

March 26, 1929.

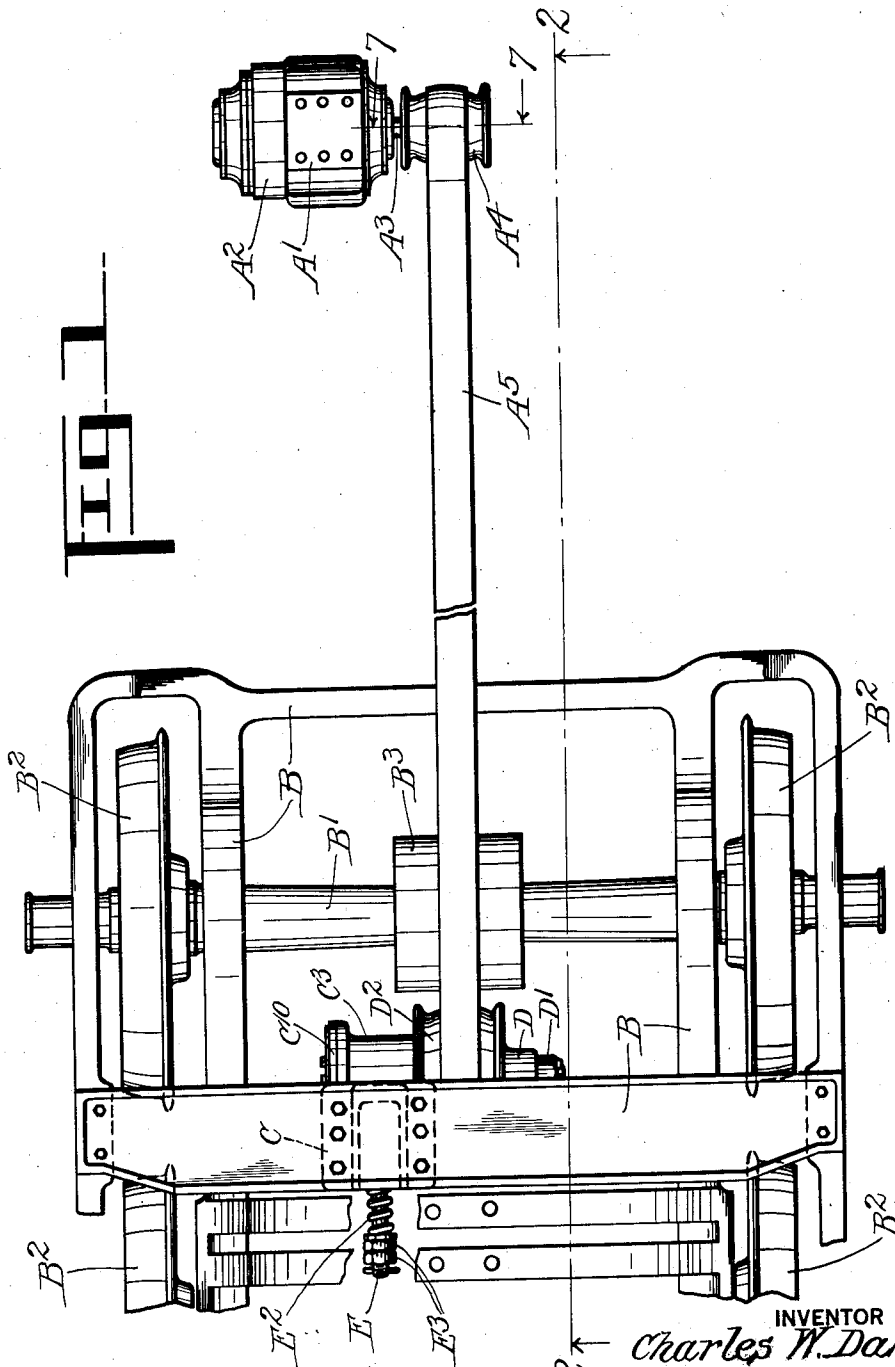
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1,706,562

