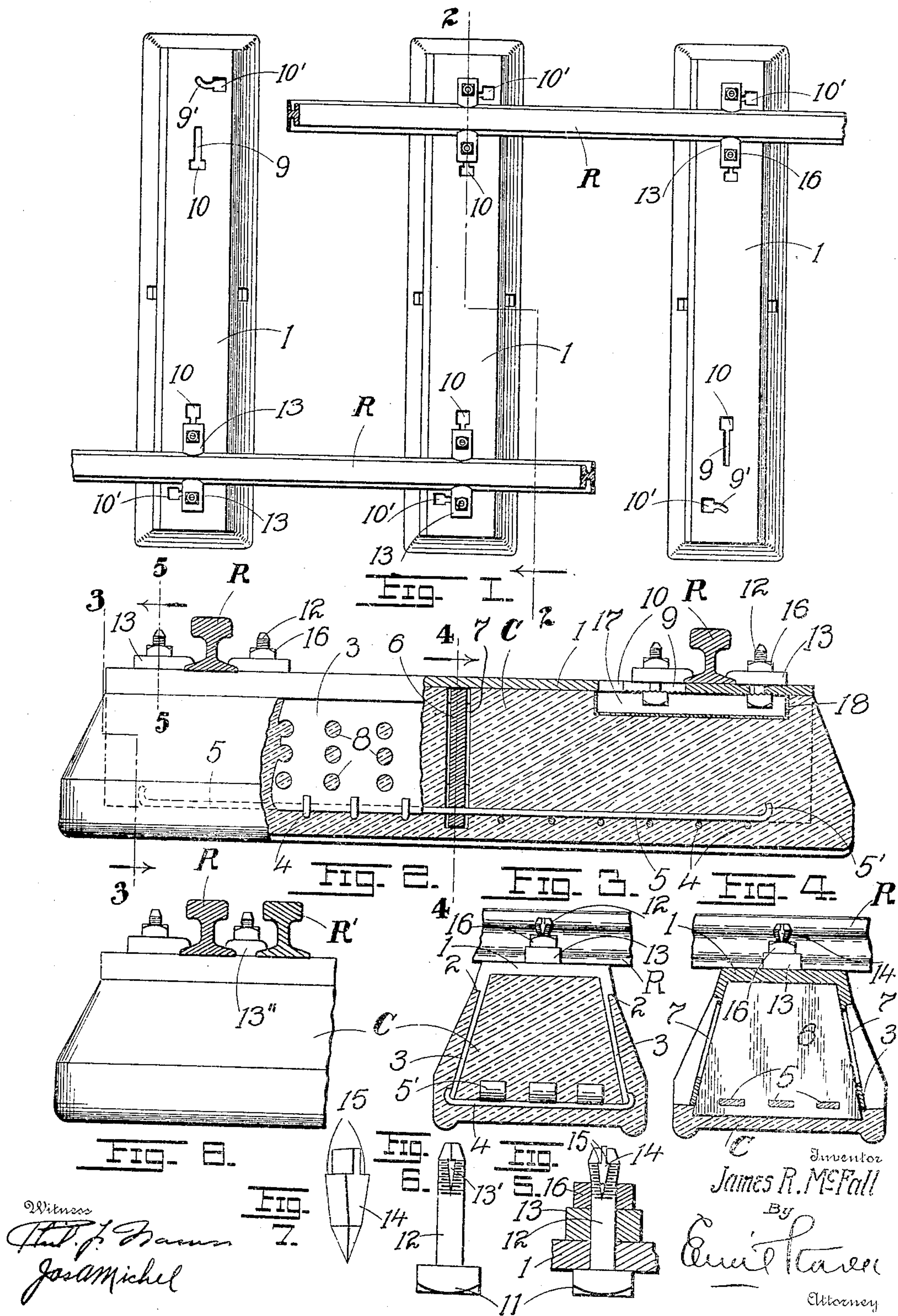


No. 803,923.

PATENTED NOV. 7, 1905.

J. R. McFALL,  
RAILWAY TIE.

APPLICATION FILED APR. 3, 1905.





# UNITED STATES PATENT OFFICE.

JAMES R. McFALL, OF ST. LOUIS, MISSOURI.

## RAILWAY-TIE.

No. 803,923.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed April 3, 1905. Serial No. 253,468.

*To all whom it may concern:*

Be it known that I, JAMES R. McFALL, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Railway-Ties, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in railway-ties; and it consists in the novel construction of tie more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a top plan of a section of a railway-track, showing my invention applied thereto. Fig. 2 is a combined longitudinal section and elevation of the tie, taken on the line 2 2 of Fig. 1. Fig. 3 is a cross-section on the broken line 3 3 of Fig. 2. Fig. 4 is a cross-section on line 4 4 of Fig. 2. Fig. 5 is an enlarged sectional detail of the nut-lock, taken on the line 5 5 of Fig. 2. Fig. 6 is an elevation of the bolt. Fig. 7 is a perspective of the wedge forming the nut-lock; and Fig. 8 is an elevation of one end of a tie, showing a guard-rail and clamp therefor.

