F. LA ROCHE.

ELECTRICALLY DRIVEN ROAD VEHICLE.

APPLICATION FILED JUNE 14, 1918.

1,333,121. Patented Mar. 9, 1920.

Fig. 1.

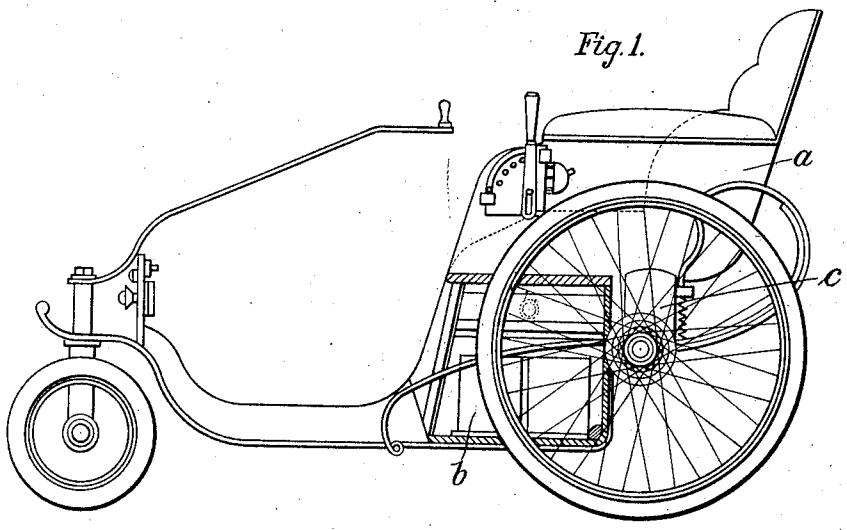


Fig. 2.

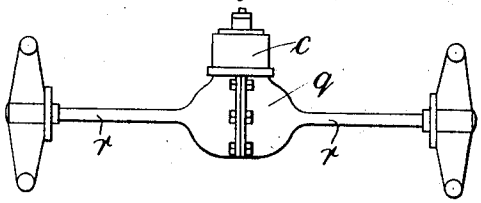


Fig. 3.

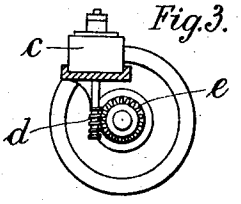
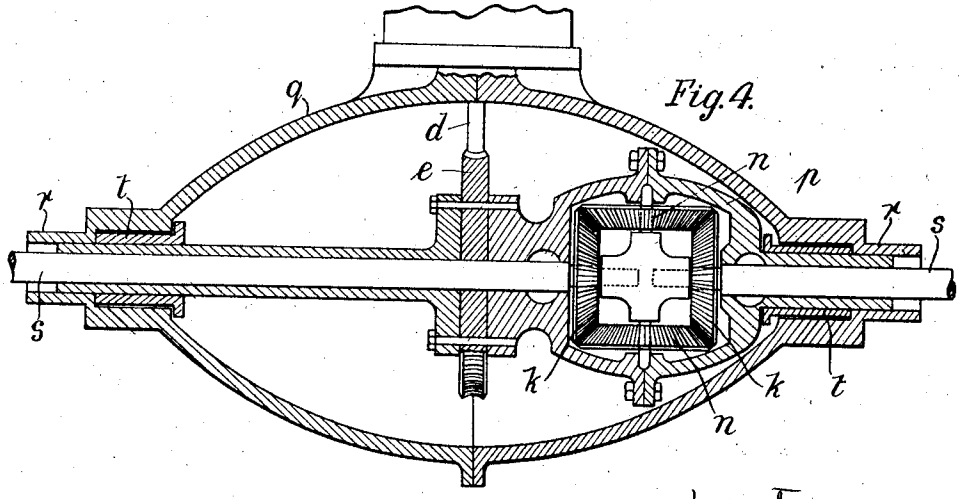


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANK LA ROCHE, OF HAMPSTEAD, LONDON, ENGLAND.

ELECTRICALLY-DRIVEN ROAD-VEHICLE.

1,333,121. Specification of Letters Patent. Patented Mar. 9, 1920.

Application filed June 14, 1918. Serial No. 240,094.

To all whom it may concern:

Be it known that I, FRANK LA ROCHE, a citizen of the French Republic, residing at Stanley House, Stanley Gardens, Hampstead, N. W. 3, in the county of London, England, have invented certain new and useful Improvements in Electrically-Driven Road-Vehicles, of which the following is a specification.

This invention relates to electrically propelled road vehicles of the type in which the spindle of the electric motor—which motor is preferably placed symmetrically with relation to the breadth of the vehicle and so that the spindle is vertical or approximately vertical—drives the differential directly through the intervention of a worm and worm wheel, or other suitable gearing.

It is found in practice with vehicles of this description that the mechanism is very likely to become clogged with dust and the like, and that the object of my invention is to provide a more efficient construction which prevents the liability of such clogging and enables the whole driving mechanism between the motor spindle and the driven axles to be kept perfectly supplied with lubricant.

According to my invention I provide a differential of any known type for driving the divided rear axles of the vehicle. This differential is driven from the spindle of the electric motor by means of suitable bevel gearing, a worm and worm wheel or the like, and the whole of this mechanism including the differential and the bevel gearing or its equivalent is inclosed in the casing containing or into which the motor spindle passes, the motor being preferably mounted symmetrically with relation to the breadth of the vehicle and so that its driving spindle is vertical.

And in order that my said invention may be better understood I will now proceed to describe the same with reference to the accompanying drawing in which:—

Figure 1 shows a side elevation of an invalid chair with my invention adapted thereto.

Fig. 2 is a diagrammatic elevation of the rear axle showing the motor and casing.

Fig. 3 is a diagrammatic section through the casing at right angles to the axle.

Fig. 4 is a longitudinal section of the casing and differential to a greatly enlarged scale.

The same letters of reference are employed to denote the same parts in all the views.

a shows an invalid chair. *b* the storage battery. *c* is the motor. The spindle of the motor is provided with a worm *d*. *e* is a worm wheel which is keyed to the casing *p* of the differential, such casing carrying the usual bevel pinions *n* gearing with the corresponding bevel pinions *k* at the ends of the divided shafts *s*.

q is a casing inclosing the whole mechanism, within which the differential rotates suitable bearings being provided which may take the form of bearing sleeves *t* located within suitable recesses in the casing. The ends of the casing may be extended into tubes *r* reaching to the wheels within which the axles *s* rotate, or the spindles *s* may alone extend to the wheels.

The casing *q* is made in halves, bolted together so as to inclose the mechanism, as shown, and lubricant is supplied to the interior of the casing in any appropriate manner so that the whole of the gearing is kept perfectly lubricated, while at the same time dust and dirt are kept away from the working parts.

Although I have shown, by way of example an invalid chair, with my arrangement of mechanism adapted thereto, I do not wish to confine myself to this particular vehicle, as I may adapt the invention to any other electrically driven road vehicle.

What I claim as my invention and desire to secure by Letters Patent of the United States of America is:—

In an electrically propelled motor vehicle, the combination of a divided rear axle, differential gearing connected to said axle, a casing inclosing said differential, a worm wheel rigidly secured to one end of said casing, a vertical spindle located symmetrically with respect to the breadth of the vehicle, a worm on said spindle engaging said worm wheel, a casing inclosing said differential and worm and worm wheel and an electric motor located above said last mentioned casing for driving said spindle substantially as and for the purpose set forth.

FRANK LA ROCHE.

Witnesses:
A. E. VIDAL,
A. BROWNE.