No. 814,022. PATENTED MAR. 6, 1906.

W. A. COLLINS.

RAILROAD TIE.

APPLICATION FILED DEC. 13, 1905.

Fig. 1.

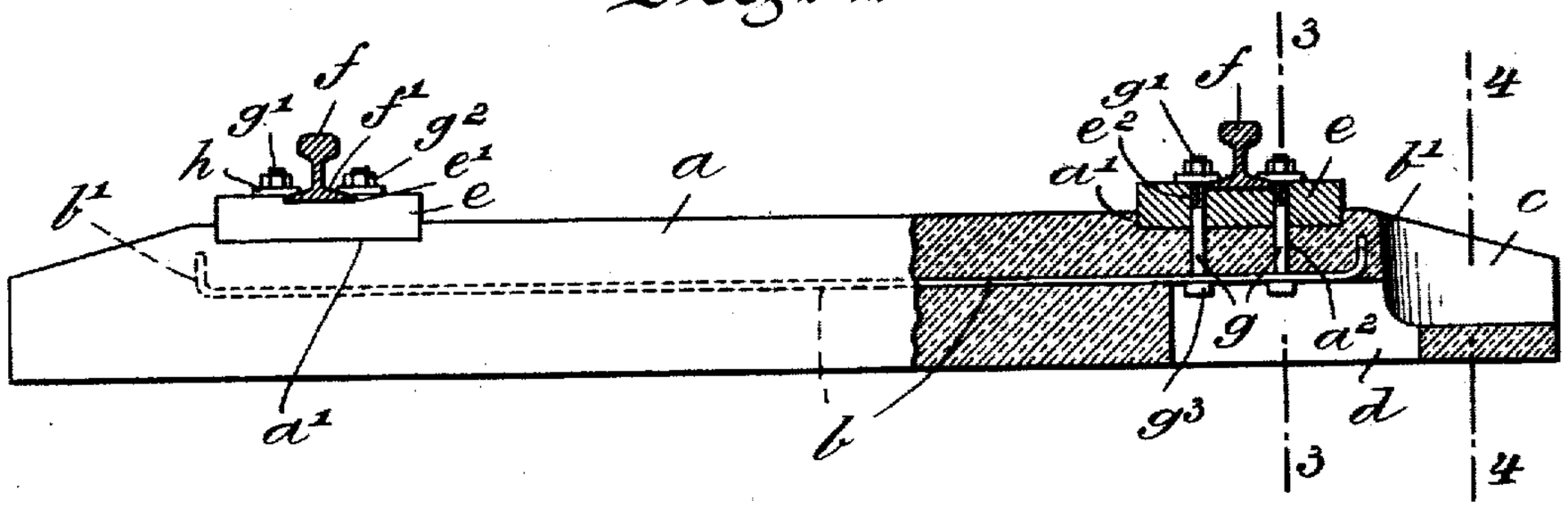


Fig. 2.

