No. 793,227. PATENTED JUNE 27, 1905.

W. F. RICHARDS.

DRIVE MECHANISM FOR CAR DYNAMOS.

APPLICATION FILED MAY 21, 1904.

Fig. 1.

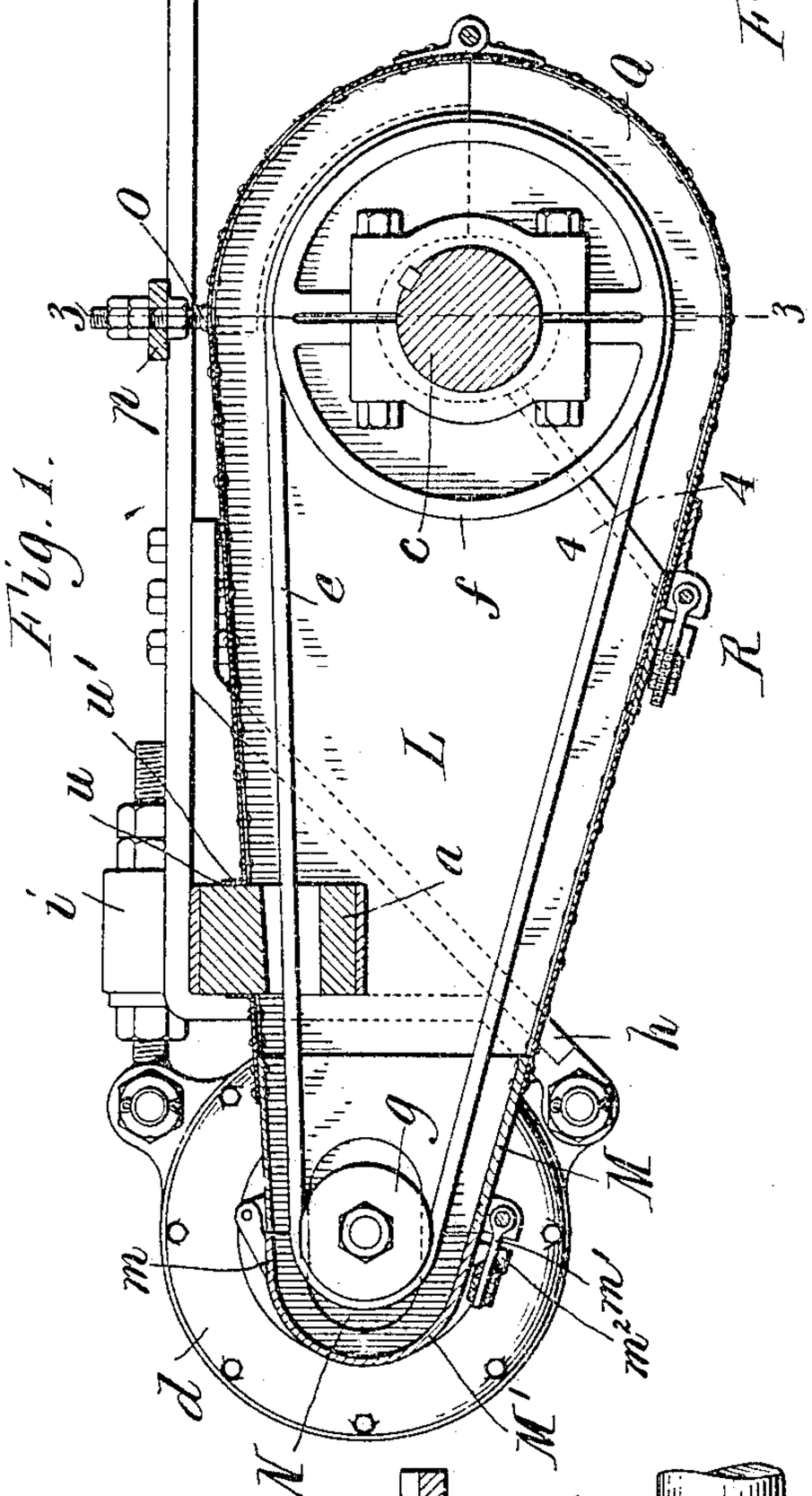


Fig. 5.

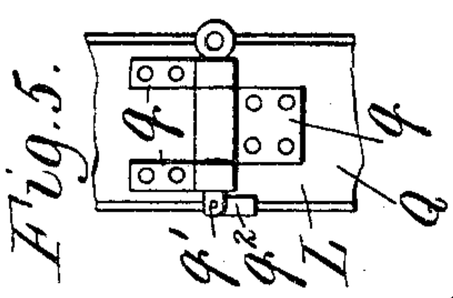


Fig. 6.

