

G. R. WALKER.
DRIVING MECHANISM.
APPLICATION FILED MAR. 3, 1911.

1,127,123.

Patented Feb. 2, 1915.

3 SHEETS—SHEET 1.

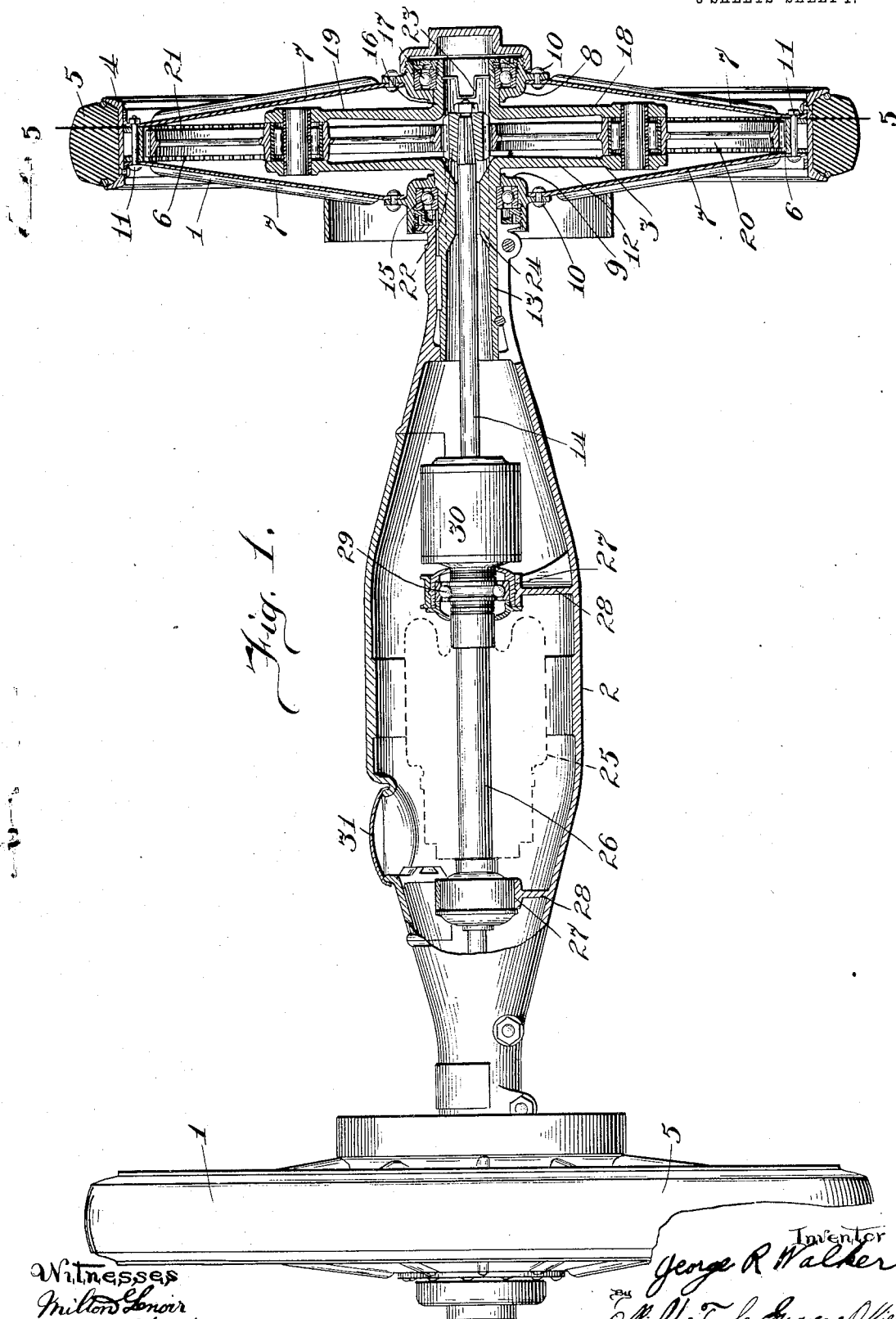


Fig. 1.

