C. E. LEWIS, J. M. THOMAS & S. C. JONES.

NOISE DEADENING MEANS FOR RAILWAYS.

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912,141

Patented Feb. 9, 1909.

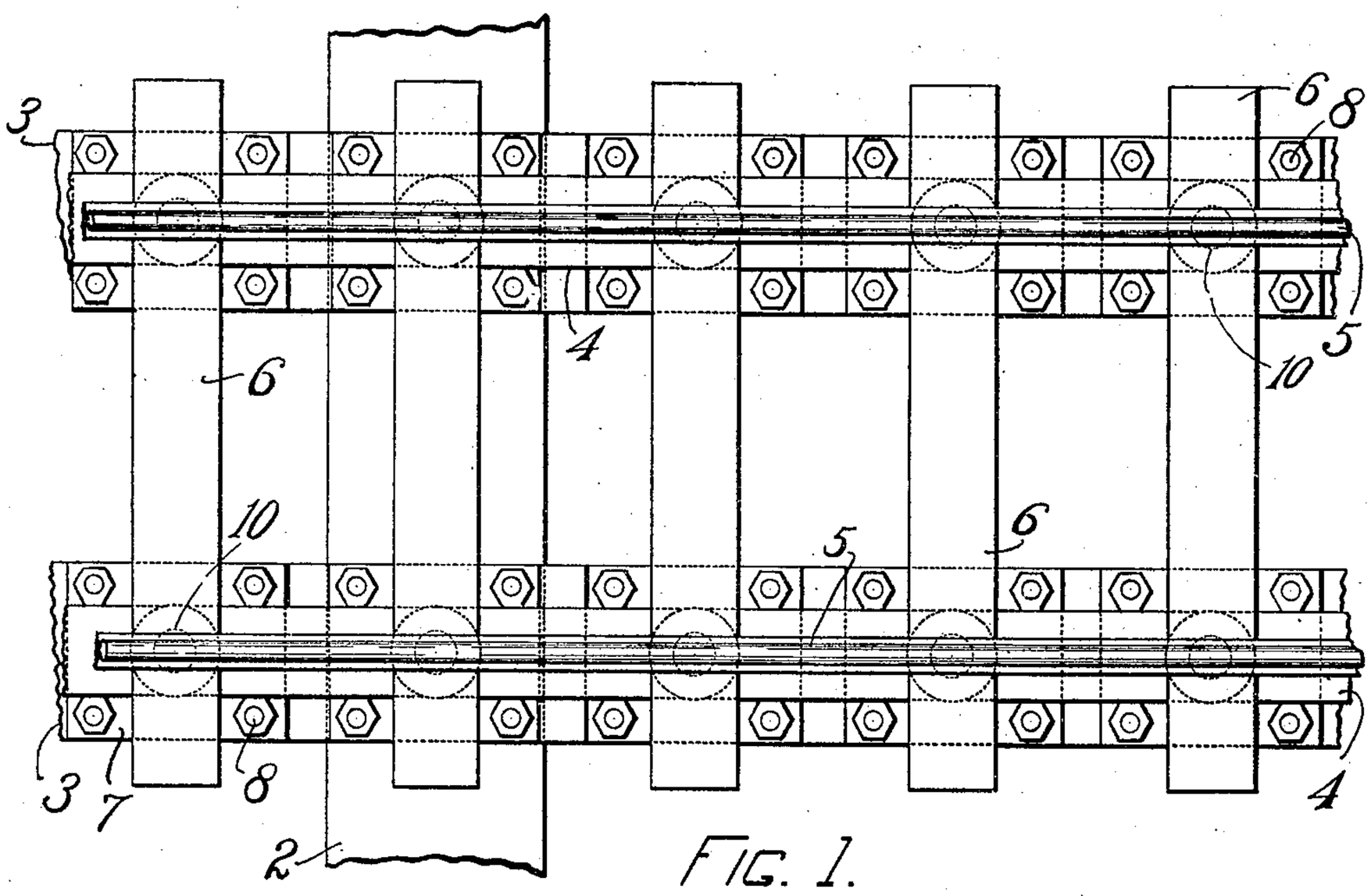

FIG. 1.

