

No. 839,702.

PATENTED DEC. 25, 1906.

F. J. BAIVIER.
COMPOSITE RAILWAY TIE.
APPLICATION FILED FEB. 28, 1906.

2 SHEETS—SHEET 1.

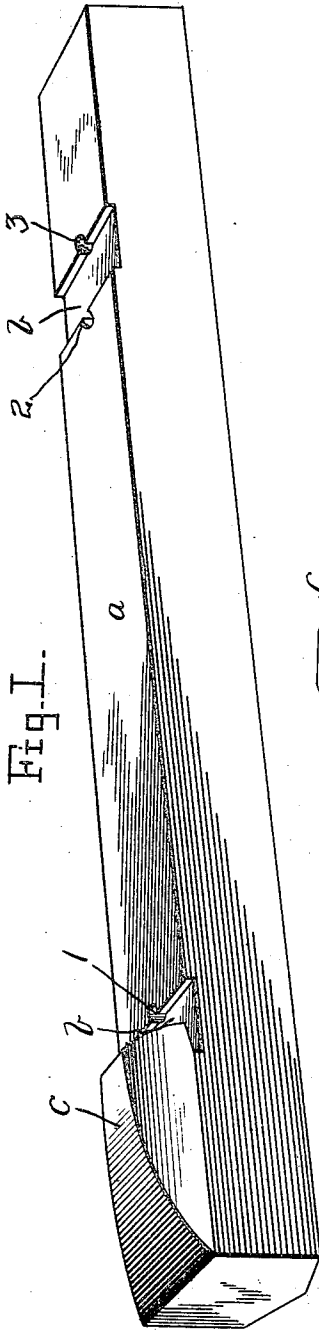


Fig. 1.

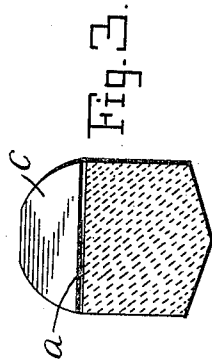


Fig. 2.

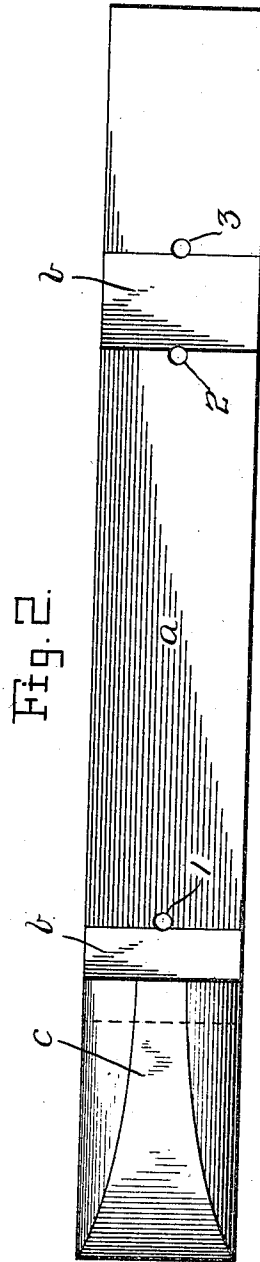


Fig. 3.