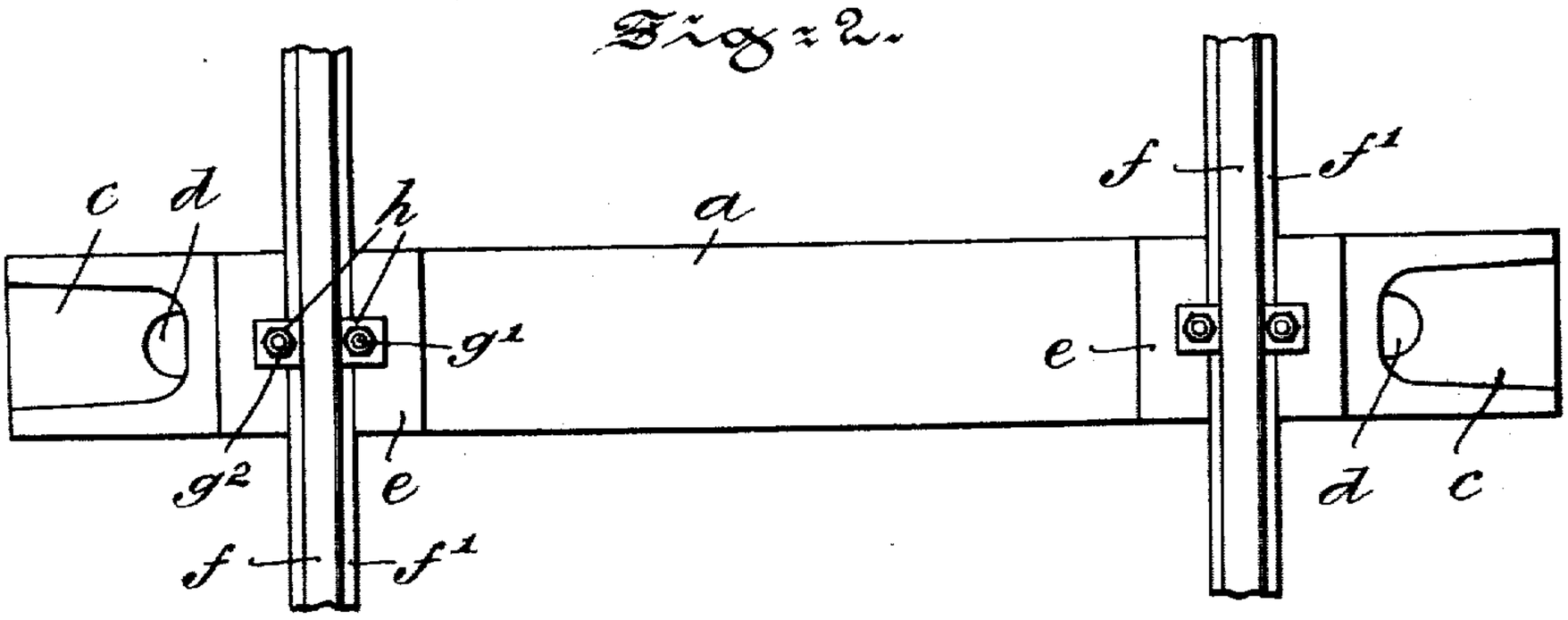


Fig. 3.

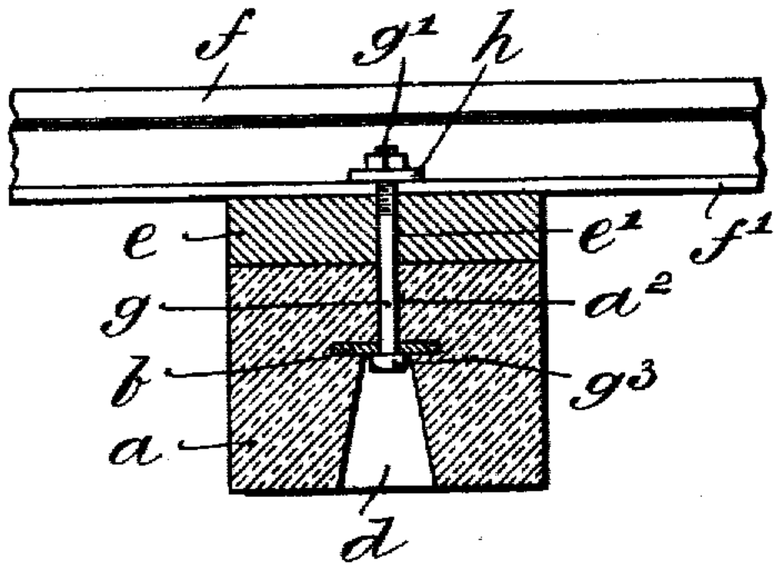
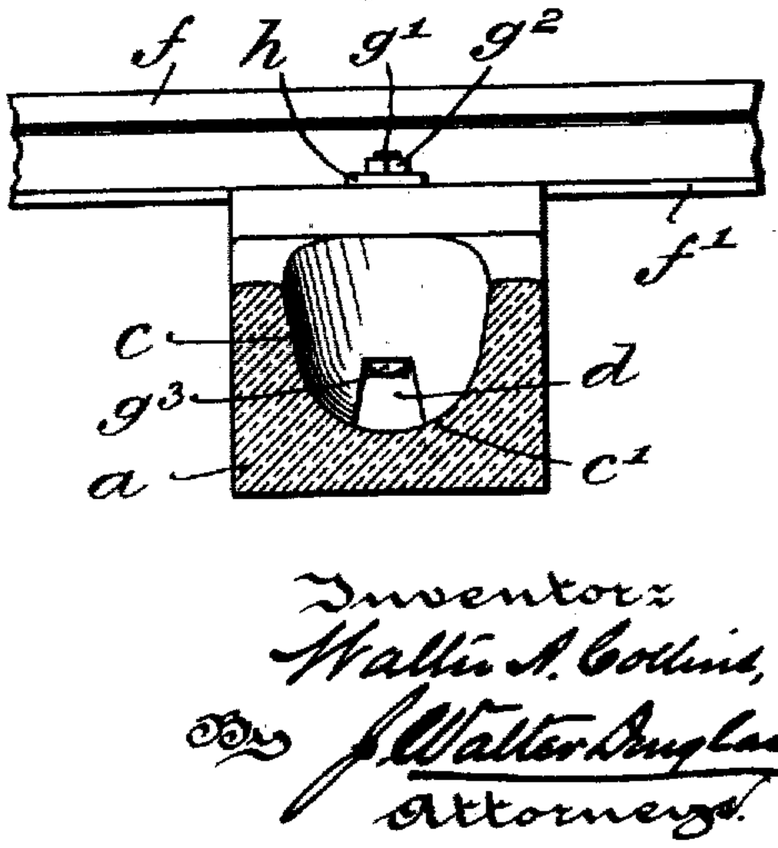


