No. 635,446. Patented Oct. 24, 1899.

M. MOSKOWITZ.

MEANS FOR GENERATING ELECTRICITY FROM CAR WHEEL AXLES.

(Application filed Jan. 16, 1899.)

(No Model.) 2 Sheets—Sheet 1.

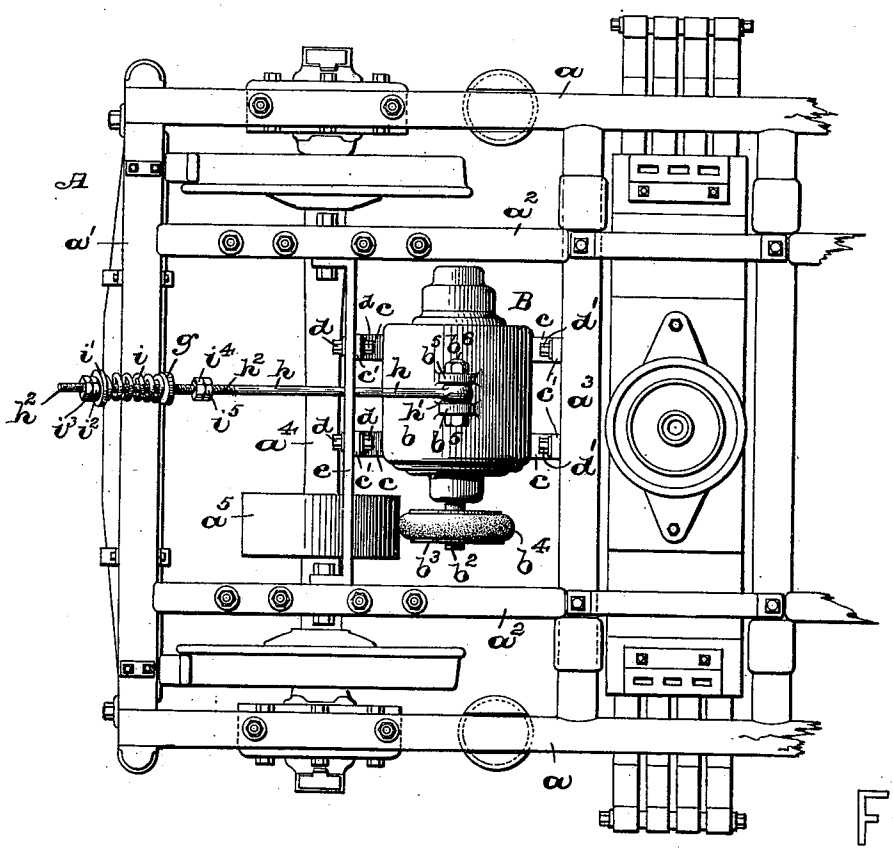


FIG. 1

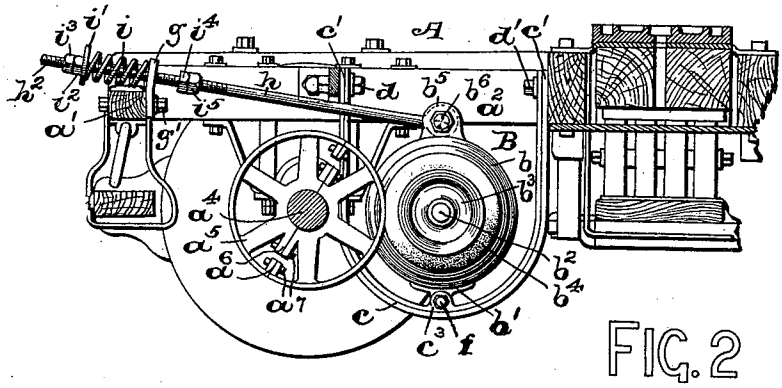


FIG. 2

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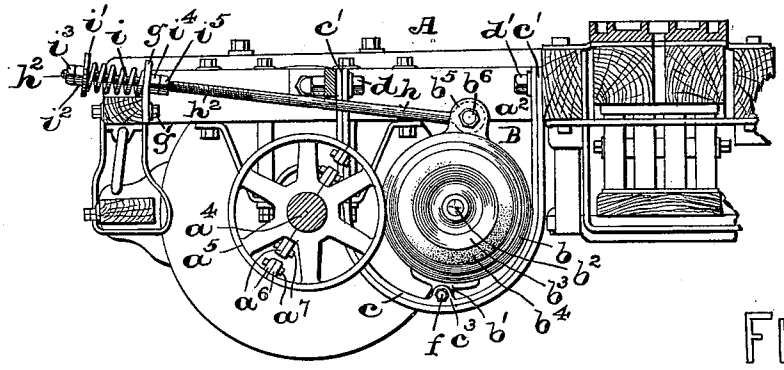


FIG. 3

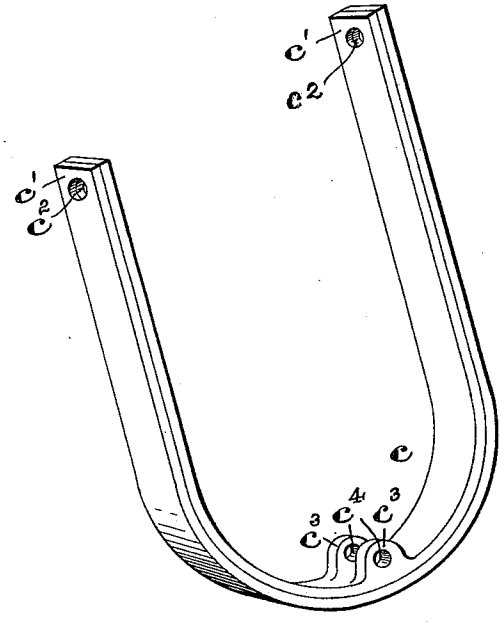


FIG. 4

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UNITED STATES PATENT OFFICE.

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MEANS FOR GENERATING ELECTRICITY FROM CAR-WHEEL AXLES.

SPECIFICATION forming part of Letters Patent No. 635,446, dated October 24, 1899.

Application filed January 16, 1899. Serial No. 702,227. (No model.)

To all whom it may concern:

Be it known that I, MORRIS MOSKOWITZ, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Means for Generating Electricity from Car-Wheel Axles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention has reference to the driving of a dynamo placed upon or supported by the truck of a railway or other car for illuminating or other purposes by utilizing the rotary motion of one of the car-wheel axles by means of a friction contact and a pivotal and spring-actuated arrangement of the dynamo on the frame of the car-truck.

The primary object of this invention, therefore, is to provide a simple and operative mechanism for arranging the dynamo and its frame or casing in pivotal relation with the car-wheel truck and one of its car-wheel axles, and also to provide a pneumatic frictional power transmission between the dynamo-axle and the car-wheel axle, the same being of such construction that frictional contact will be made under all the various conditions due to inequalities in the road-bed and varying weights in the body of the car.

A further object of this invention is to provide a novel means for quickly throwing the armature-pulley of the dynamo out of its operative frictional contact with the car-wheel axle or a pulley-wheel thereon for the removal of the car-wheel axle or other parts of the truck-frame without disturbing the position of the dynamo, and, furthermore, to dispense with the use of a belt or belts and dispensing with many other useless and unnecessary fittings.

The invention consists in the novel arrangements and combinations of the several parts, all of which will be described in detail in the accompanying specification and finally embodied in the clauses of the claim.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a portion of a car-wheel truck and a top view of the dynamo and friction-drive embodying the principles of my present invention. Fig. 2 is a sectional view of said portion of the car-wheel truck, illustrating in side elevation the application of my invention thereto, the friction-wheels of the operating mechanism being represented in their operative engagement. Fig. 3 is a similar view, but the friction-wheels of the operating mechanism being represented in their disengaged and inoperative positions. Fig. 4 is a perspective view of one of the frame portions of a cradle in which the dynamo-frame is to be pivotally supported.

Similar letters of reference are employed in all of the above-described views to indicate corresponding parts.

