No. 612,139. Patented Oct. 11, 1898.

W. F. RICHARDS.

CASING FOR ELECTRIC CAR LIGHTING APPARATUS.

(Application filed Nov. 26, 1897.)

(No Model.) 2 Sheets—Sheet 1.

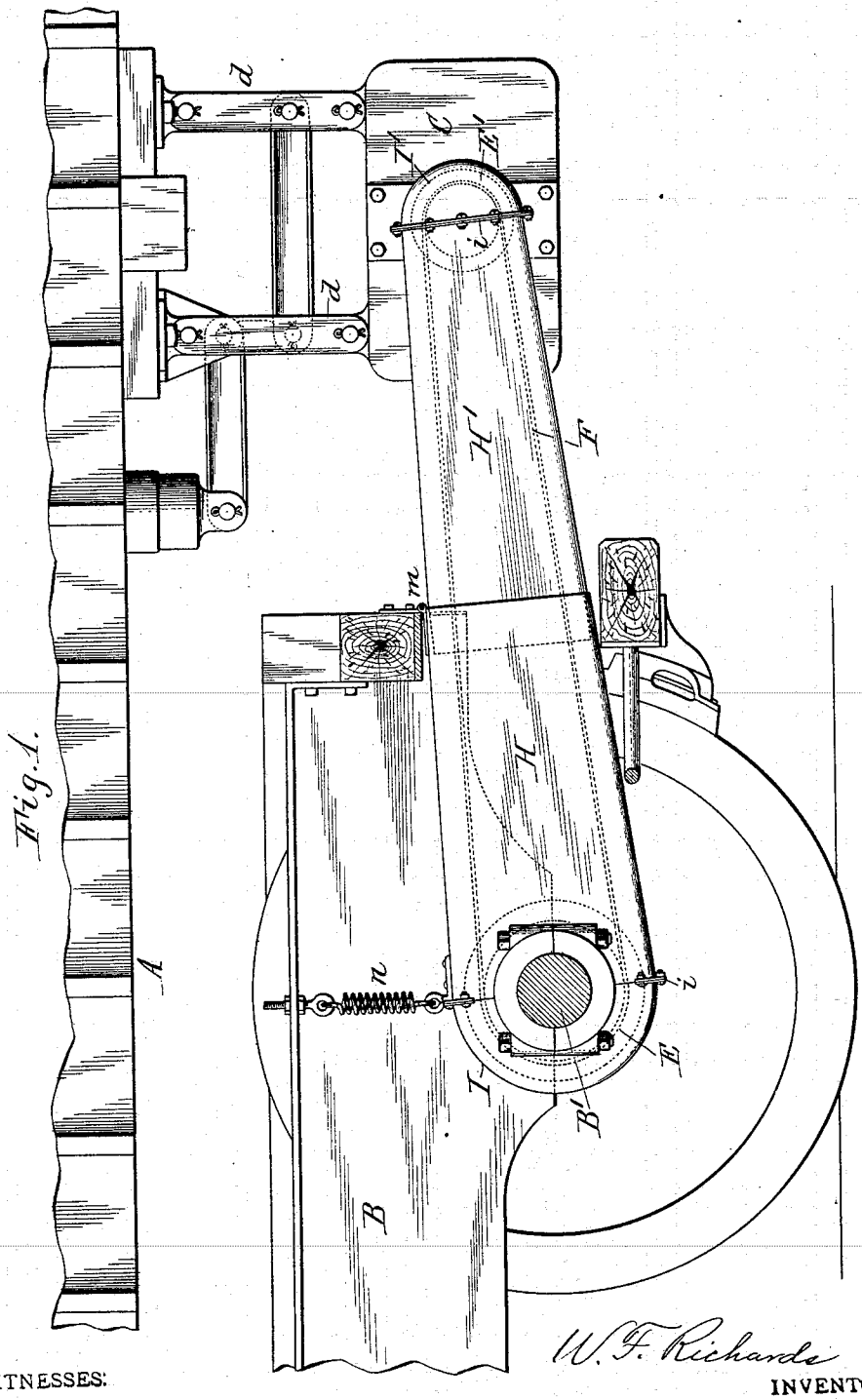


Fig. 1.