Fig. 4.



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UNITED STATES PATENT OFFICE.

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RAILROAD-TIE.

No. 814,022. Specification of Letters Patent. Patented March 6, 1906.

Application filed December 13, 1905. Serial No. 291,515.

To all whom it may concern:

Be it known that I, WALTER A. COLLINS, a citizen of the United States, residing at Penns Manor, in the county of Bucks and State of Pennsylvania, have invented certain new and useful Improvements in Railroad-Ties, of which the following is a specification.

My invention has relation to a railroad-tie of that class in which the body or main portion is formed of concrete or artificial stone; and in such connection it relates more particularly to means and to the manner of connecting the rails, and a support for the same, to the tie.

The principal objects of my invention are, first, to provide a railroad-tie formed of concrete or cement with communicating depressions arranged in the ends of the tie to permit of the insertion of clamping-bolts through the tie and through blocks carried by the tie supporting the rails proper without in any way disturbing the position of the tie on the road-bed, and, second, to provide the tie with a reinforcing metal strip or bar adapted to impart to the tie the requisite tensile strength and to permit of the locking of the rails to the bar, so as to utilize the same to bear a portion of the lateral strain to which rails are subjected.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a front elevational view, partly in longitudinal section, of a railroad-tie, illustrating the arrangement of two communicating depressions located in each end of the tie, the reinforcing strip or bar embedded in the tie and partially exposed by the inner depression, bolts passing through the strip and tie and yielding blocks and engaging the foot of the rails to connect the same with each other, embodying the features of my invention. Fig. 2 is a top or plan view of the tie shown in Fig. 1; and Figs. 3 and 4 are cross-sectional views, enlarged, taken, respectively, on the lines 3 3 and 4 4 of Fig. 1.

Referring to the drawings, *a* represents a railroad-tie of the usual outline, consisting of concrete, cement, or other suitable quick-hardening and weather-proof material. As shown in Figs. 1 and 3, the tie *a* is provided with a reinforcing metal strip or bar *b*, preferably bent at its ends to form hook-like portions *b'*. This strip is embedded in the tie, preferably at or adjacent to the central horizontal axis thereof, by placing the same in proper position in a mold (not shown) prior to the introduction of concrete or cement therein. This strip or bar *b*, which on account of its upwardly-bent ends *b'* cannot work loose in the tie *a*, imparts to the same the requisite strength and takes up the main portion of the tensile strain to which the tie is subjected by being directly connected with the rails *f* in the manner to be presently described. At each end of the tie *a* and in its upper surface is formed a recess or depression *c*, preferably terminating near the base of the same. This depression is of scoop-like outline with rounded bottom *c'*, and its object is to afford sufficient room for the introduction and movement of the hand therein. The depression *c* communicates with a depression *d*, of preferably wedge-shaped outline, which is narrow and only sufficiently wide to permit of the introduction of a bolt *g*, held by a suitable tool, (not shown,) into the same. This depression owing to its cross-section and its small size does not weaken the tie at the portion which is directly subjected to a compressing strain by the rails, as will be readily understood in conjunction with Fig. 1 of the drawings. At the same time the outline of the depressions *c* and *d* is such as to permit of the ready withdrawal of cores set in a mold (not shown) to form the same when the cement or other material has completely set. Water entering the depression *c* will by the rounded bottom *c'* of the same be readily drained from the depression by flowing partially in the depression *d* and leaving the depression *c* at its open end, both of which are in open communication with the road-bed.

