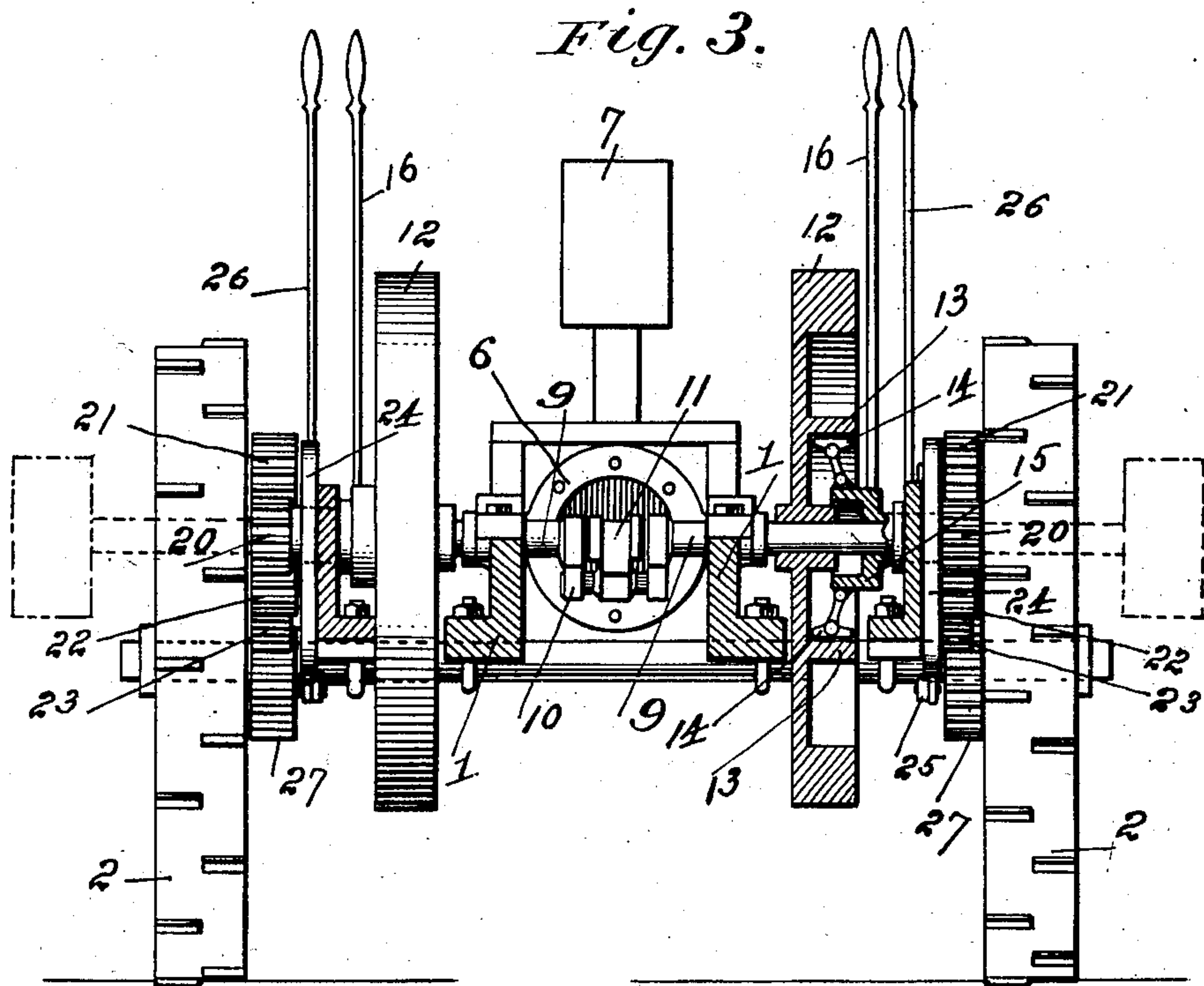
H. C. CLOYD.

DRIVING MECHANISM FOR TRACTION ENGINES.

APPLICATION FILED JUNE 29, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses
R. J. White
Frederick D. Herbert.

Henry C. Cloyd
Inventor
By *his attorney* Davis & Davis

UNITED STATES PATENT OFFICE.

HENRY C. CLOYD, OF UNION CITY, INDIANA.

DRIVING MECHANISM FOR TRACTION-ENGINES.

SPECIFICATION forming part of Letters Patent No. 753,670, dated March 1, 1904.

Application filed June 29, 1903. Serial No. 163,543. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. CLOYD, a citizen of the United States, residing at Union City, county of Randolph, State of Indiana, have invented certain new and useful Improvements in Driving Mechanisms for Traction-Engines, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a side elevation; Fig. 2, a similar view of the other side of the apparatus; Fig. 3, a vertical transverse sectional view taken on the line III III of Fig. 2, and Fig. 4 a detail plan view showing the means for operating one of the friction-clutches.

The object of this invention is to provide a simple and efficient driving mechanism for traction-engines and other motor-vehicles adapted for use in connection with a gasolene-engine or other fluid hydrocarbon-motor of the compression type; and it consists, mainly, in providing means by which the entire power of the engine may be applied to either driving-wheel, as desired, thereby rotating said wheel independently of the other driving-wheel, and in providing a freely-swinging steering-wheel so mounted that it will swing about a vertical pivot in the manner of a caster-wheel ordinarily used on furniture, whereby the engine may be readily steered in any direction by properly applying the power of the motor to the traction-wheels.

The invention further consists in providing an independent reversing mechanism for each driving-wheel, whereby said wheels may be driven in reverse directions should it be desired to do so.

Other important objects and advantages will appear hereinafter.