GENERATOR DRIVE FOR RAILROAD CARS AND THE LIKE

Filed June 16, 1926

5 Sheets-Sheet 1



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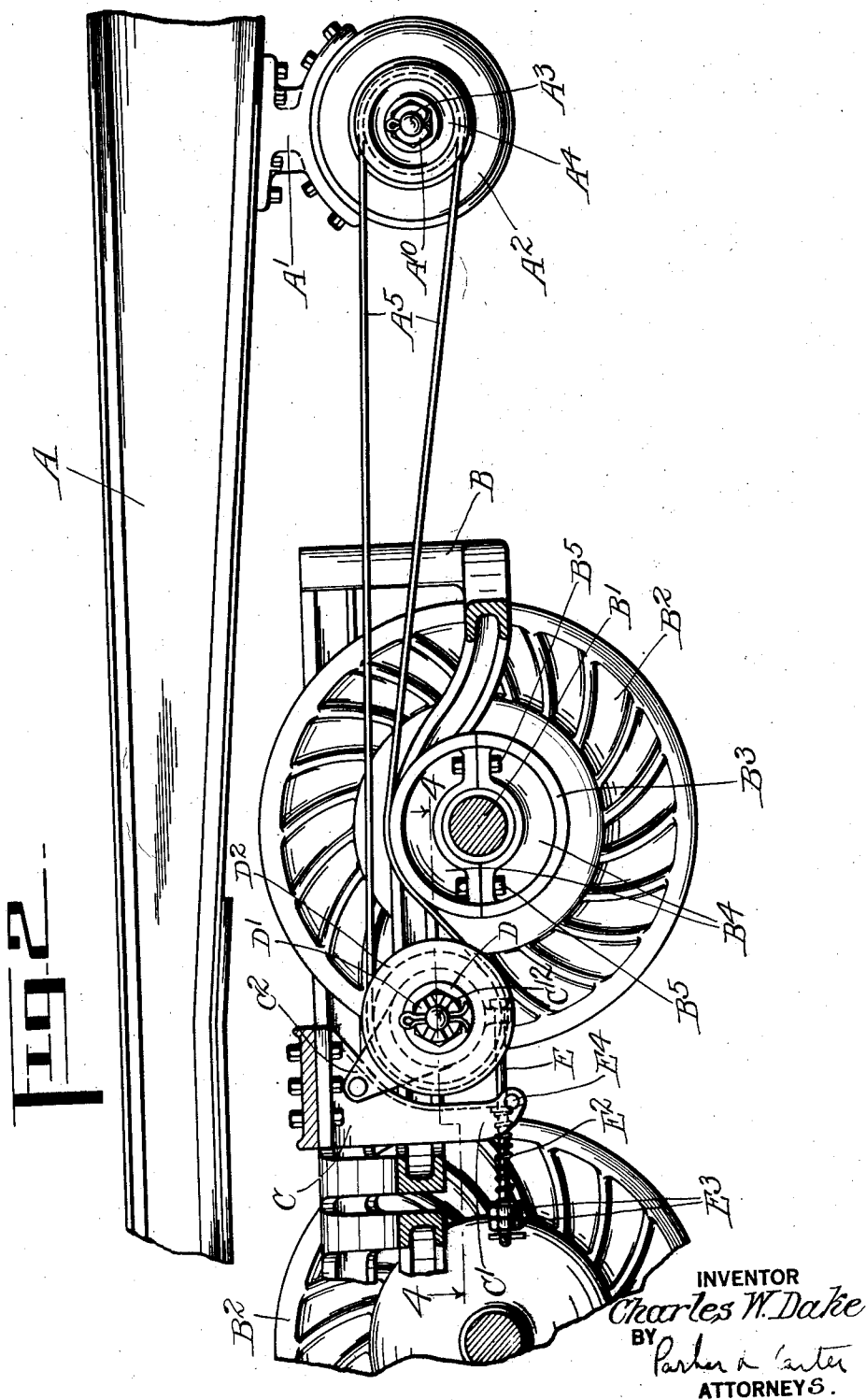
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GENERATOR DRIVE FOR RAILROAD CARS AND THE LIKE

Filed June 16, 1926

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March 26, 1929.

