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G. W. CLEAVELAND.

Car Truck.

Patented Oct. 14, 1835.

Fig. 1

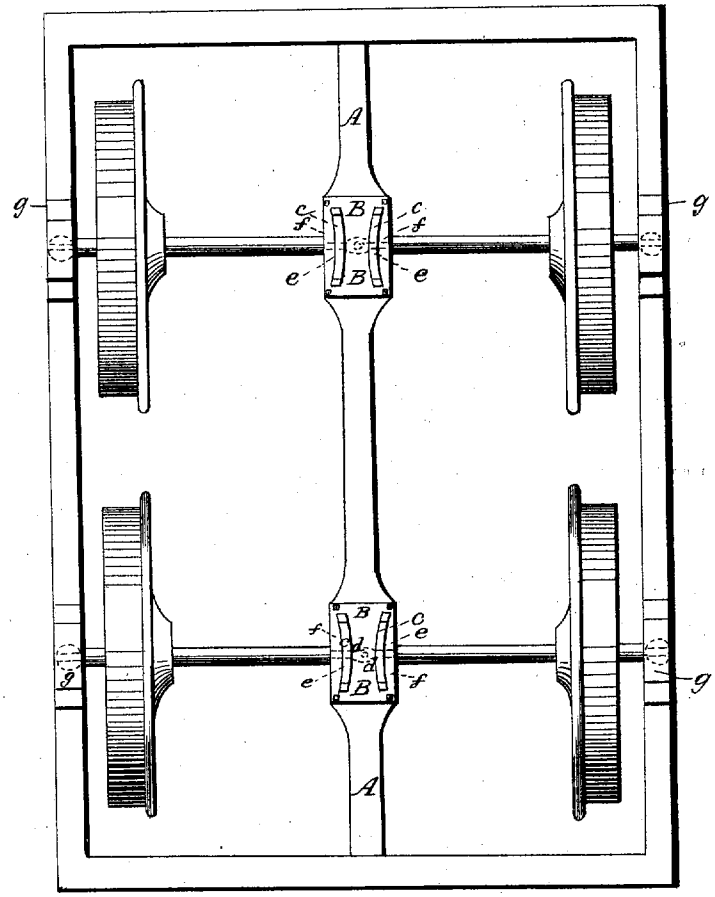


Fig. 2

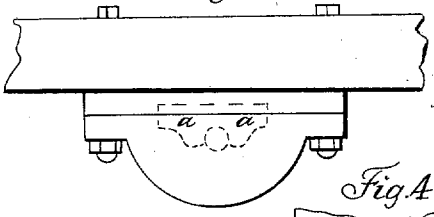


Fig 3

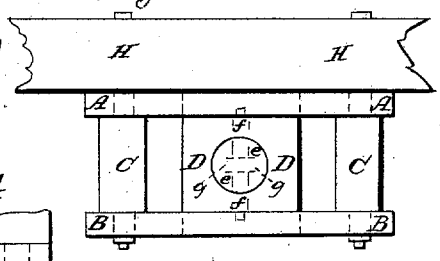
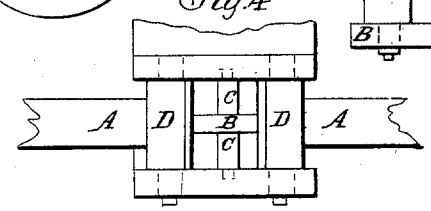


Fig. 4



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

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Oct. 14. 1835

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George W. Cleaveland Baltimore Maryland

Letters Patent.

The Schedule referred to in these Letters Patent and making part of the same, containing a description in the words of the said George W. Cleaveland himself of his improvements in the self adapting Rail Road Car.