In said drawings, A indicates the car-truck; a, the equalizing-bars; a', the cross-beams at the ends of the truck, and a^2 are the usual forms of connecting-beams of the car-truck.

B is any one of the well-known forms of dynamo which is pivotally supported in a pair of frames c, which are made as illustrated more particularly in Fig 4 and are provided with perforations or holes c^2 in the ends c', whereby they can be secured by means of bolts d and d' to the beam a^3 of the truck-frame and a bar e, which is secured to the longitudinal beams a^2, substantially as illustrated in Fig. 1 of the drawings. Each frame c is provided with a bearing usually in the form of a pair of ears or lugs c^3, which are provided with suitable holes or perforations c^4 for the reception of a pin or bolt f. The casing of the dynamo, which is indicated by the reference-letter b, is provided on its under side with perforated lugs b', whereby said casing and dynamo can be pivotally arranged on the said pin or bolt f of the bearings in each frame c, as will be clearly understood.

The armature-shaft b^2 of the dynamo B is provided with a wheel b^3, which may be provided with a tire b^4, of rubber or other suitable material, capable of being inflated with air. Said pneumatic tire b^4 is arranged in frictional contact with a pulley-wheel a^5, secured in the proper place on the car-wheel axle a^4, said wheel a^5 being preferably made

in halves and provided with flanges a^6 and bolts a^7, whereby the halves of said pulley can be secured together and firmly clamped in the desired position upon the car-wheel axle. With the said dynamo are connected the usual circuit-wires, (not shown in the drawings,) which extend from the said dynamo to suitably-placed lamps and other electric translating devices in the body of the car.

In order that proper frictional contact may be maintained between the pneumatic tire b^4 and the pulley-wheel a^5 on the car-wheel axle, the upper surface of the dynamo-casing b is provided with a pair of lugs b^5, having holes or perforations, in which there is a pin or bolt b^6, substantially as illustrated. Pivotally arranged on said pin or bolt b^6 and between the lugs b^5 is the perforated hub h' of a rod h, said rod being screw-threaded at the end h^2 and passing through a hole in an upright g, affixed to the cross-beam a' by means of bolts g' or in any other well-known manner. Encircling said threaded end of the rod h on that side of the upright g farthest away from the dynamo is a spring i, the same being capable of compression between said upright g and a plate or washer i' on the rod h by the drawing up of a nut i^2 against the said plate or washer i', a lock-nut i^3 being employed in connection with said nut i^2 for preventing its displacement by vibration when in its proper position for adjustment of the spring i. From an inspection of Fig. 2 and the description of these parts it will be seen that by means of the proper adjustment of this spring the rod h will draw the dynamo-casing over toward the cross-beam a', thereby bringing the pneumatic tire b^4 of the wheel b^3 in firm and operative frictional engagement with the pulley-wheel a^5 on the car-wheel axle, providing a good and sufficient frictional contact, and the spring i', as well as the pneumatic tire, will act as cushioning means between the several parts irrespective of the varying positions of the car-truck frame due to the irregularities in the road-bed and different weights in the body of the car.

When it is desired to bring the wheel b^3 out of its frictional engagement with the wheel a^5 on the axle a^4, the nuts i^2 and i^3 are screwed back from the position on the rod h (indicated in Figs. 1 and 2) to the position shown in Fig. 3, and a second pair of nuts i^4 and i^5 on the opposite side of the upright g are moved along the screw-threaded portion of the rod h and against the upright, as indicated in said Fig. 3. Thus it will be evident that the rod h will be caused to move in a direction opposite from that just described, and the dynamo will swing on its support connected with the frames c toward the beam a^3 of the truck A, whereby the pneumatic tire of the wheel b^3 becomes disengaged from the wheel a^5, as will be clearly evident, to enable the removal of the car-wheel axle for repairs without disturbing the primary position of the dynamo and its parts, the said frames c and spring and nuts on the rod h retaining the said dynamo in its inoperative position (indicated in Fig. 3) until the car-wheel axle has been replaced and the spring and nuts changed from the positions in said Fig. 3 to that represented in Figs. 1 and 2.