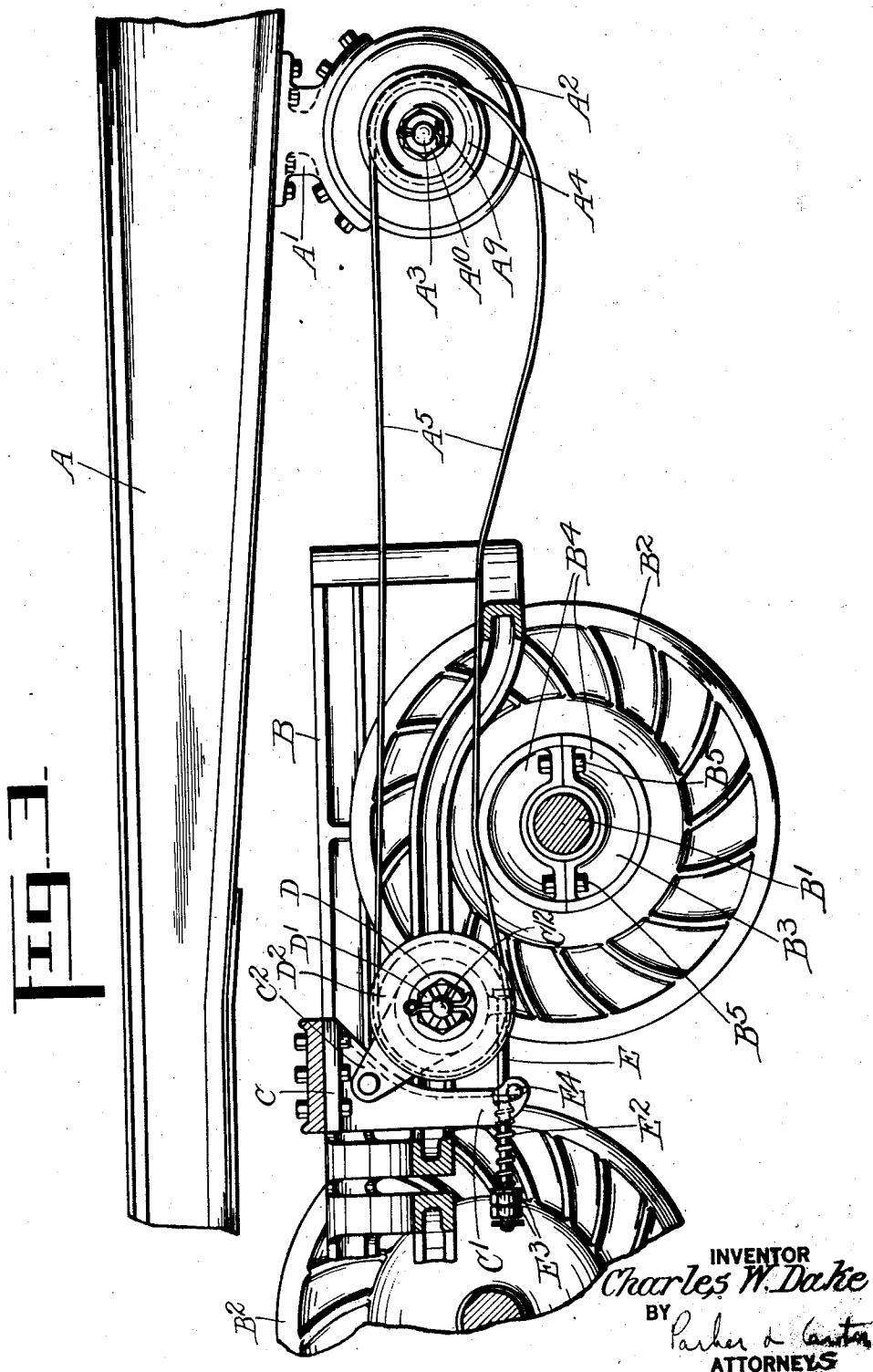
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GENERATOR DRIVE FOR RAILROAD CARS AND THE LIKE

Filed June 16, 1926

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March 26, 1929.