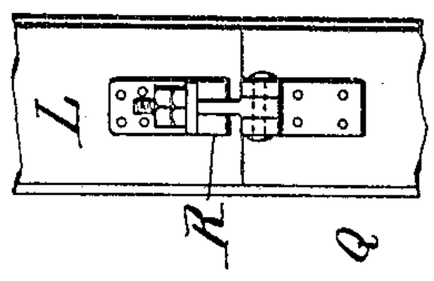


Fig. 4.

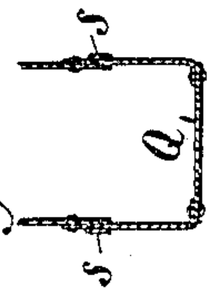


Fig. 2.

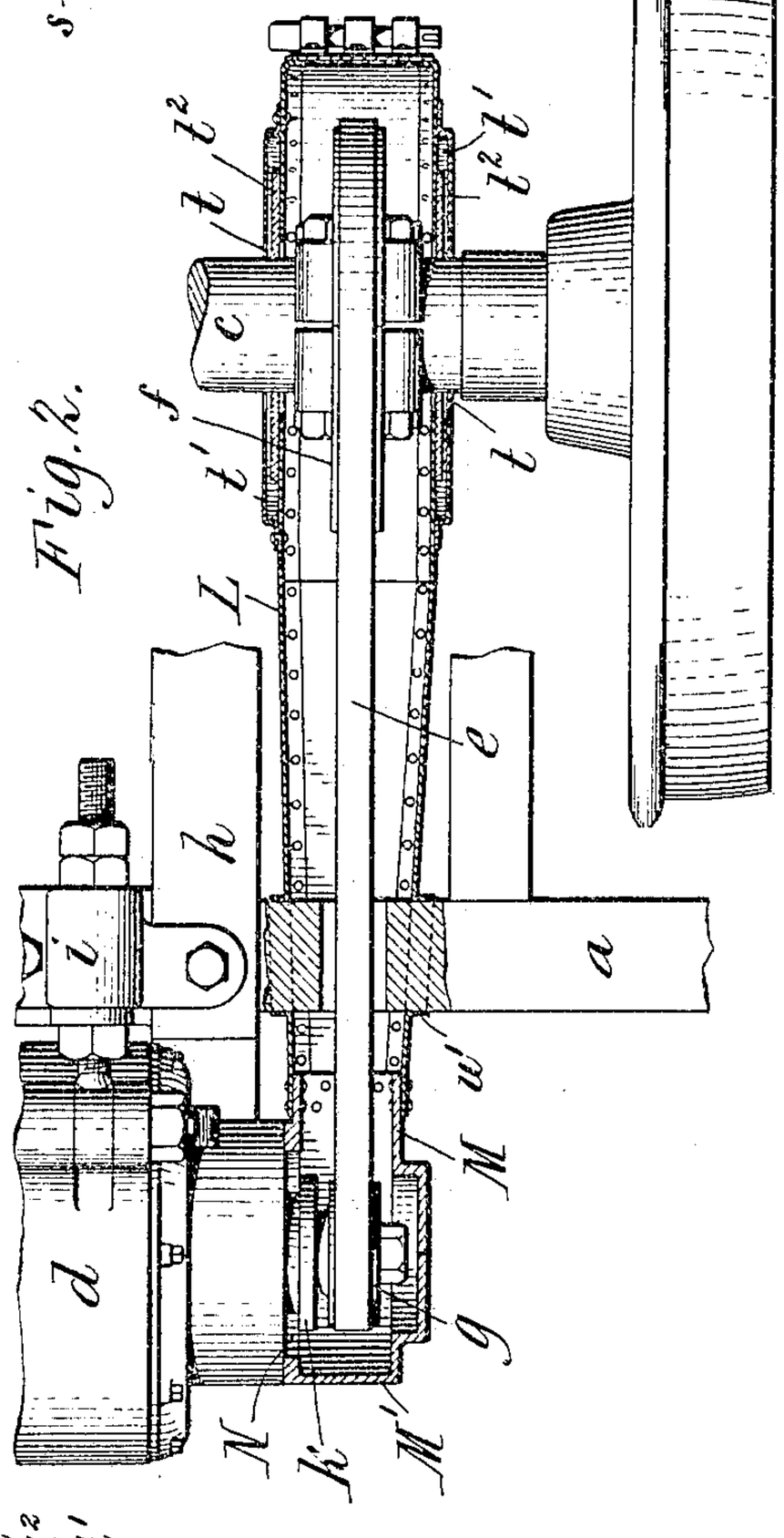
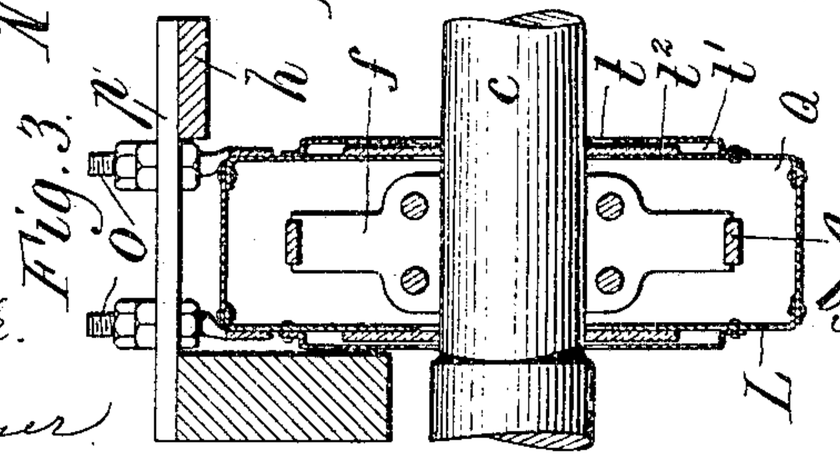


