M. V. B. ETHRIDGE.

Car-Wheel for Elevated Railways.

No. 208,580. Patented Oct. 1, 1878.

Fig: 1.

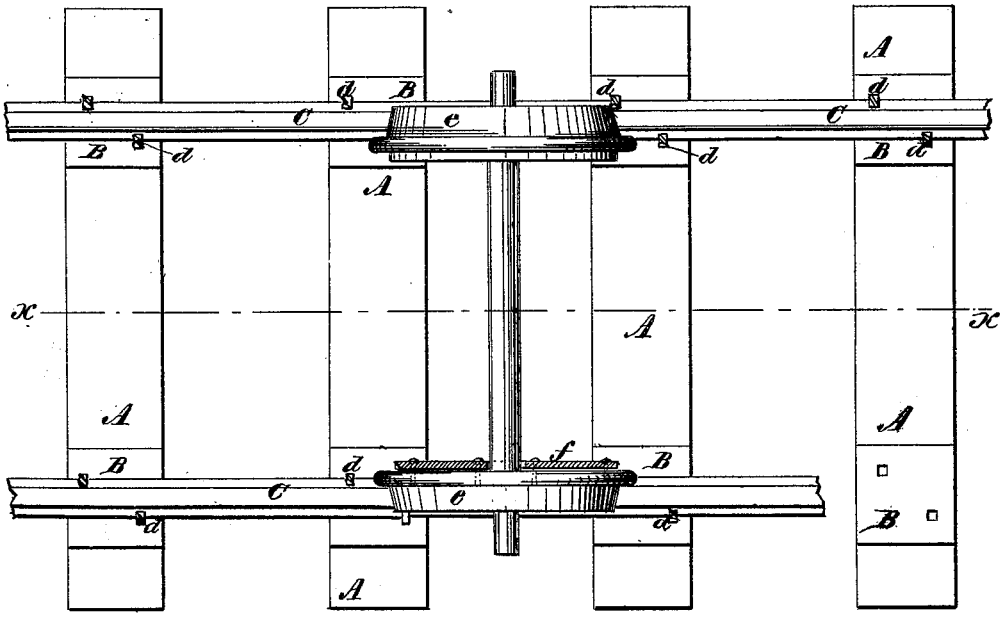
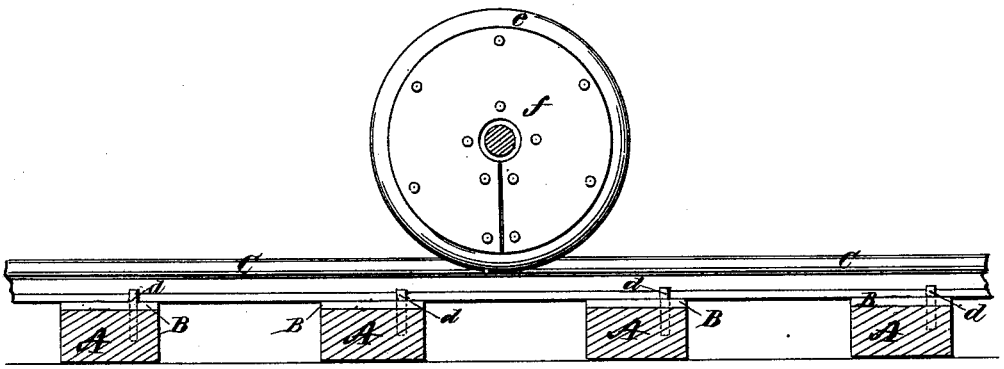


Fig: 2.



Witnesses:

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MARTIN V. B. ETHRIDGE, OF NEW YORK, N. Y.

IMPROVEMENT IN CAR-WHEELS FOR ELEVATED RAILWAYS.

Specification forming part of Letters Patent No. **208,580**, dated October 1, 1878; application filed July 9, 1878.

To all whom it may concern:

Be it known that I, MARTIN V. B. ETHRIDGE, of New York, in the county of New York and State of New York, have invented certain new and Improved Means for Lessening Vibration and Noise Produced by Locomotives and Cars; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of a railroad-track with an axle and pair of car-wheels thereon, one of the wheels showing the side plate in section, and Fig. 2 is a vertical section in line *x x* of Fig. 1.

Similar letters of reference in the several figures denote the same parts.

The object of this invention is to diminish the vibration of railroad structures and rolling-stock, and thereby decrease the noise caused by passing trains, and increase the durability and safety of said structures and stock.

To this end the invention consists in a railroad-car wheel having a plate of non-resonant material attached to its side, substantially as I will now set forth.

In the drawings, *e e* are a pair of railway-car wheels of the usual form, connected by an axle in the usual manner. Attached to the side of each wheel by rivets or in any other suitable manner is a plate, *f*, of lead or other heavy material, having the quality of not receiving or imparting sound-vibrations except to a small extent, as is the case with lead and other soft heavy substances. The plate may be slitted to further increase its peculiar property of non-resonance. The wheels thus provided with sound-deadening plates are mounted upon rails C C, between which and the sleepers or cross-ties A are arranged lead, rubber, felt, or other non-sonorous plates or strips B, upon which the rails rest, and which in whole or in great part prevent sound-vibrations from being transmitted from either rail through the cross-ties to the opposite rail.

It will be observed that as railroads are ordinarily constructed each rail rests directly upon the timbers of the roadway, so that any vibration of either rail is transmitted readily through said timbers or through the ground to the other side of the track, and the whole structure is caused to repeat the vibrations of any part thereof. So far as this transmission of vibrations from the rails to the supporting-structure or from one rail to the opposite rail through the supporting-structure is concerned, the packing beneath the rails tends to destroy the ability of the connected parts to receive from and transmit to each other the sound-vibrations produced by the wheels passing over the rails; but this alone is not enough, for the reason that when a train is passing the sound-vibrations of one rail are transmitted through the car-wheels and axles or car-wheels and cars to the opposite rail, and thus set the whole train and both rails in vibration.

The sound-deadening contrivance applied to the wheels, as above described, is therefore designed to arrest and prevent the vibration of the wheels themselves, and thus cut off to as great an extent as possible the transmission of vibrations to, through, or from the passing train, and, in connection with the rail-packing, to thoroughly insulate the two rails from each other at all times, so far as concerns sound producing or transmitting vibrations. Neither the rail-packing alone nor the wheel-plating alone accomplishes the object satisfactorily, although each contributes to the desired result; but both together, acting in co-operation with each other, are found to operate more satisfactorily than any contrivance heretofore employed for the purpose.

Having thus described my invention, I claim as new—

The combination of car-wheels *e*, constructed in the usual manner, with plates of lead or its equivalent applied to their sides in the manner herein described, and for the purpose set forth.

MARTIN V. B. ETHRIDGE.

Witnesses:

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