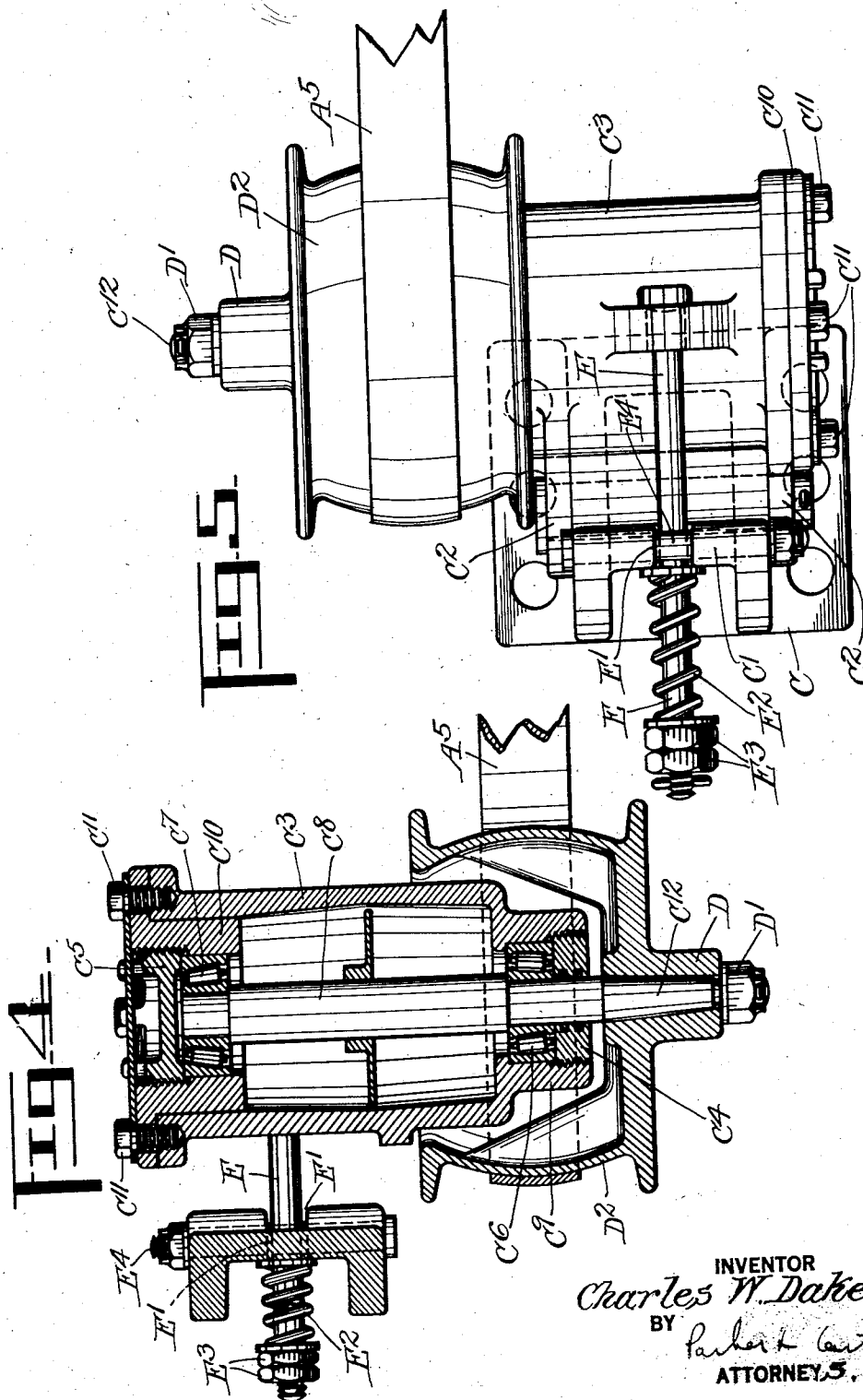
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1,706,562