Fig. 3.



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No. 793,227. Patented June 27, 1905.

UNITED STATES PATENT OFFICE.

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DRIVE MECHANISM FOR CAR-DYNAMOS.

SPECIFICATION forming part of Letters Patent No. 793,227, dated June 27, 1905.

Application filed May 21, 1904. Serial No. 209,060.

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 Drive Mechanism for Car-Dynamos, of which the following is a specification.

This invention relates to inclosing and protecting casings for the drive connections of electric dynamos such as are employed for electric car-lighting and are mounted on the trucks of railway-cars and driven from the car-axles by chains or belts running around pulleys on the car-axles and on the armature-shafts of the dynamos.

The casing hereinafter described is specially adapted for use in connection with a dynamo mounted as fully described in my application for United States Letters Patent, filed November 2, 1903, Serial No. 179,480.

The object of the invention is to provide a casing for the purpose stated of simple, strong, and desirable construction which will effectually exclude snow, ice, water, and dust or dirt from the drive-gearing and will enable ready access to the gearing for inspection and repairs.

In the accompanying drawings, Figure 1 is a fragmentary sectional elevation of a railway-car truck carrying a dynamo, the drive-gearing of which is inclosed by a protecting-casing embodying the invention. Fig. 2 is a horizontal section of the casing, showing portions of the truck and dynamo in plan. Fig. 3 is a transverse sectional elevation through the casing in line 3 3, Fig. 1. Fig. 4 is a fragmentary transverse section through the lower portion of the casing in line 4 4, Fig. 1. Fig. 5 is a detail elevation of the hinge for the removable section of the casing. Fig. 6 is a detail bottom plan view of the lock-bolt for the removable section of the casing.

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

a and *b*, Fig. 1, represent, respectively, the end and intermediate transverse beams of a railway-car truck of ordinary construction, *c* one of the axles, and *d* the dynamo for supplying the electric car-lighting system or for other purposes.

e represents the drive belt or chain, which runs around pulleys *f* and *g* on the car-axle and dynamo-armature shaft, respectively, for driving the dynamo. The dynamo is preferably arranged outside of the end sill of the truck and is hinged at its bottom to the lower ends of brackets *h*, secured to the car-truck, and one of which is shown in the drawings. The upper portion of the dynamo is connected with the end beam of the truck by cushioning devices, one of which is shown at *i*.

The manner of mounting the dynamo and the construction of the cushioning device is fully described in my said application. As therein explained, the dynamo is ordinarily held stationary, but is capable of a limited movement on its hinges toward and from the end beam of the car-truck, so that when the brakes are applied to stop the car and the truck-frame is thereby shifted relative to the wheels and axles the dynamo can yield to prevent the snapping or stretching of the drive chain or belt. The dynamo frame or casing is provided at the end adjacent to the belt-pulley with a projecting bearing sleeve or portion provided with a circular end flange K, and the end face of the dynamo frame or casing is plain or flat.