The operations of the several parts of the device are practical and in construction are very simple, and a noiselessly-operating mechanism has been provided for operating a dynamo from a rotating car-wheel axle.

The armature-wires of the dynamo may be arranged in any well-known manner and any suitable construction of dynamo can be used. It will be further understood that I may use in connection with the dynamo and its circuits any of the well-known forms of pole-changers, acting automatically or otherwise, whereby current can be made to travel in either direction, according to the direction of the travel of the car.

It will be evident that changes may be made in the several arrangements and combinations of parts of the operating mechanism, as well as in the details of the construction thereof, without departing from the scope of my present invention. Hence I do not limit my invention to the exact arrangements and combinations of the parts as herein described and illustrated, nor do I limit myself to the exact details of the construction of such parts.

Having thus described my invention, what I claim is—

1. The combination, with a car-wheel axle, a driving-pulley thereon, and a truck-frame, of a cradle suspended from said truck-frame, having a bearing, a dynamo pivotally connected with said bearing, so as to be capable of an oscillatory motion, a pulley-wheel on the armature-shaft of the dynamo in frictional engagement with the driving-pulley on the car-wheel axle, and a pivotal connection between the dynamo-frame and car-truck frame for normally causing operative contact of said wheel on the armature-shaft with said wheel on the car-axle, consisting, essentially, of a rod h having a perforated hub pivotally arranged on a pin or bolt in lugs on the dynamo-frame, a perforated upright in which the opposite end of said rod is arranged, and a spring encircling said rod and bearing against said upright, substantially as and for the purposes set forth.

2. The combination, with a car-wheel axle, a driving-pulley thereon, and a truck-frame, of a cradle suspended from said truck-frame, having a bearing, a dynamo pivotally connected with said bearing, so as to be capable of an oscillatory motion, a pulley-wheel on the armature-shaft of the dynamo in frictional engagement with the driving-pulley on the car-wheel axle, and a pivotal connection between the dynamo-frame and car-truck frame for normally causing operative contact of said wheel on the armature-shaft with said wheel on the car-axle, consisting, essentially, of a rod h having a perforated hub pivotally ar-

ranged on a pin or bolt in lugs on the dynamo-frame, a perforated upright in which the opposite end of said rod is arranged, a spring encircling said rod and bearing against said upright, and nuts i^2 and i^3 and i^4 and i^5 on said rod, substantially as and for the purposes set forth.

3. The combination, with a car-wheel axle, a driving-pulley thereon, and a truck-frame, of a cradle suspended from said truck-frame, comprising a pair of U-shaped frame portions having perforated ears or lugs, a dynamo and frame having perforated ears or lugs pivotally connected with said ears or lugs on said U-shaped frame portions, so as to be capable of an oscillatory motion, a pulley-wheel on the armature-shaft of the dynamo in frictional engagement with the driving-pulley on the car-wheel axle, and a pivotal connection between the dynamo-frame and car-truck frame for normally causing operative contact of said wheel on the armature-shaft with said wheel on the car-axle, substantially as and for the purposes set forth.

4. The combination, with a car-wheel axle, a driving-pulley thereon, and a truck-frame, of a cradle suspended from said truck-frame, comprising a pair of U-shaped frame portions having perforated ears or lugs, a dynamo and frame having perforated ears or lugs pivotally connected with said ears or lugs on said U-shaped frame portions, so as to be capable of an oscillatory motion, a pulley-wheel on the armature-shaft of the dynamo in frictional engagement with the driving-pulley on the car-wheel axle, a pivotal connection between the dynamo-frame and car-truck frame for normally causing operative contact of said wheel on the armature-shaft with said wheel on the car-axle, and means connected with said pivotal connection for causing the disengagement of said wheels, substantially as and for the purposes set forth.