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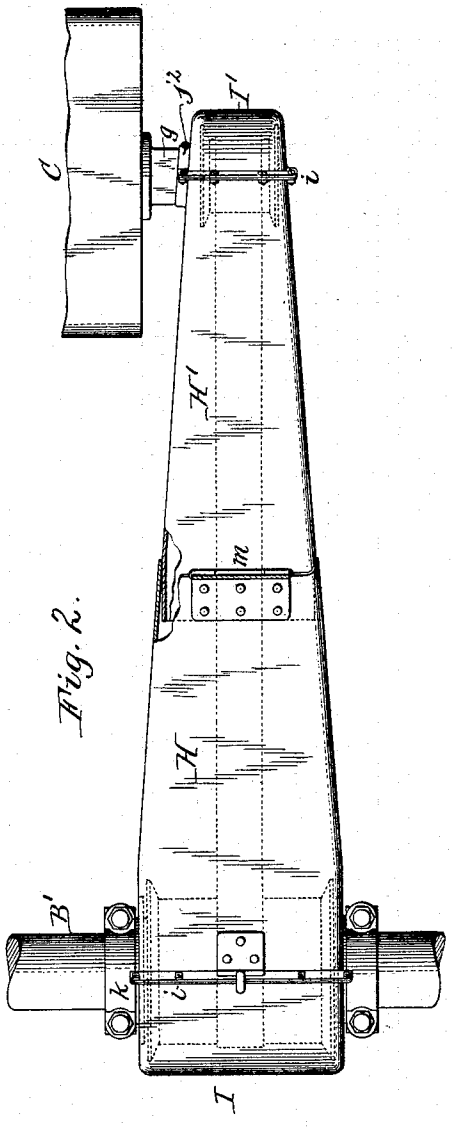


Fig. 2.

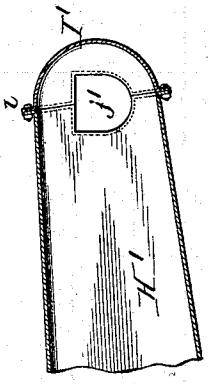


Fig. 4.

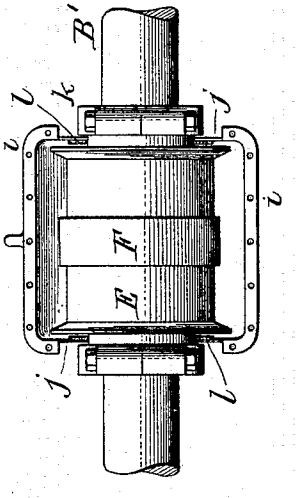


Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLARD F. RICHARDS, OF BUFFALO, NEW YORK, ASSIGNOR TO CHARLES M. GOULD, OF SAME PLACE.

CASING FOR ELECTRIC CAR-LIGHTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 612,139, dated October 11, 1898.

Application filed November 26, 1897. Serial No. 659,777. (No model.)

To all whom it may concern:

Be it known that I, WILLARD F. RICHARDS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Casings for Electric Car-Lighting Apparatus, of which the following is a specification.

This invention relates to a casing or housing for exposed parts of that class of electric car-lighting apparatus in which the current is generated by a dynamo driven by a belt from one of the car-axles, and more particularly to an apparatus of this kind in which the dynamo is movable toward and from the driving-axle for keeping the belt taut when the dynamo is running at the normal speed and allowing the belt to slacken and slip on the pulley of the dynamo for maintaining a normal speed of the dynamo when the speed of the driving-axle becomes excessive. Heretofore the belt and the pulleys have been exposed to the weather. The pulleys become heated by the friction of the belt, and in case snow or ice lodges thereon while the car is standing still it is melted by the heated pulleys when the car is set in motion, thus wetting the belt and interfering with its action.

The object of my invention is the provision of a casing for the belt and the pulleys which, while protecting these parts, permits of the requisite movements of the dynamo toward and from the car-axle and also takes part in the vertical vibrations of the truck-frame and the swiveling movements of the truck in passing over curves.

In the accompanying drawings, consisting of two sheets, Figure 1 is a side elevation of my improved casing applied to a railway-car. Fig. 2 is a top plan view thereof, partly in section. Fig. 3 is a fragmentary front view of the driving-axle, the pulley mounted thereon, and the casing, the front cap of the latter being removed. Fig. 4 is a vertical longitudinal section of the contracted rear portion of the casing.

Like letters of reference refer to like parts in the several figures.

A is the car-body, B the frame of one of the trucks, and B′ the inner or rear axle thereof.

C is the dynamo, which is supported in such a manner that it is capable of moving toward and from the car-axle B′. In the construction shown in the drawings the dynamo is suspended from the car-body by depending links *d*, which are pivoted to swing lengthwise of the car.

E E′ are the pulleys mounted on the car-axle and the dynamo-shaft, and F is the driving-belt running around the same, the belt and the pulleys being shown by dotted lines in Figs. 1 and 2. The pulley E and its hub are split lengthwise into two halves, which are clamped to opposite sides of the car-axle by transverse bolts *e*, passing through perforated bosses which are formed on collars or enlargements *e′* at the ends of the hub, as shown in Figs. 1, 2, and 3.

g, Fig. 2, is the usual housing projecting from the side of the dynamo-frame and inclosing the dynamo-shaft, which latter is not shown.

The movable dynamo is constantly moved away from the driving-axle by any suitable tension device for keeping the belt taut. This tension device forms no part of this invention and is, therefore, not fully illustrated.

