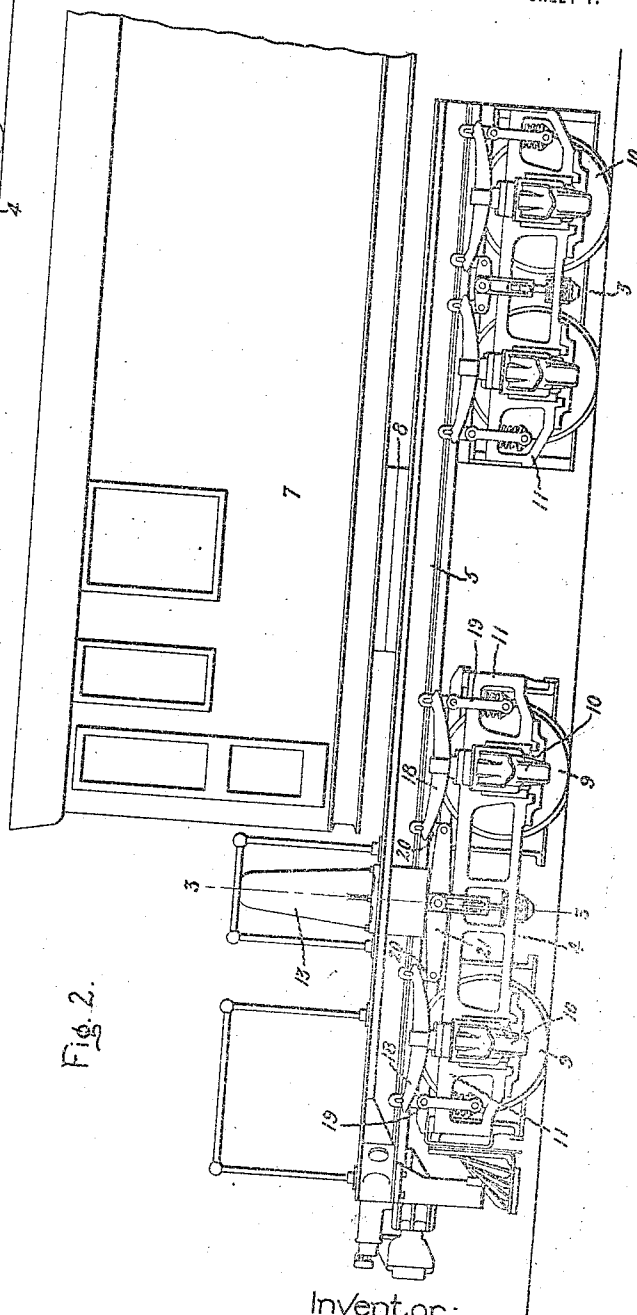
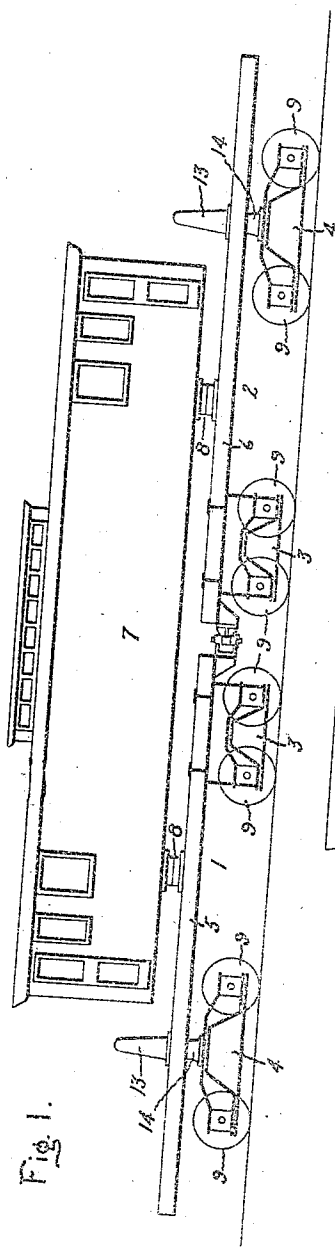


1,189,340.