To all whom it may concern. Greeting. Know Ye that I George W. Cleaveland of the City of Baltimore in the State of Maryland have invented a new and useful improvement in the running gear of Rail Road Carriages and the following is a full and complete description of the construction and operation thereof.— The wheels used with my improvement or invention have a perfectly horizontal bearing surface or tread. The conical shape as now in common use being entirely dispensed with and instead of an entire axle to be with a wheel fast at each end as now used. I divide the axle into two equal parts with inner or central bearings as hereinafter described: and thus leave the wheels to turn independently of each other. I connect the same axles at their inner or central bearings, in the following manner. I make a centre perch part in carriage frame as represented by A A in fig 1 of the annexed drawings for the inner or central bearings of the same axles & connect them by means of a box consisting of two plates of cast or wrought iron or other material. an upper and an under one each nine inches in width by three inches in length more or less and one inch thick if of cast iron and half an inch thick if of wrought iron. The plates three inches apart and connected together and fastened to the centre perch by means of four screw bolts passing respectively through the corners of the plates and the centre perch. The distance of three inches between the plates being preserved by means of four thimbles each three inches long. through which the four screw bolts pass between the respective corners of the plates. Or the under plate may be made with solid sides instead of the thimbles & screw bolts. In each of the plates and corresponding to each other above and below I make two mortises as exhibited in Fig 1. on the draught of the Plate B B. each mortise being one inch wide and of a length proportionate to the distance between the wheels, fore and aft. or in other words

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to the amount of vibration that may be necessary to enable the wheels to conform to the direction of the Rails. These motions are so shaped that are of a circle having the semi-axle for a radius and for its centre, the centre of the revolving box of the outer journal herein after described. On this box thus constructed is placed two vibrating Boxes which are simply two cubical pieces of cast iron or other metal. These mortices more or less in length breadth and thickness with two flanches on each one above and one below on the inner side to work on the mortices in the plates, and corresponding blocks in shape and acting as guides in the vibrations of the semi axles. Through the centre of these vibrating boxes in the direction of the semi-axles I make holes of sufficient size to receive the inner journals of the semi axles which are turned down to a diameter of one and a half inch more or less leaving shoulders of three fourths of an inch to work against the vibrating boxes and prevent the semi-axles from sliding to the centres. The journals of the semi-axles pass an inch and a half into the vibrating Boxes or as far thereas required but not so far as to interfere with the Balls on the ends of the Steel Screw next hereinafter described. The Steel Screw which may be of iron or other metal is made six inches in length more or less according to the distance between the vibrating Boxes and of an oval shape with a ball turned on each end of a diameter equal to that of the inner journals of the semi axles leaving notches sufficiently small to permit the boxes to vibrate without infringing upon the notches. The steel screw works on an axis passing through its centre and into the centres of the upper and under plates. This axis may be a screw bolt passing through the centre of the centre Boxes and the centre punch mark leaving as a fastening thereby. The balls pass into the holes of the vibrating boxes there to hold and confine and work therein regulating the vibrations by causing them to correspond in distance and thereby preserving the parallelism of the wheels. The vibrating boxes may be made to slide over friction Rollers fixed in the upper plate if preferred. The Boxes in which the outer journals of the semi-axles work are constructed in the usual manner except in that in the upper or bearing plate of each box I make a circular depression or bed of six diameter equal to the circular revolving Box and

and

a depth equal to half the thickness thereof. And in the cap piece I make a depression or bed to correspond to that of the bearing plate. The revolving box is made circular four and three fourths inches more or less in diameter and three inches more or less in thickness exclusive of the bearing groove of the outer journal of the semi axle to work in, and is sunk one inch more or less into the plate and cap of the Box. The groove corresponding to that of the journal of the semi axles extends throughout the diameter of the revolving box and embraces one half the journal and instead of depending on the outer side of the box to prevent the axle from sliding outwards. Shoulders may be left on the axles to work against the sides of the revolving boxes and thus prevent sliding outwards. This improvement or invention will allow the wheels of a car to run on the outside of the rails as well as the inside and always to conform to the course of the Rail way. What I claim as my original invention and never known in use before is the centre Box containing the vibrating boxes and pivot bar which connect the inner bearings of the semi axle and preserve and maintain the parallelism of the wheels and also the circular revolving box within the outer or case which permits the semi axle at the inner bearing to turn as required as fully described and explained by the foregoing Specification and the annexed drawings. In no whatever manner May may be constructed so that by means of the same principles of action the vibrations of the semi axles at their inner or centre bearings may be equalized so as to preserve the parallelism of the wheels and permit them by means of their flanches to conform to the course of the Rail way.

Witness

Samuel C. Manning

John Penniman

Boyd

1836

Benjn W. Cleveland

(Patented October 14, 1835)

(Drawing)