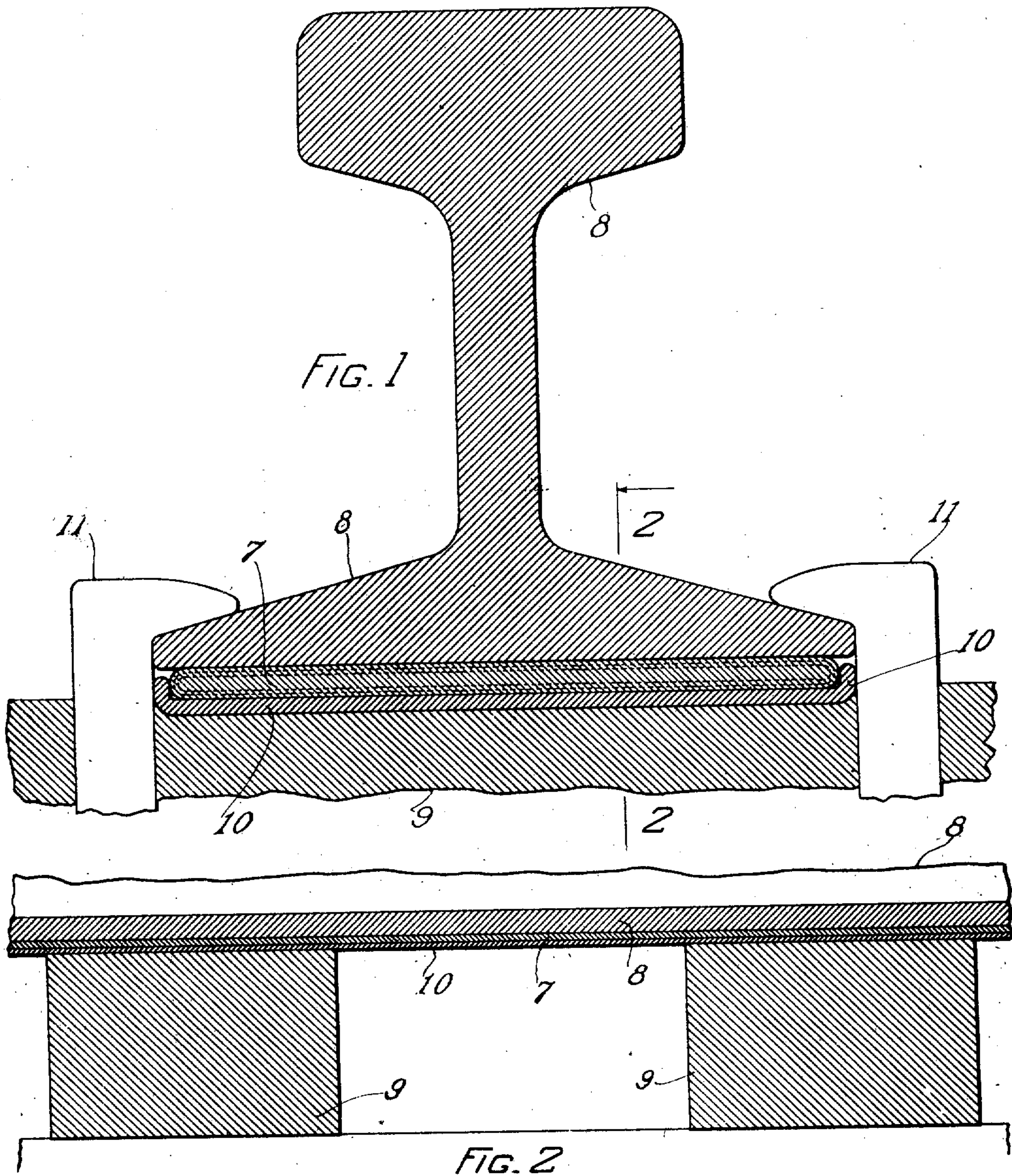


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SOUND DEADENING CONSTRUCTION FOR ELEVATED RAILWAYS.  
APPLICATION FILED SEPT. 23, 1907.

899,293.

Patented Sept. 22, 1908.



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# UNITED STATES PATENT OFFICE.

CHARLES HOWARD CONOVER, OF CAMBRIDGE, AND WILLIAM D. MURPHY, OF NEWTON,  
MASSACHUSETTS.

## SOUND-DEADENING CONSTRUCTION FOR ELEVATED RAILWAYS.

No. 899,293.

Specification of Letters Patent.

Patented Sept. 22, 1908

Application filed September 23, 1907. Serial No. 394,052.

*To all whom it may concern:*

Be it known that we, CHARLES HOWARD CONOVER, of Cambridge, and WILLIAM D. MURPHY, of Newton, both in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Sound-Deadening Construction for Elevated Railways, of which the following is a specification.