GENERATOR DRIVE FOR RAILROAD CARS AND THE LIKE

Filed June 16, 1926

5 Sheets-Sheet 4



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1,706,562

GENERATOR DRIVE FOR RAILROAD CARS AND THE LIKE

Filed June 16, 1926

5 Sheets-Sheet 5

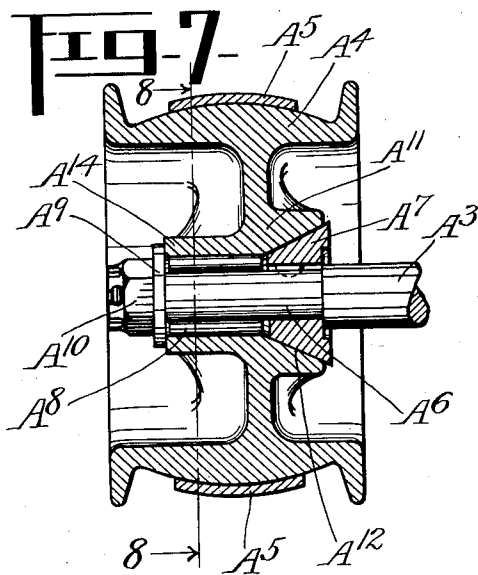
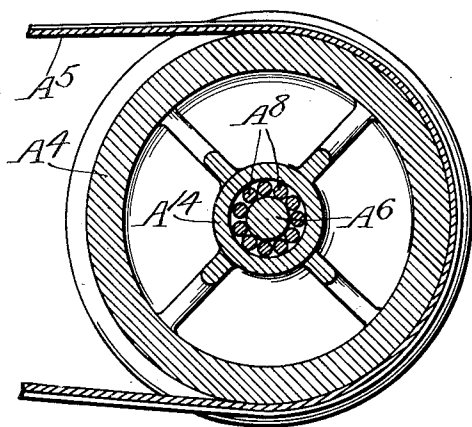
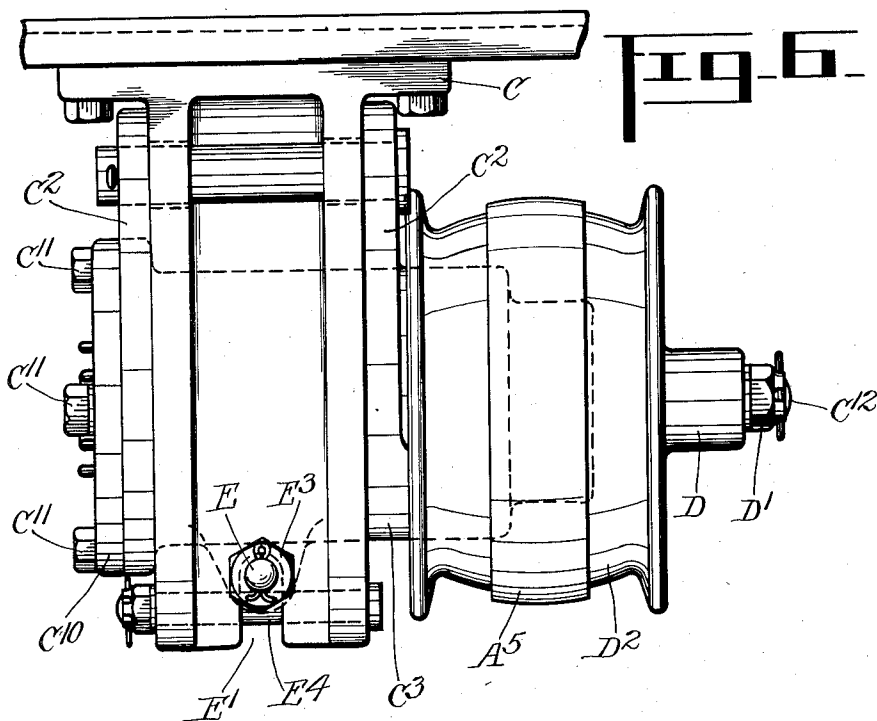


Fig. 8.

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GENERATOR DRIVE FOR RAILROAD CARS AND THE LIKE

Application filed June 16, 1926. Serial No. 116,337.

