

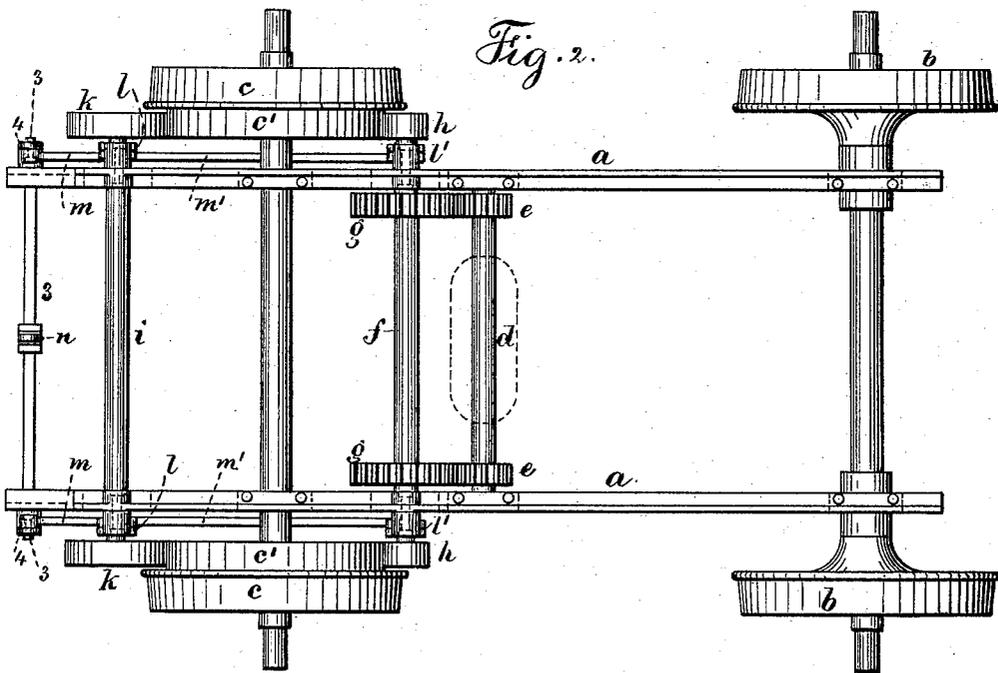
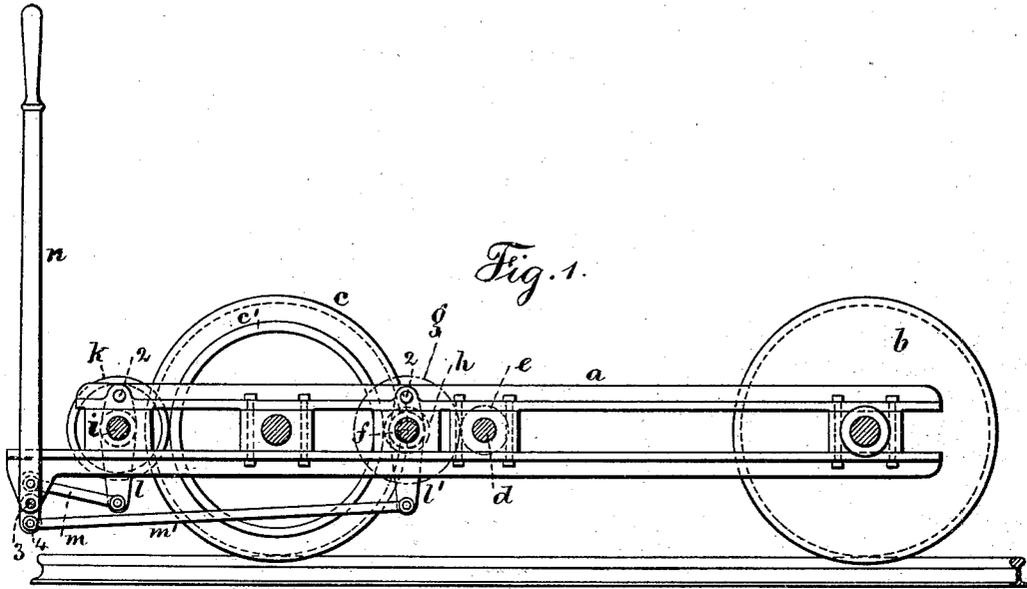
(No Model.)

F. J. WEIS.

DRIVING MECHANISM FOR CARS.

No. 398,207.

Patented Feb. 19, 1889.



Witnesses:  
J. Stair  
Charles Smith

Inventor:  
Francis J. Weis  
per Lemuel W. Serrell atty.

# UNITED STATES PATENT OFFICE.

FRANCIS J. WEIS, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE UNITED STATES MACHINE COMPANY, OF SAME PLACE.

## DRIVING MECHANISM FOR CARS.

SPECIFICATION forming part of Letters Patent No. 398,207, dated February 19, 1889.

Application filed June 28, 1888. Serial No. 273,438. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS J. WEIS, of Jersey City, in the county of Hudson and State of New Jersey, have invented an Improvement in Driving Mechanism for Cars; and the following is declared to be a description of the same.