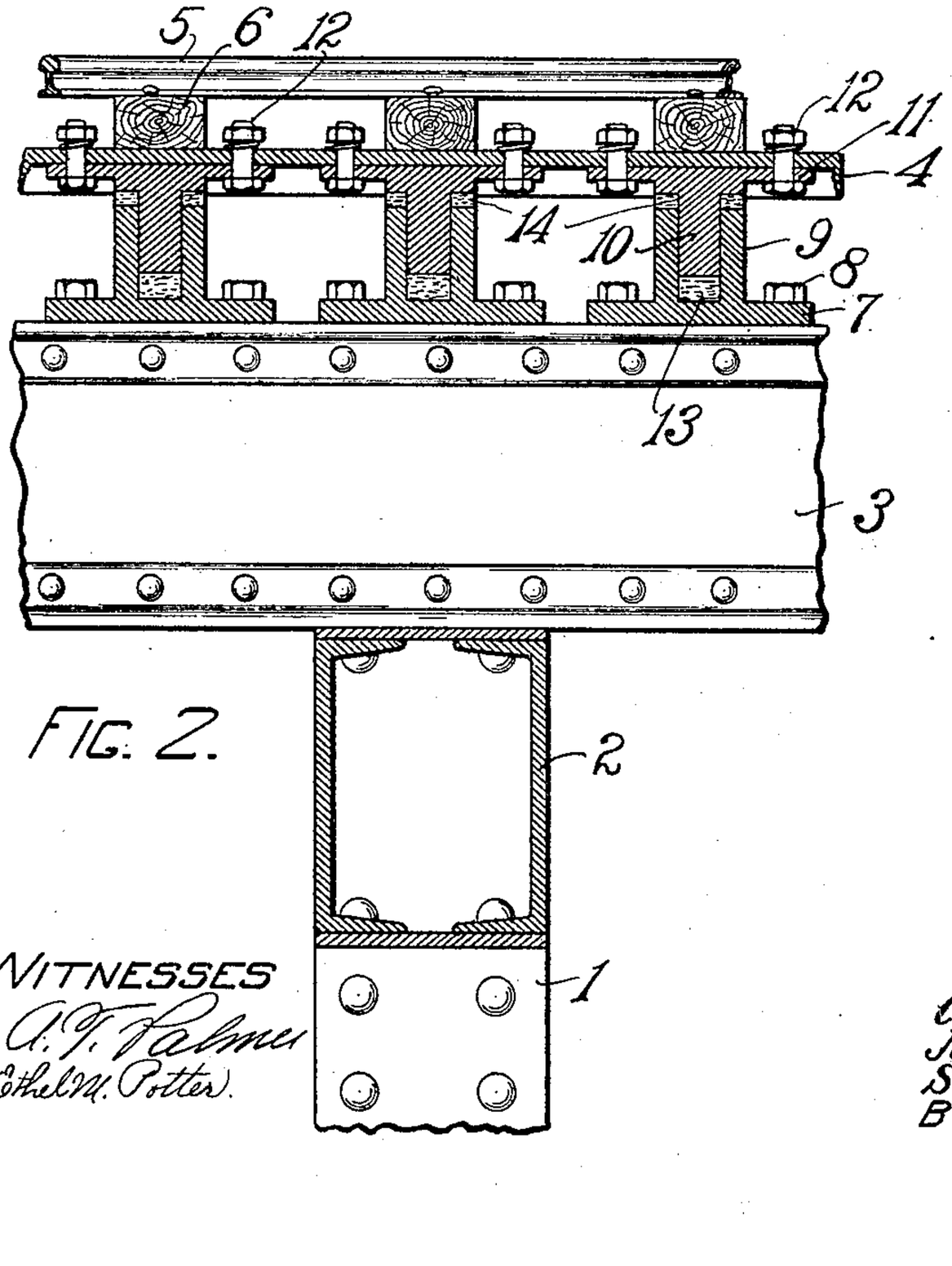

FIG. 2.