The casing which incloses the driving-belt F and the pulleys E E′ is preferably constructed of sheet metal and composed of telescopic sections H H′. The outer portions of the two sections are mounted on the driving-axle and the housing *g* of the dynamo-shaft, respectively, while their inner portions are fitted loosely one within the other, so that the rear section of the casing is free to slide on the front section as the dynamo moves toward and from the drixing-axle. In the construction shown in the drawings the rear section of the casing is fitted into the front section. The outer end portions of the sections are preferably constructed in the form of removable semicircular caps I I′, which are secured to the adjacent ends of the sections by bolts or screws passing through marginal flanges *i*, formed on the parts. The front section is provided in its sides, near its front end, with openings *j* for the passage of the hub of the pulley E, as shown in Fig. 3, while the rear section is provided in its inner side, near its rear end, with an opening *j′* for the passage of the shaft-housing *g* of the dynamo,

as shown in Fig. 4. The rear section is provided at the edge of its opening with an outwardly-extending flange j^2, which embraces the shaft-housing g and is secured to the latter by screws or other suitable fastenings, as shown in Fig. 2, whereby the rear portion of the casing is held against lateral displacement. The side walls of the front section of the casing are confined between the ends of the pulley E and the collars or enlargements e' on the projecting ends of its hub, as shown in Fig. 3. In order to form a dust-proof joint between the pulley on the driving-axle and the edges of the front openings of the casing, washers l, of vulcanite or other suitable material, are applied to the pulley-hub on the inner sides of the casing.

The pulley E on the driving-axle is made comparatively wide to prevent the driving-belt from leaving the same when the truck turns out of line with the car-body in rounding a curve, and the casing is preferably tapered from its enlarged front portion, which incloses this wide pulley, to its contracted rear portion, as shown.

The jointed central portion of the casing is supported from the truck-frame or other support preferably by hinging or pivoting the upper rear portion of the front section to the truck-frame, as shown at m. This construction permits the front section of the casing to vibrate vertically with the truck-frame without affecting the rear section. The joint of the telescopic casing not only permits the casing to shorten and lengthen in adapting itself to the longitudinal movements of the dynamo, but it also affords the requisite lateral or angular movement of the front section of the casing with reference to the rear section when the truck turns out of line with the car-body in passing around a curve.

The requisite vertical and swiveling movements of the front section are comparatively small and the elasticity of the sheet of metal of which the sections are constructed is sufficient to permit these movements; but, if desired, the front end of the rear section may be contracted or bent inwardly out of line with the tapered walls of the section, as shown in Figs. 1 and 2, so as to leave a space between said contracted end and the forwardly-flaring wall of the front section.

In order to ease the weight or pressure of the front section of the casing against the hub of the pulley on the driving-axle, the same is yieldingly supported by a spring n, attached at its upper end to a part of the truck-frame and at its lower end to the front portion of the casing, as shown in Fig. 1. By supporting the front section in this manner the axle is prevented from wearing the circular front openings of the casing into oblong form, and the casing is permitted to move up and down with the axle as the truck vibrates on the axle.

As the casing is closed on all sides, it effectually excludes snow and ice from the driving-belt and the pulleys.

I claim as my invention—

1. The combination with a car-body, a car-axle and the truck-frame, of a dynamo supported by the car-body, driving mechanism for transmitting motion from said car-axle to the dynamo, and a casing inclosing said driving mechanism and composed of a front section mounted with its front portion on the car-axle and having its rear portion pivotally supported on the truck-frame, whereby the front end of said section is permitted to rise and fall with the car-axle, and a rear section having a flexible connection with said front section and mounted with its rear portion on the dynamo, substantially as set forth.

2. The combination with a car-body, a car-axle and the truck-frame, of a dynamo supported by the car-body and capable of moving toward and from said axle, driving mechanism for transmitting motion from said car-axle to the dynamo, and a casing inclosing said driving mechanism and composed of a front section mounted with its front portion on said axle, so as to vibrate vertically therewith and hinged at its upper rear end to the truck-frame, and a rear section having a loose telescopic connection with the rear end of said front section and mounted with its rear portion on the dynamo, substantially as set forth.

3. The combination with a car-body, a car-axle and the truck-frame, of a dynamo supported by the car-body, driving mechanism for transmitting motion from said car-axle to the dynamo, a casing inclosing said driving mechanism and composed of a front section mounted with its front portion on the car-axle and having its rear portion pivotally supported on the truck-frame, whereby the front end of said section is permitted to rise and fall with the car-axle, and a rear section having a flexible connection with said front section and mounted with its rear portion on the dynamo, and a spring which supports the front portion of said front section, substantially as set forth.

Witness my hand this 20th day of November, 1897.

WILLARD F. RICHARDS.

Witnesses:
CARL F. GEYER,
KATHRYN ELMORE.