Witnesses
Milton Lenoir
F. L. Belknap

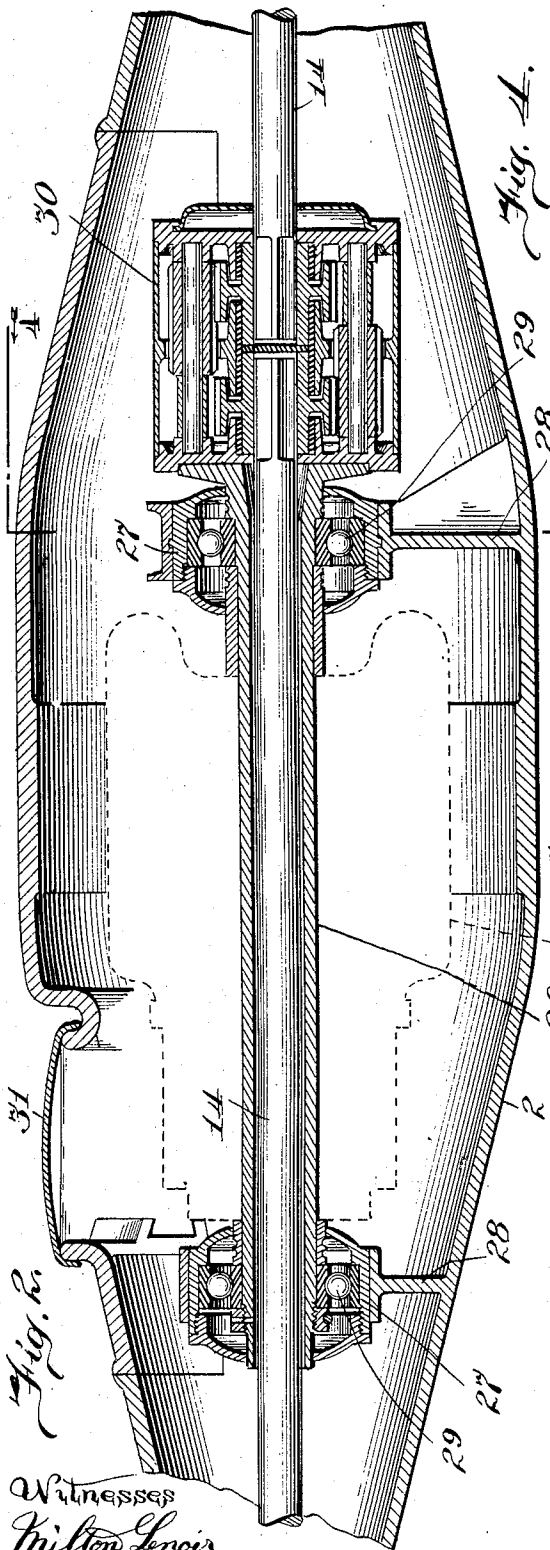
Inventor
George R. Walker
By
Offield, Tourle, Chase & Offield
Attorneys.