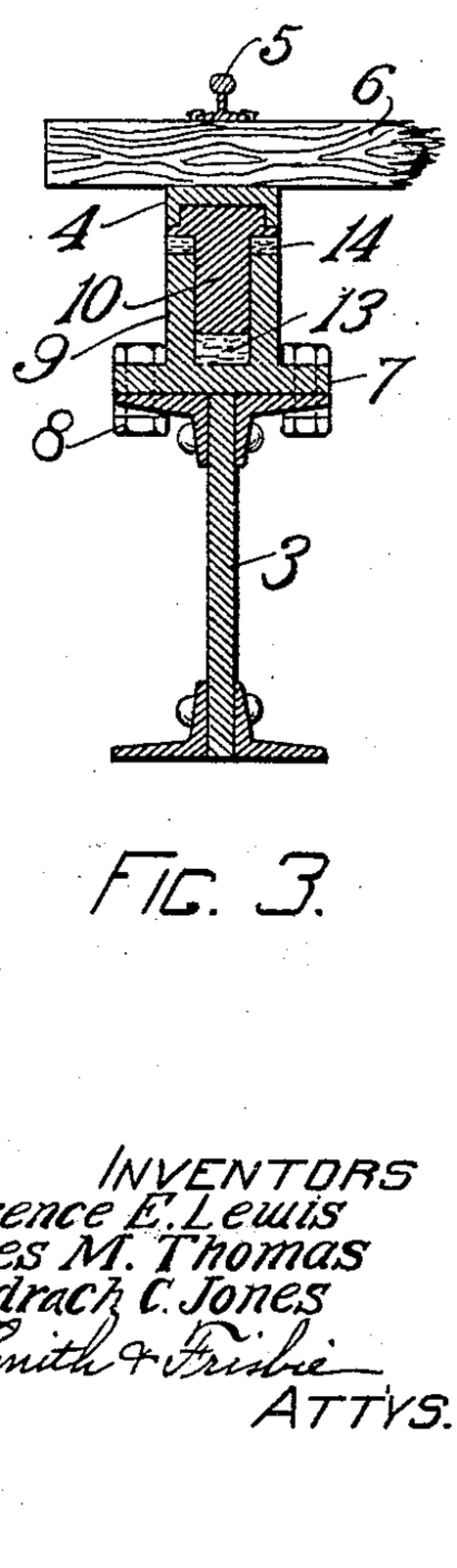

FIG. 3.

WITNESSES

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NOISE-DEADENING MEANS FOR RAILWAYS.

No. 912,141. Specification of Letters Patent. Patented Feb. 9, 1909.

Application filed November 12, 1908. Serial No. 462,537.

To all whom it may concern:

Be it known that we, CLARENCE E. LEWIS, JAMES M. THOMAS, and SHADRACH C. JONES, citizens of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Noise-Deadening Means for Railways, of which the following is a specification, reference being had therein to the accompanying drawing.

Our invention relates to sound deadening apparatus for railways and particularly to means adapted to reduce the amount of vibration caused by the rolling-stock on the rails of railroads, particularly on third-rail electric roads and especially when they are of the elevated railway construction, thereby greatly reducing the noise caused by the concussion of the car-wheels on the rails and of the shoe upon the third-rail and preventing noise from being carried forward in advance of the train upon the structure; and its novelty consists in the construction and arrangement of the several parts, as will be more fully hereinafter pointed out.

Sound-deadening means for railways have long been on the market and have generally consisted of a layer of non-vibrating material laid lengthwise of the cross-ties between the rails and the ties, or of a layer of such material interposed longitudinally between the base of the rail and its intermediate supports but in such cases the weight of the train as it passes along the structure causes the top side of the base flanges of the rails to move away from the underside of the spike heads, but in our construction the rails are spiked or fastened rigidly to the cross-ties as is common on all roads and the sound-deadeners are located entirely below the cross-ties.

Another object of our invention is to provide an anti rail creeping device to entirely prevent creeping of the rails and cross-ties.

Figure 1 is a plan view of a portion of an elevated railway with our apparatus in position. Fig. 2 is a longitudinal section of a portion of the same. Fig. 3 is a cross-section through one of the longitudinal girders, rail, and our mechanism interposed between the girder and cross-tie.

Latitude is allowed herein as to details as they may be changed or varied at will without departing from the spirit of our invention and the same yet remain intact and be protected.

Corresponding and like parts are referred to in the following description and indicated in all of the views of the drawings by the same reference characters.

The vertical supporting posts or standards 1 support the horizontal steel girders 2 which carry the trestles or connecting girders 3 extending lengthwise of the road-bed. Above these girders and running parallel with them are the channel irons 4 on which the cross-ties 6 are laid carrying the rails 5; the rails 5 being spiked or otherwise attached to the cross-ties 6.