Adjacent to each end the tie at its upper face is provided with shallow depressions or recesses *a'*, adapted to receive and to hold in position blocks *e* of yielding material, (preferably of wood.) These blocks *e* are provided with a depression *e'* of sufficient size and depth to permit of the introduction of the foot *f'* of rails *f*, which is thus held in position on the blocks *e*. The blocks *e* are provided with holes e^2, communicating with holes a^2, arranged in the tie *a*, which in turn are in alinement with holes arranged in the strip *b*. These communicating holes are adapted to permit of the insertion and reception of clamping-bolts *g* therein in the following manner: The bolts *g* are engaged by a pincer-like tool, (not shown,) which permits

of the introduction of the same into the depression *d* and of the insertion of the same in an upward direction through the holes of the strip *b*, tie *a*, and blocks *e*. As soon as the threaded end *g'* of the bolts *g* projects beyond the blocks *e* a clamp-plate *h* is slipped over the same and a nut g^2 is screwed upon the end, which by bearing against the clamp *h* brings the same into engagement with the foot *f'* of the rail *f* and the head g^3 of the bolt into engagement with the strip *b*. In this manner the rail *f*, block *e*, tie *a*, and strip *b* are securely connected with each other and lateral strain to which the rail *f* is subjected is directly transmitted to the strip *b*. Thus a greater security against the cracking or breaking of the tie *a* is insured. In case the rails *f* or blocks *e* are to be replaced this can readily be accomplished by the removal of the nuts g^2. At the same time the bolts *g* can readily be replaced without disturbing the position of the tie *e* on the road-bed by first engaging the heads g^3 thereof by a suitable tool and forcing the same downward into the depression *d*, assisted in this movement by blows of a tool upon the projecting ends of the same.

Instead of exposing a certain portion of the strip *b*, as shown in Figs. 1 and 2, the same may be completely embedded in cement, in which instance the head g^3 of the bolts would directly bear against the cement. This arrangement, however, would not change the function of the strip *b* to assist in taking up the lateral strain to which the rails *f* are subjected.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A railroad-tie, comprising a body of cement or similar material, a strip of metal embedded therein, blocks arranged at each end thereof and adapted to support rails, and means adapted to connect the rails and blocks to said body and metallic strip embedded therein.

2. A railroad-tie, comprising a body of concrete or similar material, a strip of metal embedded therein, a recess arranged at each end of said body adapted to receive blocks and to hold the same in position thereon, said blocks adapted to support rails and depressions arranged at each end of said body adapted to permit of the introduction of means through said strip, body and blocks to connect the same with each other and to hold the rails in position on said blocks.

3. A railroad-tie, comprising a body of concrete or similar material, a strip of metal embedded therein, a recess arranged at each end of said body adapted to receive blocks and to hold the same in position thereon, said blocks adapted to support rails, a depression arranged at each end of said body adjacent to said recesses, a depression extending beneath said blocks and communicating with said end depressions, said depressions adapted to permit of the introduction of means through said strip, body and blocks to connect the same with each other and to hold the rails in position on said blocks.

4. A railroad-tie, comprising a body of concrete or similar material, a strip of metal having bent ends embedded therein, a recess arranged at each end of said body, blocks fitting into said recesses and adapted to be held by the same in position on said body, rails supported by said blocks, a depression arranged at each end of said body adjacent to said recesses, a depression extending beneath said blocks and communicating with said end depressions, said depressions adapted to permit of the introduction of bolts through said strip, body and blocks to connect the same with each other and to hold the rails in position on said blocks.

5. A railroad-tie, comprising a body of concrete or similar material, a strip of metal having bent ends embedded therein, a recess arranged at each end of said body, blocks fitting into said recesses and adapted to be held by the same in position on said body, rails supported by said blocks, a depression arranged at each end of said body adjacent to said recesses and extending downward into the same, a depression extending beneath said blocks and communicating with said end depressions and terminating at the base of said body, said depressions adapted to permit of the introduction of bolts through said strip, body and blocks to connect the same with each other and to hold the rails in position on said blocks.

6. A railroad-tie, comprising a body of concrete or similar material, a strip of metal having bent ends embedded therein, a recess arranged at each end and in the upper face of said body adapted to receive blocks of yielding material and to hold the same in position on said body, rails supported by said blocks, a depression arranged at each end of said body adjacent to said recesses and extending downward into the same, a depression extending beneath said blocks and communicating with said end depressions and terminating at the base of said body, said end depressions adapted to free certain portions of said metal strip, and both depressions adapted to permit of the introduction of bolts through said strip, body and yielding blocks to connect the same with each other and with said rails, and to drain off water entering the same.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

WALTER A. COLLINS.

Witnesses:
FRANK BRIGGS,
JOHN C. STUCKERT.