The object of my invention is to construct a composite tie of metal and cement or concrete which shall possess a high degree of elasticity, one which will be cheap and durable and easy to construct, and one possessing further and other advantages better apparent from a detailed description of the invention, which is as follows:

Referring to the drawings, 1 represents a metallic stringer for the direct support of the rails R, the said stringer forming the top of the completed tie. Formed integrally with the sides of the stringer and defined by an offset or shoulder 2 on the depending sides thereof are inclined walls 3, forming the sides of the casing or chamber in which the concrete or cement C is confined. The opposite lower edges of the inclined sides 3 are connected by transverse tie-rods 4, on which rest a series of longitudinally-disposed anchor-bars 5, having terminal upturned ends 5'. These bars pass through the base of a central transversely-disposed wooden partition-wall or diaphragm 6, which divides the chamber of the tie into two compartments, suitable sections of the walls 3 being removed opposite the partition, leaving openings 7, as best seen in Figs. 2 and 4. The object of removing these sections from the walls 3 is to reduce the resistance of the walls 55 opposite the wooden partitions 6, thereby

causing the latter to take up the major part of the load passing over the tie, and as wood is more elastic than either metal or cement this arrangement insures elasticity for the tie at the center, where it is most desirable. The concrete C of course envelops the walls 3, extending a suitable distance below the bottom edges of the same, as seen in Fig. 3, the said walls being perforated or provided with openings 8, so that a better bond may be effected between the concrete and metallic portion of the tie.

Each tie is provided with an elongated slot 9, disposed parallel to the length of the tie, terminating in an enlarged portion 10 for the insertion of the head 11 of the bolt 12, by which the clamps 13 are held against the rail-flange. For the accommodation of the outer bolts of the series the tie is provided with a slot 9', terminating in an enlarged portion 10' for the passage of the bolt-head. The slot 9' is at an angle to the length of the tie, this disposition preventing longitudinal shifting of the bolts away from the rail once the stem of the bolt has been brought to the end of the slot. The inner series of bolts can of course be shifted or adjusted to and from the rail along the longitudinal slot 9 to accommodate varying dimensions of flanges for different weight of rails. No such adjustment is necessary for the outer clamps or bolts securing the same. Each bolt is split at the upper end, a wedge-shaped passage 13' accommodating a wedge or block 14, which when driven into the cavity spreads apart the members on either side of the slit of the bolt, said members slightly diverging and embracing the shoulders 15 at the base of the wedge and locking the nut 16 passed over the bolt and bearing on the clamp 13. In the case of a guard-rail R' a single clamp 13'' is sufficient to hold both rails to the tie, Fig. 8.

I may of course depart in a measure from the details here shown without in any wise affecting the nature or spirit of my invention. The concrete C is run up against the shoulders 2 of the stringer 1, the depending sides of the stringer being thus flush with the outer surface of the concrete, thereby protecting the latter for the full length of the tie against flaking or disintegration along the seam thus formed. The slots 9 9' are located immediately over a cavity 17, formed in the concrete for the accommodation of the bolt-heads, the said cavity having preferably a metallic lining 18, as shown in Fig. 2.



Having described my invention, what I claim is—

1. A composite railway-tie comprising a metallic stringer forming the top of the tie, inclined side walls leading therefrom, tie-rods connecting the lower edges of the side walls, an elastic partition-wall at the center of the tie, the whole being incased in a body of concrete by which the stringer is supported, substantially as set forth.

2. A composite railway-tie comprising a metallic upper stringer having depending side walls defined therefrom by an exterior longitudinal shoulder or offset, a series of transverse tie-rods connecting the lower edges of the side walls, a series of longitudinal anchor-bars resting on the tie-rods, a central wooden partition-wall through which the anchor-bars pass, the whole being incased in a body of concrete or cement supporting the stringer, substantially as set forth.

3. A composite railway-tie comprising a

metallic upper stringer having depending perforated side walls with sections removed therefrom at the center of the tie, a wooden partition below the stringer opposite said removed sections of the side walls, a series of transverse tie-rods for the bottoms of said side walls, a series of longitudinal terminally-hooked anchor-bars on top of the tie-rods passed through the base of the partition aforesaid, the whole embedded in a body of concrete supporting the stringer, substantially as set forth.

4. A composite railway-tie comprising a metallic stringer having integrally-formed depending side walls, the latter incased in a body of concrete, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES R. McFALL.

Witnesses:

EMIL STAREK,  
JOS. A. MICHEL.