The protecting and inclosing casing L for the drive belt or chain and pulleys or wheels on the dynamo-shaft and car-axle is constructed as follows: It is of substantially rectangular cross-section and tapering, having substantially semicircular large and small ends surrounding, respectively, the pulleys on the car-axle and the dynamo-armature shaft. The main portion of the casing, including the large end, is made of sheet metal, the pieces of which are riveted together at the corners of the casing. The small end of the casing consists of fixed and movable or detachable malleable or cast iron parts M M′, respectively. The fixed part constitutes a portion of the main body of the casing and is riveted or otherwise rigidly secured to the sheet-metal part of the casing. The other part M′ of the small end of the casing is of substantially semicylindrical form and is hinged at its top *m* in any convenient manner to the fixed part. It is held in closed position by a latch-bolt *m′*, which is pivoted

on the bottom of the fixed part and engages a slotted lug m^2 on the bottom of the movable part, having nuts at its end to be tightened up against the slotted lug m^2. The inner side of the small end of the casing is provided with an opening N, through which the flanged bearing-sleeve on the dynamo-frame projects into the casing L. This opening is formed partially in the stationary and movable sections of the small end of the casing and is elongated horizontally to permit the above-mentioned movements of the dynamo on its hinges. The bearing sleeve or portion of the dynamo-frame supports the small end of the casing L, and the flange at its outer end overhangs the upper and lower edges of the opening in the casing to hold the casing up against the plain face of the dynamo-frame and prevent lateral movement thereof on the bearing-sleeve. Snow, ice, dirt, and other foreign substances are thus prevented from entering the casing L; but the dynamo is permitted to move toward and from the driving-axle. The hinged part of the small end of the casing permits the ready detachment and removal of the dynamo from the truck when this is necessary. The casing L is rigid throughout—that is, it is not composed of telescopic sections or parts connected to move toward and from each other to contract and extend the casing to accommodate the movements of the dynamo. The large end of the casing is supported from the supporting-brackets for the dynamo by hangers O, suitably secured to the casing and attached to a horizontal bar p by nuts screwed on the threaded shanks of the hangers. This connection enables the adjustment of the casing with reference to the driving-axle. The large end of the casing is provided with a removable door or section Q, which is hinged to the stationary portion of the casing. The hinge preferably consists, as shown in Fig. 5, of loops or eyes q, secured to the two sections of the casing, and a detachable pin q', passing through the eyes. The pintle is provided at one end with a head and at the other end with a pivoted piece q^2, adapted to be turned at right angles to the hinge-pin to prevent the accidental disengagement of the pin from the eyes. The hinged door Q is locked in closed position by a latch device R, preferably similar to the latch for the hinged section of the small end of the casing. The upper edges of the sides of the hinged door Q preferably extend between the lower edges of the side walls of the stationary portion of the casing and flanges or strips s, secured to said side walls of the casing to form practically dust and weather tight joints between the two parts. The openings t in the sides of the casing for the passage of the car-axle are formed partially in the door Q and partially in the stationary portion of the casing, so that when the hinged section is unlocked and swung open on its hinge the car-axle can be detached from the truck, or the pulley can be detached from the axle and removed from the casing. These openings for the car-axle are of sufficient length vertically to permit the usual movements of the axle in the truck. The side walls of the casing are provided around the openings t for the car-axle with annular pockets t', Figs. 2 and 3, for the reception of packing-rings t^2. These pockets are preferably formed by the side walls of the casing and annular plates riveted or otherwise secured to said side walls. The casing is provided in its upper portion with a transverse slot u for the passage of the end beam of the truck, and the side and top walls of the casing are preferably provided with outwardly-projecting flanges u' surrounding said slot, which are screwed or otherwise secured to the end beam of the truck to effect a tight joint.

I claim as my invention—

1. The combination of a truck-frame, a car-axle, a dynamo movably mounted on said truck-frame, drive connections between said axle and the dynamo-armature shaft, and a relatively stationary casing inclosing said drive connections, said casing having in one side a slot through which the dynamo-armature shaft passes and is movable relative to the axle, said side bearing against a plain face on the dynamo which closes said slot against the entrance of foreign matter, substantially as set forth.

2. The combination of a truck-frame, a car-axle, a dynamo mounted on the truck-frame to move relative to the axle, drive connections between the axle and the dynamo-armature shaft, and a rigid casing fixedly secured on the truck-frame and inclosing said drive connections, said casing having an overhanging end provided in one side with a slot through which the dynamo-armature shaft passes and is movable relative to the axle, said slotted side bearing against a plain face on the dynamo which closes the slot against the entrance of foreign matter, substantially as set forth.

3. The combination of a truck-frame, car-axle, a dynamo movably mounted on said truck-frame and having a projecting flanged part and a plain face adjacent thereto, drive connections between said axle and the dynamo-armature shaft, and a rigid casing inclosing said drive connections, said casing having at one end a movable section, said movable section and adjacent stationary part of the casing having in one side a slot through which the flanged part of the dynamo and the dynamo-armature shaft pass, said side bearing against the plain face of the dynamo, substantially as set forth.

Witness my hand this 17th day of May, 1904.

WILLARD F. RICHARDS.

Witnesses:

CHAS. W. PARKER,

C. M. BENTLEY.