My invention relates to improvements in a generator for moving vehicles and particularly to a generator drive for railroad cars adapted to be driven in response to the rotation of one of the vehicle wheels or axles. One object of my invention is to provide means for maintaining generally constant tension upon the driving belt. Another object of my invention is to provide means for preventing or reducing surges and strains upon the belt in response to sudden changes in the velocity of the vehicle. Other objects will appear from time to time throughout the specification and claims.

My invention is illustrated more or less diagrammatically in the accompanying drawings, wherein—

Figure 1 is a plan view;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a view similar to Figure 2 with the tension on the belt loosened;

Figure 4 is a section on an enlarged scale on the line 4—4 of Figure 2;

Figure 5 is a bottom view of the parts shown in section in Figure 4;

Figure 6 is a side elevation of the same parts;

Figure 7 is a section on the line 7—7 of Figure 1;

Figure 8 is a section on the line 8—8 of Figure 7.

Like parts are indicated by like characters throughout the specification and drawings.

It will be realized that the vehicle forms no part of the present invention per se and its details are so far as possible omitted.

A indicates a portion of the car frame, upon which is mounted a bracket A¹ to which is secured any suitable motor generator A² having the shaft A³ and the pulley A⁴ thereon. A⁵ indicates the driving belt.

In order to permit the easy disconnection of the pulley A⁴ from driving relation with the generator shaft A³ and in order to permit testing of the generator by its operation as a motor, I provide the following connection between the two. The shaft A³ is provided with a terminal reduced portion A⁶; keyed to which is a cone member A⁷. Surrounding the portion not covered by said cone member are the roller bearings A⁸, confined, for example, by the washer A⁹ and the lock nut A¹⁰. The hub A¹¹ of the pulley A⁴ is provided with a conic clutch member A¹² adapted

to be opposed to the cone A⁷ and an inwardly cylindrical portion A¹⁴ adapted to engage and surround the rollers A⁸. When the lock nut A¹⁰ is normally tightened the opposed conic members A⁷ and A¹² are in locking engagement and relative rotation of the pulley A⁴ and shaft A³ is prevented. When, however, the lock nut A¹⁰ is slacked off, the said locking engagement is terminated and the pulley rotates freely about the shaft and about the roller bearings A⁸.

B generally indicates the car truck frame in which is mounted the axle B¹ carrying the car wheels B². Clamped about the axle is suitable drive pulley B³ herein shown as consisting of the segments B⁴ secured together for example by the bolts B⁵. The pulley B³ is herein shown as having a generally cylindrical outer surface across which passes the lower ply of the belt A⁵.

Mounted on the car truck frame B is any suitable support C with the lower prolongation C¹. Pivoted to its upper end are the bracket arms C², the lower ends of which are secured to the bearing sleeve C³. Positioned in each end of the sleeve, for example,—by the screw threaded closure members C⁴ C⁵ are the roller bearings C⁶ C⁷, wherein rotates the shaft C⁸. The closure member C⁴ and the roller member C⁶ engage the reduced end C⁹ of the housing C³ whereas the closure member C⁵ and roller member C⁷ are mounted in the member C¹⁰ inserted in the opposite end of the housing C³ and secured in position, for example,—by the screws C¹¹.

Secured to the tapered and reduced outer end of the shaft C¹² is any suitable pulley hub D locked in position thereon for example by the nut D¹. D² is the pulley member herein shown as integral with the hub D and partially surrounding the end of the housing C³.

Secured to the bottom of the housing C³ is the guiding pin E, one end of which passes through the aperture E¹ in the downwardly depending member C¹. E² is a spiral spring coiled about the outer end thereof and adapted to be compressed between the member C¹ and any suitable lock or adjustment nuts E³ positioned at the outer ends of the pin E. The pin E is retained in the slot or aperture E¹ by means of the bolt E⁴.

It will be realized that whereas I have shown and described an operative device, still many changes might be made in the size, shape, disposition and relation of parts with-

out departing from the spirit of my invention. I wish, therefore, that my drawings be taken as in a broad sense illustrative or diagrammatic rather than as limited to the specific showing shown herein.