The base plate 7 of the cylindrical chamber 9 is bolted as at 8 to the connecting girders 3 and seated within the chamber is the principal resilient element, preferably elastic material forming a non-vibrating buffer 13 being made of vulcanized rubber or other insulating material and against which presses, within the chamber, the lower end of the plunger or piston 10; if desired a coil spring may be used in place of the elastic material. The head of the piston 10 is seated in the gutter of the channel iron 4, its flanges 11 being secured thereto by bolts or other fastening means 12, and a non-vibrating ring 14 of caoutchouc or other resilient matter is placed between the lower side of the piston head and the upper edge of the cylindrical chamber 9. It is thus seen that the parts 9 and 10 are in the forms of a dashpot (and that if desired dashpots of any approved form may be substituted for the form herein described), and that these dashpots are placed immediately under the cross-ties, one dashpot for each end of each tie, and that as additional weight, for example a train, passes over the rails the piston 10 is depressed within the cylindrical chamber 9 of the dashpot and against the resilient means 13 which preferably completely fills the cavity in the chamber below the piston.

It is apparent that resilient means other than india rubber or thick felt could be used at 13 and 14 and if desired springs of any desirable size and shape may be substituted for the rubber but when it is desired to insulate the channel irons from the girders 3 the portion of the piston within the cylinder, or if

desired all of the piston, may be constructed of suitable insulating material or a strip of insulating material may surround that portion of the piston within the chamber.

As the train passes along the structure a very slight wave-like motion is obtained which prevents the noise occasioned by the rolling-stock upon the rails or the noise caused by the passing of the shoe upon the third rail or by the concussion of the car-wheels upon the rails, to a large extent, if not wholly, from passing ahead or in front of the train thus greatly lessening the disturbance to adjoining property occupants from the noise vibrations, and anti-creeping of the rails and cross-ties is prevented by the use of resilient buffers, such as we have shown, when used for each cross-tie.

It is to be understood that our invention is not limited to the specific details of construction shown in the accompanying drawings, but that said details may be varied in the practical carrying out of our invention. It is also to be understood that the combinations specifically set forth in the several claims are intended to be separately claimed without limitation to the use in connection therewith of other features of construction illustrated.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:—

1. In railway construction, the combination of the rails, cross-ties and a dashpot located beneath each cross-tie.

2. In railway construction, the combination of the rails, cross-ties, and a dashpot located beneath each cross-tie provided with an insulated piston.

3. In railway construction, cross-ties, a noise-deadening device located below the plane of the cross-ties consisting of a chamber, a piston and non-vibrating material interposed between the chamber and piston.

4. In elevated railway construction, a resilient member interposed between the base of the cross-tie at each end thereof and the adjacent longitudinally connecting girder.

5. In elevated railway construction, the combination of the rails, cross-ties, and yieldingly supporting channel irons extending parallel with the rails beneath the cross-ties.

6. In elevated railway construction, the combination of the rails, cross-ties, channel irons extending parallel with the rails beneath the cross-ties, trestles beneath the channel irons and parallel therewith and resilient material interposed between the channel irons and trestles.

7. In elevated railway construction, the combination of rails, ties, channel irons supporting the ties, girders, the rails, channel irons and girders being parallel with each other, and a plurality of dashpots for each tie being interposed between the channel irons and girders and secured thereto.

8. The combination in a railroad structure, of a series of vertical supports, horizontal girders supported by the vertical supports, trestles connecting the horizontal girders, channel irons extending parallel with the trestles, cross-ties upon the channel irons, rails supported upon the cross-ties, and a dashpot for each end of each cross-tie interposed between the channel iron and trestle having its upper portion rigidly secured within the gutter of the channel iron and its lower portion rigidly secured to the trestle.

9. As a new article of manufacture, a cylindrical chamber, a piston extending within the chamber, resilient means within the chamber and resilient means without the chamber interposed between the upper rim of the chamber and the head of the piston.

10. As a new article of manufacture, a receptacle provided with flanges, a plunger within the receptacle having its head provided with flanges, a buffer within the receptacle and against which the plunger acts and resilient means extending around the periphery of the plunger.

11. The combination in an elevated railway structure, of a series of vertical posts, horizontal girders supported by the posts, trestles connecting the girders, rails, cross-ties, channel irons supporting the cross-ties, plungers having their heads rigidly secured within the gutter of the channel irons, chambers for receiving the plungers and secured to the upper face of the trestles, buffers within the chambers against which the plungers act, resilient means surrounding the plunger between the head of the plunger and the upper edge of the chamber and the chambers and plungers being interposed entirely between the trestles and channel irons.

In testimony whereof we affix our signatures in presence of two witnesses.

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Witnesses:
JOHN E. WEST,
PETER A. FREDERICKSON.