My present invention relates to improvements in car-motors dependent on electricity as a motive power, and said improvements are connected with and relate to the device described and claimed in the application of Joseph Weis, filed July 19, 1887, Serial No. 244,707, which application was duly allowed February 3, 1888.

The devices constituting my present invention are applicable to cars driven by an electric motor, the electric current for operating the motor being derived from any well-known or desired source of supply; and my invention consists in the combination, with the main supporting-frame for the car-body and the driving and supporting wheels, of friction-wheels bearing upon annular flanges and operated by a lever system to engage or disengage said friction-wheels and flanges to drive or stop the car, the friction-wheels in my present application being located upon each side of the car and at opposite sides of the annular flange, one friction-wheel, by preference, being larger than the other, said wheels being mounted in sliding boxes and operated by swinging and pull levers to bring said wheels against the opposite sides of the annular flange, one pair of said friction-wheels being connected by gearing with the electrically-rotated or motor shaft, and the other pair of friction-wheels acting as supports to and being revolved by said annular flanges.

In the drawings, Figure 1 is an elevation of the driving-wheels and section of the shafts, and Fig. 2 is a plan of the same.

The frame *a* is adapted to support and carry the car-body, and the pair of wheels *b* and their shaft and bearing-boxes are supported at one end of said frame, and the pair of wheels *c* and their shaft and bearing-boxes are supported at the other end of the frame *a*, and said wheels *c* each having an

annular flange, *c'*, formed upon the inner surface of the same.

*d* represents the electrically-rotated or motor shaft, the armature of the electric motor being shown by dotted lines, and said shaft *d* is mounted in journal-boxes in the frame *a*, and at each end there are pinions *e*. The shaft *f* is also mounted in bearing-boxes which slide in the frame *a*, and there are gears *g* upon said shaft within the frame, which mesh with the gears *e*, but are of larger size, and upon the outer ends of the shaft *f* are the friction-wheels *h*.

The shaft *i* is mounted in sliding bearings in the frame *a*, and upon the outer ends of said shaft are the friction-wheels *k*. The swinging levers *l l'* are pivoted at 2 upon the outer surface of the frame *a*, and said levers have hubs through which pass the shafts *f i*, and connected to the lower ends of said levers *l l'* are the pull-levers *m m'*, and there is a vertical lever, *n*, whose lower end is connected to the cross-shaft 3, pivoted in bearings in the frame *a*, and the pull-levers *m m'* are connected to rocking-levers 4 upon the outer ends of the shaft 3, and said lever *n* is adapted, through the shaft 3, rock-levers 4, push-levers *m m'*, and swinging levers *l l'*, to force the friction-wheels *k* against the outer surfaces of the flanges *c'* and to pull the friction-wheels *h* against the surface of the flanges *c'* on the opposite side of the wheel, and as the friction-wheels *h* are revolved from the electrically-rotated or motor shaft *d* through the slowing-down gears *g* said friction-wheels *h* by their rotation act to revolve the wheels *c* and their annular flanges *c'*. The movement of the lever *n* and the parts connected therewith in the reverse direction pushes the friction-wheels *h* and *k* out of contact with the flanges *c'*, and the flanges and their wheels are free, and any ordinary brake mechanism can, if desired, be applied to the exterior surface of the tread of the wheel *c* to stop the car.

The movement necessary to impart through the lever *n* and its connecting mechanism to the friction-wheels *h k* is very slight—probably only an eighth or three-sixteenths of an

inch—this slight movement not in any way affecting the meshing of the gears *e g.*

A slight modification of my present invention can be made as follows: The shaft *i* can  
5 be mounted in bearing-boxes secured rigidly in the frame *a*, and the shaft of the wheels *c* mounted in sliding boxes, the friction-wheels *k* running in contact with the flanges *c'*, and the friction-wheels *h* can be alone movable  
10 by means of the swinging levers *l'*, push-levers *m'*, and the lever *n*.

I claim as my invention—

1. The combination, with the pair of wheels *b* and a supporting-frame and the electrically-  
15 rotated shaft, of the pair of wheels *c*, having flanges *c'*, a pair of friction-wheels, *k*, adapted to engage the annular flanges at one side, and a pair of friction-wheels, *h*, adapted to engage the opposite side of the annular

flanges, and mechanism, substantially as here- 20 in shown and described, for imparting motion to the friction-wheels, substantially as set forth.

2. The combination, with the pair of wheels *b* and a supporting-frame and an electrically- 25 rotated or motor shaft, of a pair of wheels, *c*, having flanges *c'*, the pairs of friction-wheels *h k*, adapted to engage the opposite sides of the annular flanges, the swinging levers *l l'*, the pull-levers *m m'*, and a lever, *n*, by which 30 the same are operated, substantially as and for the purposes set forth.

Signed by me this 22d day of June, 1888.

FRANCIS J. WEIS.

Witnesses:

GEO. T. PINCKNEY,  
HAROLD SERRELL.