Referring to the various parts by numerals, 1 1 designate two main longitudinal supporting-beams which are supported by the main traction or transporting wheels 2 and the forward steering-wheels 3. These steering-wheels are mounted on an arm 4, supported by vertical pivot 5, in order that they may be swung around under the main frame in either direction. The arm 4 in its normal position extends rearward, and the steering-wheels 3 are mounted in the rear end thereof, so that

the center of the axle of said wheels is in the rear of the axial line of the pivot 5. Mounted on the main beams is an engine 6, preferably of an explosion type, and 7 designates the tank which is designed to hold the gasolene or other hydrocarbon supply, and 8 the water-tank to supply water to the cooling-jacket. The engine, of course, may be of any suitable design and power. The main shaft 9 is connected by means of the crank 10 to the pitman 11 of the engine. On the crank-shaft are mounted two large balance-wheels 12, one on each side of the main supporting-beams. Each balance-wheel is formed with a friction rim or flange 13, which is adapted to be engaged by the friction-blocks 14 of a friction-clutch 15. This clutch slides loosely on the main shaft and is manipulated by means of a lever 16, mounted at the rear of the main frame and connected to the clutch by means of a rod 17 and an angle-lever 18, these parts being so mounted that by a rearward pull on the lever the blocks 14 will be released from the friction-flange.

On the outer end of the sleeve 19 of the friction-clutch is a gear 20, which meshes with an upper gear 21 and a lower gear 22, the lower gear being an idler which in turn meshes with a small pinion 23. These gears are all mounted upon stub-axles, which are secured to a swinging gear-carrying plate 24, this plate being swung on the driving-shaft. To the lower end of this plate is connected a rearward-extending rod 25, which is connected to a lever 26, pivoted at the rear of the main frame. It will be readily seen that by moving this lever forward or backward the gear-carrying plate 24 will be swung on its pivot.

Mounted on the main frame just in the rear of the gear-carrying plate 24 is a large gear 27, which is adapted to be engaged by the gears 21 and 23 as the gear-carrying plate is shifted by means of the lever 26, a forward movement of said lever throwing the gear 21 into mesh with the gear 27 and a reverse movement of the lever throwing the gear 23 into mesh therewith and throwing the gear 21 out of gear, as is obvious. Secured to and rotating with the gear 27 is a small pinion 28, which in turn meshes with a large gear 29, rigidly

secured to the adjacent traction-wheel. It will therefore be readily seen that by throwing the lever 26 forward or rearward the direction of rotation of the adjacent traction-wheel may be reversed, and by varying the pressure of the friction-blocks on the friction-rims the speed of the traction-wheels may be varied. It will also be readily understood that by releasing one of the friction-clutches by means of its lever 16 the adjacent traction-wheel will be disconnected from the engine and the whole power of the engine will be exerted upon the other traction-wheel.

The driving mechanism connected to each traction-wheel is identical, so that the entire power of the engine may be exerted on either traction-wheel to rotate the same in either direction desired, or one traction-wheel may be driven in one direction and the other in the reverse direction. It will thus be seen that the movement of the motor-vehicle may be easily and effectively controlled by controlling the application of the power to the traction-wheels independently of each other.

By providing the freely-swinging steering-wheels, as described, in combination with a driving mechanism which is adapted to be connected independently with each traction-wheel or simultaneously with both and by which the speed of the traction-wheel may be varied independently the steering of the engine or other vehicle may be accomplished entirely through the power-applying means, the steering-wheels automatically shifting about their pivot to guide the machine in the proper direction. It will be readily understood that by applying the power to drive one of the traction-wheels forward faster than the other traction-wheel the vehicle will be swung around toward the slower-moving wheel and the steering-wheels will swing automatically in the manner of a caster-wheel used on furniture and similar articles to accommodate this movement of the engine. When it is desired to move straight ahead, both traction-wheels should be rotated forward at the same speed. When it is desired to make a very sharp turn, one traction-wheel may be driven rearward and the other forward, and if they are thus reversely driven at the same speed this will cause the vehicle to swing in a circle the center of which will be midway the ends of the axle of the traction-wheels. This manner of steering the traction-engine is made possi-

ble by providing the freely-swinging steering wheel or wheels, which will instantly adjust themselves to the desired position.

From the foregoing it will be readily understood that the manipulation of this traction-engine will be simple, that it may be very readily and effectively steered and governed in its movements, and that the power of the engine may be independently applied to either traction-wheel to drive them forward or rearward, as desired.

While I have described my invention as applied to a traction-engine, it is of course to be understood that I may apply it to any form of motor-vehicle and that while I prefer to employ it in connection with a hydrocarbon-motor of the compression type it may be used with motors of other types.

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

In a motor-vehicle the combination, of a supporting-frame, a pair of traction-wheels, a motor mounted on the frame, mechanism for independently applying the power of the motor to either traction-wheel independently of the other traction-wheel, gears connected to each of the traction-wheels, a driving-gear rigidly secured to each end of the motor-shaft, a freely-swinging plate mounted on said shaft adjacent each driving-gear, a gear carried by each of said plates meshing with the driving-gear and adapted to be brought into mesh with the traction-wheel gearing, a second gear carried by each of said plates and an idler-gear interposed between said second gear and the adjacent driving-gear, said second gear being adapted to be brought into engagement with the traction-wheel gearing, means for swinging the gear-carrying plates independently of each other, and a freely-swinging steering-wheel mounted upon a pivot located at one side of the vertical center of said steering-wheel, whereby said wheel may freely and automatically swing about said pivot to permit the vehicle to be guided entirely by means of the traction-wheels.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 24th day of June, 1903.

HENRY C. CLOYD.

Witnesses:

ROBERT GORDON,
J. L. TEEGARDEN.