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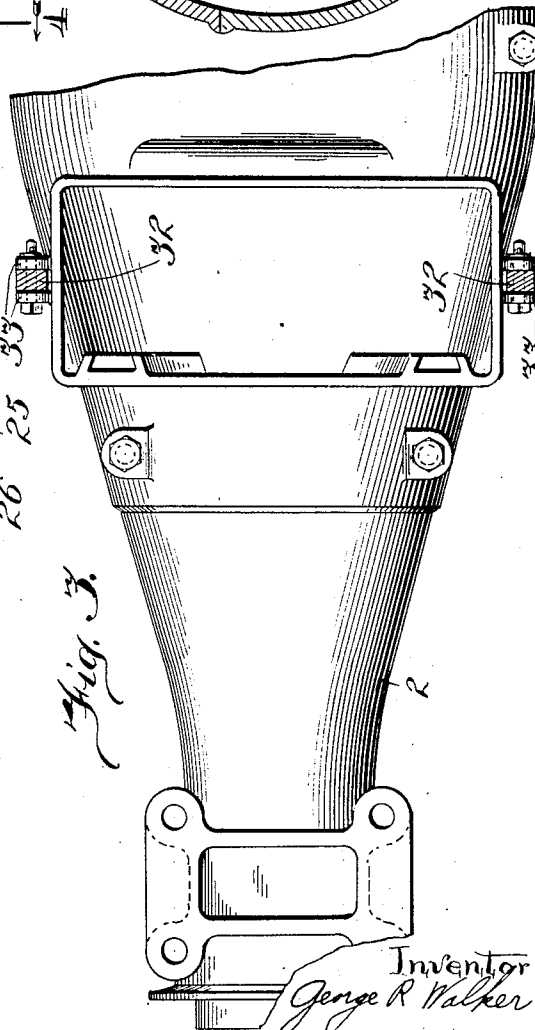
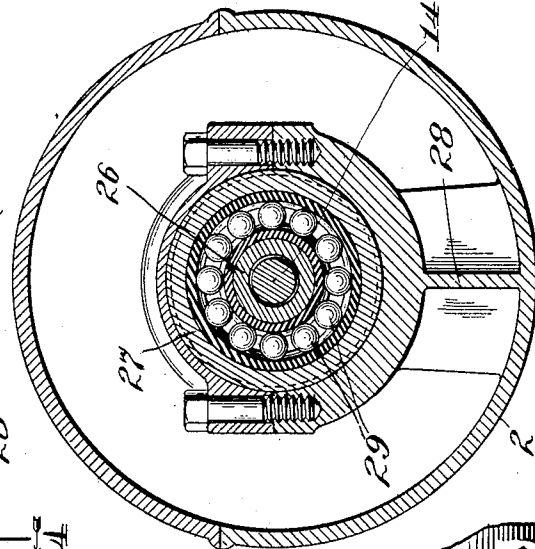
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3 SHEETS—SHEET 2.