A. F. BATCHELDER.  
LOCOMOTIVE OR CAR.  
APPLICATION FILED JUNE 9, 1915.

Patented July 4, 1916.  
2 SHEETS—SHEET 1.



Inventor:  
Asa F. Batchelder.  
by *Allen H. Dean*  
His Attorney.

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LOCOMOTIVE OR CAR.  
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2 SHEETS—SHEET 2.

Inventor:  
Asa F. Batchelder,  
by *Alfred B. Davis*,  
His Attorney.

# UNITED STATES PATENT OFFICE.

ASA F. BATCHELDER, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

## LOCOMOTIVE OR CAR.

1,189,340

Specification of Letters Patent.

Patented July 4, 1916.

Application filed June 9, 1915. Serial No. 33,056.

*To all whom it may concern:*

Be it known that I, ASA F. BATCHELDER, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Locomotives or Cars, of which the following is a specification.

My invention relates to locomotives and cars, and is particularly applicable to such locomotives and cars as must be operated at high speed.

One of the most serious problems to overcome in building locomotives and cars for high speed service is the effect of the side pressure against the rails, which has a tendency to shear the spikes that hold the rails to the ties and thus spread the rails. This problem has been more difficult to solve with electric locomotives, which usually have a low center of gravity, than with steam locomotives, which have a high center of gravity. This is due to the fact that with a high center of gravity any lateral pressure against the rail tends to roll the locomotive around its center of oscillation and thus there is a vertical component of the pressure on the rail which increases the friction between the rail and ties, making it more difficult to displace the rail.

My invention has for its object to so construct a locomotive or car that the same results can be obtained as can be obtained with the center of gravity at any height which is desired and that lateral stresses due to guiding will be changed to vertical stresses tending to hold the outer rail to the ties. To this end, I provide a swivel truck on the locomotive with a pivotal bearing for the superstructure, located at such a height above the running gear that when a lateral pressure is exerted at the driving wheels such as to change the direction of either the running gear or the superstructure, the lateral stresses due to grinding will tend to roll the running gear over and exert a vertical pressure on the rail.

The various features of novelty which characterize my invention are pointed out in the claims annexed to and forming a part of this specification. For a better understanding of my invention reference may be had to the following description taken in connection with the accompanying drawings in which—

Figure 1 is a skeleton view of an electric locomotive in which I have shown my invention embodied; Fig. 2 is a side elevation of one-half of the locomotive shown in Fig. 1; and Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

In accordance with my invention I build the running gear of the locomotive or car in the usual manner, but instead of supporting the superstructure only by the usual equalizing systems or center pins of the trucks, I suspend the superstructure from such a height above the running gear that when a lateral pressure is exerted at the driving wheels of the running gear such as to change the direction of either the running gear or the superstructure, the lateral pressure or stresses will be changed to vertical pressure on the rail. I accomplish this by extending upward a single rigid bearing member 14 from the running gear and pivotally suspend the superstructure thereon by means of a single cooperating bearing member 13.

In the accompanying drawing I have shown my invention applied to the leading and trailing trucks of an electric locomotive although it might obviously be applied to all the trucks if desired. The particular locomotive illustrated is that of my prior Patent No. 1,026,552 dated May 14, 1912, and it comprises two sections 1 and 2, each of which has mounted thereon two trucks 3 and 4. The trucks 3 are rigidly connected to car frames 5 and 6 of the sections 1 and 2 and the swivel trucks 4 are pivotally connected to the car frames 5 and 6, the rigidly mounted trucks being nearest the middle of the locomotive and the pivoted trucks being near the ends of the locomotive. A single cab 7 is mounted through two pivotal connections or center pins 8 on the car frames 5 and 6.