The use and operation of my invention are as follows:

In railroad car generators adapted to be driven from the axles of such cars, it has been the prevailing practice directly to connect the driving pulley and the driven pulley by a belt surrounding both. I prefer to employ a belt surrounding the driven pulley and an idler or tension pulley. I therefore mount the idler pulley D^2 upon a hinge or pivoted bracket and provide the pin E and the spring E^2 adapted normally to exert tension upon said bracket and upon the belt A^5 . I so arrange the rotating members and the peripheries of the driven and the tension pulley that when the three are in normal position the belt is partially looped by the driving pulley as shown in Figure 2 and is driven therefrom. However, the relation of the parts is such that in case of sudden stopping or starting or sudden changes of speed the strain upon the belt is in great part eliminated by provision of the yielding release of the tension pulley. The driving engagement between the pulley B^3 and the belt is sufficient for normal driving purposes but is not enough as to make it possible in normal use for sudden changes in rate of rotation of the driving pulley to exert a destructive tension upon the belt.

It is important, in testing the generator, to be able to break the driving connection and to drive the generator as a motor. For this reason I provide for the generator or driven pulley A^4 , a clutch connection illustrated in detail in Figures 7 and 8. The opposed conic clutch members A^7 and A^{12} are normally held in engagement by the drawing up of the lock nut A^{10} . When the lock nut is partially released the clutch connection is broken and the pulley rotates in relation to the shaft A^3 about the roller bearings A^8 .

I claim:

1. The combination with a railroad car of a generator and pulley mounted on the car frame, a driving pulley carried by one of the car axles, and an idler pulley carried by the car truck, a belt traveling over the generator and idler pulley and engaging the upper side of the driving pulley only.

2. The combination with a railroad car of a generator and pulley mounted on the car frame, a driving pulley carried by one of the car axles, an idler pulley carried by the car truck, a belt traveling over the generator and idler pulley and engaging the upper side of the driving pulley only, and yielding means mounted on the car truck and associated with the idler pulley for exerting a tension on the belt to hold it in contact with the driving pulley.

3. The combination with a railroad car of a generator and pulley mounted on the car frame, a driving pulley carried by one of the car axles, an idler pulley carried by the car truck, a belt traveling over the generator and idler pulley and engaging the upper side of the driving pulley only, and a support for the idler pulley comprising a link pivoted on the car frame upon which the pulley is rotatably mounted and yielding means for rotating the link tending to draw the idler pulley away from the generator pulley to exert a tension on the belt.

4. The combination with a railroad car of a generator and pulley mounted on the car frame, a driving pulley carried by one of the car axles, an idler pulley carried by the car truck, a belt traveling over the generator and idler pulley and engaging the upper side of the driving pulley only, a support for the idler pulley comprising a bracket on the car truck, a link pivoted on the bracket and carrying the idler pulley, a tension member slidable in the bracket anchored at one end on the link and a spring associated with the tension member adapted to draw it and the link away from the generator pulley.

5. The combination with a railroad car of a generator and pulley mounted on the car frame, a driving pulley carried by one of the car axles, an idler pulley carried by the car truck, a belt traveling over the generator and idler pulley and engaging the upper side of the driving pulley only, a support for the idler pulley comprising a bracket on the car truck, a link pivoted on the bracket and carrying the idler pulley, a tension member slidable in the bracket anchored at one end on the link and a spring associated with the tension member adapted to draw it and the link away from the generator pulley, the bracket being removable as a unit with the link pulley and tension member from the truck.

6. The combination with a railroad car of a generator and pulley mounted on the car frame, a driving pulley mounted on one of the car axles, an idler pulley supported on the car truck, the supports for the idler and generated pulleys being located entirely on one side of the working face thereof, and an endless belt traveling over the generator and idler pulleys and engaging the upper side of the driving pulley only.

7. The combination with a railroad car of a generator and pulley mounted on the car frame, a driving pulley mounted on one of the car axles, an idler pulley supported on the car truck, the supports for the idler and generator pulleys being located entirely on one side of the working face thereof, an endless belt traveling over the generator and idler pulleys and engaging the upper side of the driving pulley only, and yielding means for displacing the idler pulley to exert a tension on the belt.