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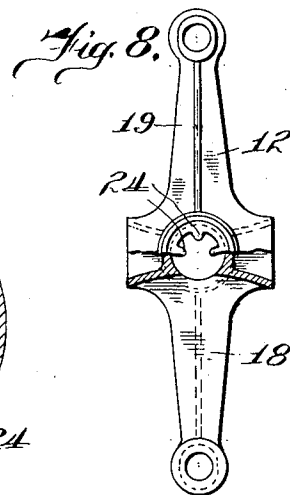
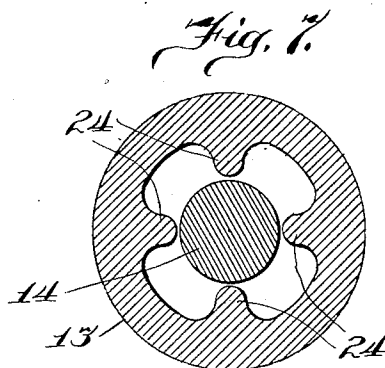
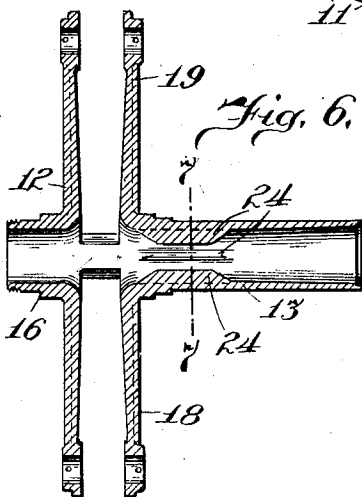
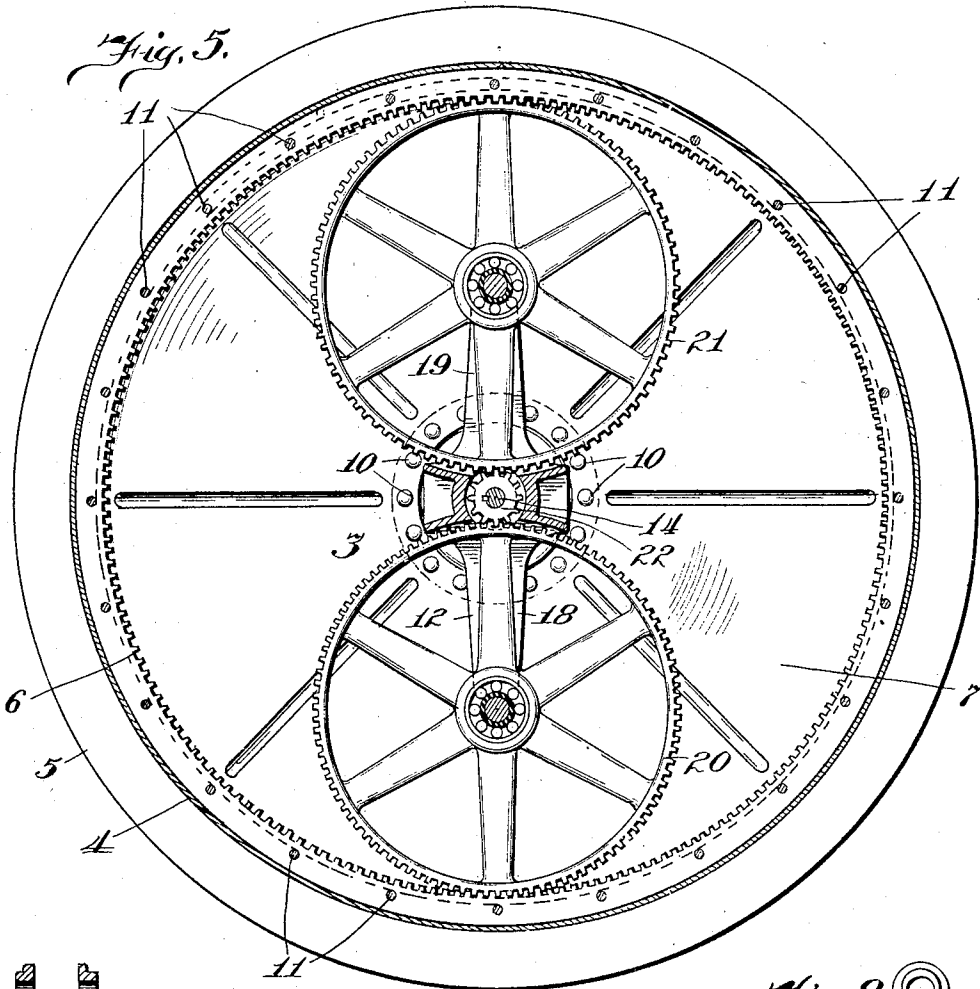
Inventor
George R. Walker
By
O'Field, Torle, Graves & O'Field
Attorneys

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Milton Lenoir
F. L. Belknap

Inventor
George R Walker
By
Offield, Torle, & Russell
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE R. WALKER, OF CHICAGO, ILLINOIS.

DRIVING MECHANISM.

1,127,123.

Specification of Letters Patent.

Patented Feb. 2, 1915.

Application filed March 3, 1911. Serial No. 612,067.

To all whom it may concern:

Be it known that I, GEORGE R. WALKER, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Driving Mechanisms, of which the following is a specification.

The invention relates to improvements in driving mechanisms and refers more particularly to a mechanism for automobiles of that character in which the wheels are driven from the armature shaft of a motor supported upon the axial connections.

The salient object of the invention is to provide a construction of the above character in which the two driving wheels of electric motor vehicles are driven from a single motor supported within a hollow axle, the armature shaft of the motor being co-axial with the center of the wheels.

Subsidiary objects of the invention are to provide a casing for housing the motor and differential gear mechanism and in which access may be readily had to the motor, and in general to provide simplicity in details of construction and arrangement.