10 The object of this invention is to materially lessen the noise caused by the running of railroad cars and trains, particularly on elevated railways. This desired end we accomplish by interrupting the continuity of vibration between the rails and the ties or stringers on which they rest in the ordinary construction. We largely prevent the transmission of vibration from the rails to the supporting structure by interposing between the parts a non-vibrating element adapted to the severe requirements the rails being held firmly in position thereon.

The main feature of our improvement and the preferred construction is hereinafter described and claimed, and is illustrated in the accompanying drawings, in which,—

Figure 1 is a transverse vertical section, about full size. Fig. 2 is a longitudinal section, on line 2—2 of Fig. 1, taken on a reduced scale.

30 The characteristic feature of our invention is the continuous non-vibrating element or layer 7 introduced between the practically rigid parts of the structure, as between the base of the rail 8 and its immediate supports. This layer is preferably of firm rubber packing formed of alternate folds of heavy duck and rubber vulcanized together, as in rubber belting.

40 Another novel feature of our invention is a continuous metallic support 10 for the non-vibrating layer 7, both extending the full length of the rail. In the drawing such support is shown as a broad and shallow trough 10, its marginal walls giving efficient lateral support to the body of the packing which extends the full width of the trough and may be vulcanized in place.

50 The packing should be of the best quality and practically unyielding under the weight of the car or train, since it rises but slightly above the edge walls of the trough and the

rail base should not come in contact with the walls. They may even be omitted where the service is not too severe.

55 The troughs 10 may be sunken, more or less, in transverse recesses in the ties 9, tending to keep them from any lateral movement under the strains of use. The rails will be secured in any efficient manner, as by lag screws, bolts or spikes 11, and will have any required lateral supports to prevent them from spreading.

60 The intimate contact of the non-vibrating packing with the rigid parts between which it is held checks the vibrations of each and prevents the direct transmission of such vibrations from one to the other. The clinging nature of the packing also tends to resist lengthwise movement of the rail. The trough forms a continuous metallic support for the packing beneath the rail, bridging over the spaces between the ties. (See Fig. 2.)

75 We disclaim the construction shown in United States Patent to Josiah Foster, granted March 20, 1877, No. 188,617, and therein said to "consist in constructing the rail with a central groove upon the under side of its base, extending its whole length, and in combining with such a rail a shoe or supplementary rail of a length equal to ordinary rails, having a central fin or rib to correspond with the groove in the main rail. Between these two rails an elastic packing may be used, and whenever so used the shoe or supplementary rail may have side-flanges embracing the sides of the base of the main rail"

80 The purpose of that construction was "to dispense with fish-plates." It was not designed to prevent the noise of trains, and would not do so, because at each edge and along an intermediate line such rails would be in actual contact and the vibrations of one directly transmitted to the other, accompanied by noises due to their frictional movement.

85 In our improved construction the rail has the usual unbroken, flat base, the trough bottom, between its flanges, is correspondingly flat and continuous, and the non-vibrating layer extends from edge to edge, preventing metallic contact.



We claim as our joint invention:

1. In elevated railway construction, a continuous non-vibrating layer interposed longitudinally between the base of the rail and its immediate supports, and extending unbrokenly the full width of the rail and from end to end thereof, substantially as set forth.

2. In railway construction, the combination of the rails, a flat-bottomed, longitudinal metallic support beneath each rail, extending from end to end and edge to edge thereof, and a non-vibrating packing layer of corresponding dimensions interposed between said rail and support and in continuous contact with both, substantially as set forth.

3. In railway construction, the combination of the rails, a flat-bottomed, longitudinal, metallic, flanged support beneath each rail, extending from end to end and from edge to edge thereof, and a non-vibrating packing layer of corresponding dimensions interposed between said rail and support and in continuous contact with both, and lying between the flanges of said support, substantially as set forth.

4. In elevated railway construction, the combination of the rail, a continuous longitudinal support beneath the rail, serving to bridge over the spaces between successive

ties, and a non-vibrating layer interposed between and in contact with said support and rail, the rail base and its support and said interposed layer having continuous, unbroken contacting surfaces from edge to edge, preventing metallic contact, substantially as set forth.

5. In elevated railway construction, longitudinal metallic troughs sunken in recesses in the ties, and non-vibrating packing layers filling said troughs and extending higher than the walls thereof, in combination with the rail adapted to rest by its base on said packing, and with suitable rail fastenings, substantially as and for the purpose set forth.

6. In elevated railway construction, the composite support for the rail, comprising a longitudinal metallic trough having between its flanges a continuous flat upper surface, and a continuous layer of non-vibrating material as packing, filling said trough and securely held therein, substantially as set forth.

In testimony whereof we have affixed our signatures, in presence of two witnesses.

CHARLES HOWARD CONOVER.

WILLIAM D. MURPHY.

Witnesses:

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