5. The combination, with a car-wheel axle, a driving-pulley thereon, and a truck-frame, of a cradle suspended from said truck-frame, comprising a pair of U-shaped frame portions having perforated ears or lugs, a dynamo and frame having perforated ears or lugs pivotally connected with said ears or lugs on said U-shaped frame portions, so as to be capable of an oscillatory motion, a pulley-wheel on the armature-shaft of the dynamo in frictional engagement with the driving-pulley on the car-wheel axle, and a pivotal connection between the dynamo-frame and car-truck frame for normally causing operative contact of said wheel on the armature-shaft with said wheel on the car-axle, consisting, essentially, of a rod *h* having a perforated hub pivotally arranged on a pin or bolt in lugs or ears on the dynamo-frame, a perforated upright in which the opposite end of said rod is arranged, and a spring encircling said rod and bearing against said upright, substantially as and for the purposes set forth.

6. The combination, with a car-wheel axle, a driving-pulley thereon, and a truck-frame, of a cradle suspended from said truck-frame, comprising a pair of U-shaped frame portions having perforated ears or lugs, a dynamo and frame having perforated ears or lugs pivotally connected with said ears or lugs on said U-shaped frame portions, so as to be capable of an oscillatory motion, a pulley-wheel on the armature-shaft of the dynamo in frictional engagement with the driving-pulley on the car-wheel axle, and a pivotal connection between the dynamo-frame and car-truck frame for normally causing operative contact of said wheel on the armature-shaft with said wheel on the car-axle, consisting, essentially, of a rod *h* having a perforated hub pivotally arranged on a pin or bolt in lugs or ears on the dynamo-frame, a perforated upright in which the opposite end of said rod is arranged, a spring encircling said rod and bearing against said upright, and nuts i^2 and i^3 and i^4 and i^5 on said rod, substantially as and for the purposes set forth.

7. In combination, a car-truck, a car-wheel axle, a driving-pulley thereon, a cradle or frame suspended from said truck-frame, perforated lugs in said cradle and a bearing-pin therein, a dynamo in said cradle or frame, perforated lugs connected with said dynamo, said lugs being arranged on said bearing-pin, a friction-wheel on the dynamo-shaft in operative engagement with the driving-wheel on the car-wheel axle, a pivotal connection on the top of said dynamo, and means connected therewith and with the truck-frame for causing operative contact between said friction-wheel and the pulley-wheel on the car-axle, consisting, essentially, of a rod *h* having a perforated hub pivotally arranged in said pivotal connection on the top of the dynamo, a perforated upright in which the opposite end of said rod is arranged, and a spring encircling said rod and bearing against said upright, substantially as and for the purposes set forth.

8. In combination, a car-truck, a car-wheel axle, a driving-pulley thereon, a cradle or frame suspended from said truck-frame, perforated lugs in said cradle and a bearing-pin therein, a dynamo in said cradle or frame, perforated lugs connected with said dynamo, said lugs being arranged on said bearing-pin, a friction-wheel on the dynamo-shaft in operative engagement with the driving-wheel on the car-wheel axle, a pivotal connection on the top of said dynamo, and means connected therewith and with the truck-frame for causing operative contact between said friction-wheel and the pulley-wheel on the car-axle, consisting, essentially, of a rod *h* having a perforated hub pivotally arranged in said pivotal connection on the top of said dynamo, a perforated upright in which the opposite end of said rod is arranged, a spring encircling said rod and bearing against said

upright, and nuts i^2 and i^3 and i^4 and i^5 on said rod, substantially as and for the purposes set forth.

9. In combination, a car-truck, a car-wheel axle, a driving-pulley thereon, a pivotal support on said truck, a dynamo pivotally connected with said support, a dynamo-shaft, a wheel on said shaft, a pneumatic tire on said wheel, a pivotal connection on the top of said dynamo, and means connected therewith and with the truck-frame, for causing an operative contact between said pneumatic tire and the driving-wheel on the car-axle, consisting, essentially, of a rod h having a perforated hub pivotally arranged in said pivotal connection on the top of said dynamo, a perforated upright in which the opposite end of said rod is arranged, a spring encircling said rod and bearing against said upright, and nuts i^2 and i^3 and i^4 and i^5 on said rod, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 12th day of January, 1899.

MORRIS MOSKOWITZ.

Witnesses:

FREDK. C. FRAENTZEL,

WM. H. CAMFIELD, JR.