The invention consists in the matters hereinafter described and more particularly pointed out in the appended claim.

In the drawings, Figure 1 is a view partly in side elevation and partly in vertical section of the rear driving wheels and axle of an electric vehicle equipped with my invention. Fig. 2 is a fragmentary vertical sectional view on an enlarged scale of the central part of the rear axle. Fig. 3 is a fragmentary top plan view of one end of the same. Fig. 4 is a transverse sectional view taken on the indirect line 4—4 of Fig. 2 and looking in the direction of the arrows. Fig. 5 is a vertical sectional view taken on lines 5—5 of Fig. 1. Fig. 6 is a detailed sectional view of the yoke member. Fig. 7 is a detailed sectional view taken on lines 7—7 of Fig. 6. Fig. 8 is a view partly in side elevation taken substantially at right angles to the view shown in Fig. 6.

Referring to the drawings, 1—1 designate as a whole the traction wheels of an automobile, and 2 the rear axle which, as shown, takes the form of a hollow spindle like casing. Within each of the wheels 1 is supported a speed reducing mechanism designated as a whole 3. This speed reducing mechanism and associated parts is generally

similar to that shown in my former Patent No. 866,410 and need not be described in detail. It comprises briefly, a rim 4, having a suitable tire 5 and an internal annular gear 6, a pair of side plates 7, and hub members 8 and 9. To these hub members are riveted, as shown at 10, the side plates 7 which are also secured by bolts 11 to the rim 4.

Within each wheel is mounted a yoke member 12 rigid with the axle and having an axially bored extension 13 which receives one end of the adjacent drive shaft 14. Between the hub members 9 and the axial extension 13 are interposed a set of Hess Bright bearings 15. Similarly between the journal extension 16 on the opposite side of the yoke and the hub member 8 is interposed a set of Hess Brights 17. The yoke member is provided with two pairs of diametric opposed radial yoke arms 18 and 19 in which are mounted intermediate gears 20 and 21 which mesh with the internal gear 6 of the wheel. Both of these intermediate gears also mesh with a center pinion 22 keyed to the adjacent end of the drive shaft 14. Within the journal extension 16 of each yoke is secured a spring 23 which bears against the adjacent end of the drive shaft. Preferably the axial extension 13 of the yoke is provided with strengthening ribs 24. It is understood that the driving mechanisms in the respective wheels are identical in construction.

Within the hollow axial casing 2 is mounted a motor 25 the armature shaft 26 of which is rotatably mounted in annular bearings 27 supported by brackets 28. Within the bearings 27 are suitably secured Hess Bright bearings 29. The drive shaft 14 extends concentrically through the armature shaft and is connected to the latter through the usual differential 30, the drive shaft being of course formed in two sections in the usual manner. The construction is such that the two sections of the drive shaft 14 are driven directly from the armature shaft, the latter being co-axial with the center of each wheel. Access may be had to the motor through the cover 31 provided at its opposite ends with lugs 32 which fit between opposed lugs 33 secured to the top of the axial casing.

I claim as my invention:

In a driving mechanism, the combination with a hollow axle casing, of a pair of trac-

tion wheels, of a yoke member in each wheel, an axle extension of said yoke member projecting into the adjacent end of the axle and rigidly connected thereto, and axle extension on the outer side of each yoke member, ball bearings interposed between the hub of the wheel and the axle extensions of each yoke member, a driving gear rigidly mounted upon the interior of each wheel and concentric with its axis of rotation, a motor in the axle, journal brackets within the axle for said motor, the armature shaft of said motor being co-axial with the axis of

rotation of the wheels, of drive shafts in alinement with the armature shaft and extending into the wheels, a pinion carried by the outer end of each drive shaft, a plurality of intermediate gears in each wheel meshing with the corresponding pinion and driven gear, of radial arms carried by the yokes upon which the respective intermediate gears are journaled.

GEORGE R. WALKER.

Witnesses:

F. L. BELKNAP,
LOIS FORCE.