Each of the swivel trucks 4 has two pairs of wheels 9, the axles of which are journaled in journal boxes 10. A truck frame 11 is supported on these journal boxes. Located longitudinally between each of the car frames 5 and 6 is a supporting member or car bolster 12 which supports a single bearing member 13. Each of the truck frames 11 supports a single pivotal bearing member 14 which extends upwardly above the

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bottom of the supporting member or car bolster 12 and coöperates with the bearing member 13. It will thus be seen that the superstructure of the locomotive comprising the car frames and cab is suspended on pivots at a considerable height above the running gear or trucks, so that when the trucks tend to go first to one side and then to the other and exert a lateral pressure on the rails, the superstructure will tend to cause the running gear to roll over and exert a vertical pressure on the rail about which it tends to roll. This vertical pressure increases the friction between the rail and ties making it more difficult to spread or move the rails. In order to insure the relative movement of the superstructure and running gear I preferably provide the bearing members 13 and 14 with spherical seats 15 and 16 respectively. The point of suspension of the superstructure may be placed at any desired height and I prefer to extend the bearing member 14 to a considerable height above the car bolster so that the vertical component of the weight of the superstructure will be large compared to its horizontal component.

I have illustrated the trucks 4 as being of the construction shown in my prior Patent 1,115,158, dated October 27, 1914, but these trucks, as well as the trucks 3, may be of any well known construction. Each truck frame 11 is supported on the journal boxes 10 by means of a lever system which supports each side frame of the truck frame 11 on the journal boxes therein, and also on an equalizing lever 17 through a spring 22. Above each journal box is mounted a spring 18. Links 19 connect one end of each of the springs 18 to the side frames and links 20 connect the other end of the spring 18 to levers 21, one of the levers 21 being on one side of the truck frame and the other on the other side. The equalizing lever 17 extends crosswise the truck and is supported by the levers 21. The truck frame is resiliently supported on this lever 17 by a spring 22 which extends crosswise the truck and beneath the same. Links 23 support the spring from the equalizing lever 17. In order to support the equalizing lever 17 by the levers 21, hangers 24 are pivotally connected to the levers 21 and are provided with knife edges 25 on which the equalizing lever 17 rests.

Each of the trucks 3 and 4 is provided with motive power and in the particular locomotive construction shown, each axle is provided with an electric motor of the well-known bipolar type.

I desire it to be understood that my invention is not limited to the particular arrange-

ment shown and described, and I aim in the appended claims to cover all modifications thereof which do not depart from the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In a locomotive or car, a car frame having a supporting member and a single bearing member supported on said supporting member, and a swivel truck comprising axles, journal boxes for said axles, a truck frame supported on said journal boxes, and a single pivotal bearing member supported on said truck frame extending upward above the bottom of said supporting member, said bearing member on said car frame coöperating with said bearing member on said truck frame.

2. In a locomotive or car, a car frame having a supporting member and a single bearing member supported thereon and extending upward above said supporting member, and a swivel truck comprising axles, journal boxes for said axles, a truck frame supported on said journal boxes, and a single pivotal bearing member supported on said truck frame and extending upward above the bottom of said supporting member, said bearing member on said car frame coöperating with said bearing member on said truck frame.

3. In a locomotive or car, a car frame having a supporting member, and a single bearing member supported thereon having a spherical seat, and a swivel truck comprising axles, journal boxes for said axles, a truck frame supported on said journal boxes, and a single pivotal bearing member supported on said truck frame extending upward above the bottom of said supporting member, said bearing member on said truck frame having a spherical seat and coöperating with said bearing member on said car frame.

4. In a locomotive or car, a car frame having a supporting member, a single bearing member supported thereon and extending upward above said supporting member, and a swivel truck comprising axles, journal boxes for said axles, a truck frame supported on said journal boxes, and a single pivotal bearing member supported on said truck frame having a spherical seat and extending upward above the bottom of said supporting member, said bearing member on said car frame having a spherical seat and coöperating with said bearing member on said truck frame.

In witness whereof, I have hereunto set my hand this 7th day of June, 1915.

ASA F. BATCHELDER.

It is hereby certified that in Letters Patent No. 1,189,340, granted July 4, 1916, upon the application of Asa F. Batchelder, of Schenectady, New York, for an improvement in "Locomotives or Cars," an error appears in the printed specification requiring correction as follows: Page 1, line 45, for the word "grinding" read *guiding*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 15th day of August, A. D., 1916.

[SEAL.]

F. W. H. CLAY,

*Acting Commissioner of Patents.*

Cl. 105—259.