8. The combination with a railroad car of a generator and pulley mounted on the car frame, a driving pulley mounted on one of the car axles, an idler pulley supported on the car truck, the supports for the idler and generator pulleys being located entirely on one side of the working face thereof, an endless belt traveling over the generator and idler pulleys and engaging the upper side of the driving pulley only, and yielding means for exerting a tension on the belt.

9. In a railroad car lighting generator drive, an idler pulley and support therefor comprising a barrel, bearings in either end thereof, a shaft rotatable in said bearings and projecting at one end beyond the end of the barrel to carry the pulley, the working face of the pulley overhanging the bearing nearest the projecting end of the shaft, arms projecting radially from the barrel, a bracket on which the arms are pivoted, and yielding means engaging the barrel adapted to rotate it about the pivot point.

10. In a railroad car lighting generator drive, an idler pulley and support therefor comprising a barrel, bearings in either end thereof, a shaft rotatable in said bearings and projecting at one end beyond the end of the barrel to carry the pulley, the working face of the pulley overhanging the bearing nearest the projecting end of the shaft, and means associated with the barrel for yieldingly displacing it to exert a tension on the belt.

11. In a railroad car lighting generator drive, an idler pulley and support therefor comprising a barrel, bearings in either end thereof, a shaft rotatable in said bearings and projecting at one end beyond the end of the barrel to carry the pulley, the working face of the pulley overhanging the bearing nearest the projecting end of the shaft, arms projecting radially from the barrel, a bracket on which the arms are pivoted, a tension pin slidable in the bracket pivotally engaging the barrel and a spring associated with the pin and bracket for yieldingly drawing the barrel toward the bracket.

12. In a railroad car lighting generator drive, an idler pulley and support therefor comprising a barrel, a shaft rotatable therein and projecting at one end beyond the end thereof to carry the pulley, the working face of the pulley overhanging the end of the barrel, arms projecting radially from the barrel, a bracket upon which the arms are pivoted and yielding means for rotating the arms and barrel upon the bracket.

13. A bearing support for railroad car

lighting generator drive pulleys comprising a barrel closed at both ends to form an oil reservoir, bearings at both ends of the barrel, a shaft mounted for rotation in said bearings, one end of the shaft extending outwardly through the closed end of the barrel, a pulley thereon overhanging the end of the barrel, and a propeller disc rotating with the shaft inside the oil reservoir, the interior walls of the reservoir increasing in diameter toward both ends of the propeller disc to guide lubricant discharged by the disc toward the two bearings.

14. In combination with an idler pulley for railroad car generator drives and the like, a supporting member, a tubular barrel, a plurality of longitudinally spaced arms projecting radially therefrom and pivoted to the supporting member, antifriction bearings located at either end of the cylinder barrel, a pulley shaft carried thereby projecting outwardly through the one end of the barrel, a pulley mounted on the shaft surrounding the end of the barrel.

15. In combination with an idler pulley for railroad car generator drives and the like, a supporting member, a tubular barrel, a plurality of longitudinally spaced arms projecting radially therefrom and pivoted to the supporting member, anti-friction bearings located at and pivoted to the supporting member, anti-friction bearings located at either end of the cylinder barrel, a pulley shaft carried thereby projecting outwardly through the one end of the barrel, a pulley mounted on the shaft surrounding the end of the barrel, the center of the pulley face being substantially in line with one of the anti-friction bearings.

16. A pulley support for railroad generator drives and the like comprising a cylindrical barrel, an interiorly projecting shoulder at one end thereof, an anti-friction bearing contained therein and resting against the shoulder, means for seating the bearing and holding it in position thereon, a shaft mounted for rotation in the bearing, a sleeve removably mounted in the other end of the barrel, an anti-friction bearing slidable in said sleeve, a cover plate adapted to engage the outer end of the anti-friction bearing and to be threaded in the sleeve, the end of the shaft engaging the anti-friction bearing, the other end of the shaft projecting outwardly beyond the barrel and a pulley mounted thereon and surrounding the end of the barrel.

Signed at Chicago, county of Cook and State of Illinois, this 9th day of June, 1926.

CHARLES W. DAKE.