Witnesses

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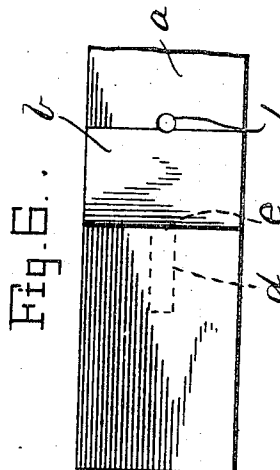
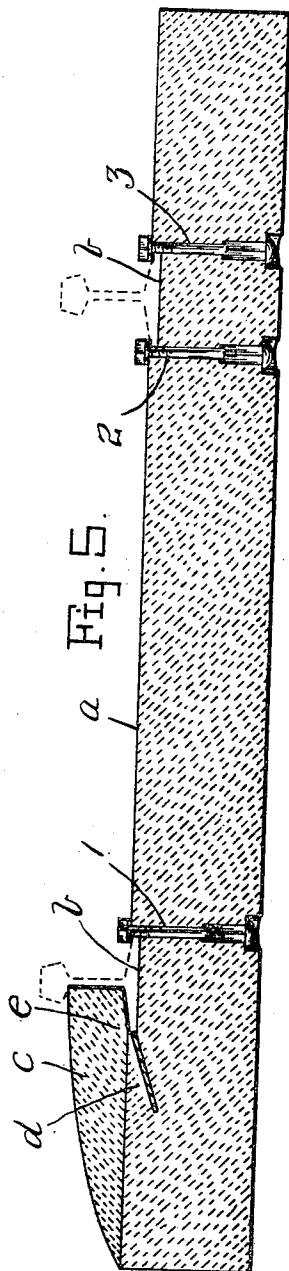
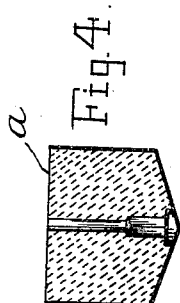
Attorneys

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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

FELIX J. BAIVIER, OF VELVA, NORTH DAKOTA.

COMPOSITE RAILWAY-TIE.

No. 839,702.

Specification of Letters Patent.

Patented Dec. 25, 1906.

Application filed February 28, 1906. Serial No. 303,441.

To all whom it may concern:

Be it known that I, FELIX J. BAIVIER, a citizen of the United States, residing at Velva, in the county of McHenry, State of North Dakota, have invented certain new and useful Improvements in Composition Railway-Ties; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to railway-ties made from cement or artificial stone.

It is the object of the invention to replace the present wooden ties, that are liable to relatively quick decay, with permanent ties that will not decay but rather grow stronger and more solid as time passes.

The nature of the invention consists of a railway-tie of artificial stone, embodying in its structure cement, sand, gravel, and water, the last-mentioned element being eventually evaporated and dispensed with. The ties are molded while the material is in a plastic state and embrace many parts and features necessary to hold the rails in place, as well as to insure the retention of the tie in its place, as will fully appear from an inspection of the annexed drawings, forming a part of this specification, and as is fully and clearly described in the following part of this specification and pointed out in the subjoined claims.

Similar letters of reference designate similar parts or features, as the case may be, wherever they occur.

Of the said drawings, Figure 1 is a perspective view of a form of tie in which my invention is embodied. Fig. 2 is a top plan of the same. Fig. 3 is a transverse section taken through the center of the tie, showing the form of the bottom, which approaches a V shape. Fig. 4 is a transverse section taken through one of the holes at the end opposite to that provided with a brace. Fig. 5 is a central longitudinal section. Fig. 6 shows the tie with the brace at one end thereof as removed and showing the metallic clamp thereunder for engaging the edge of the flange to hold the rails securely against spreading.

In carrying out my invention I form the ties of the material already specified and make them in accordance with the requirements of standard and narrow gage roads as to size. The tie shown in the drawings may be supposed to be seven feet long, eight

inches wide, and five inches deep from the top to the point where the inward slope begins. However, the invention is not confined to a tie of any particular size. The sloping under side, forming a shape approaching a V, is made to facilitate the tamping of dirt under the tie to raise it or make its foundation solid. On the upper face *a* near the ends the tie is formed with grooves *b* for the purpose of inserting the bottom of the flanges of the rails therein. These grooves are about three-fourths of an inch in depth and fit the base of the rails quite closely. Under this construction and arrangement about one-sixteenth of an inch of the base-flange of the rail will project above the surface *a* at the edges of said base.

At one end of the tie shown in the drawings there is a brace *c* connected with the tie so as to practically form a part thereof. The brace *c* is designed at its inner end to extend over the outer base-flange of the rail and at its inner end abut against the web of the latter. Each tie is provided with one of these braces alternating with opposite ends. Under each brace there is a metallic clamp *d*, set in the tie with a slightly-projecting end *e*, which is constructed and arranged to engage the edge of the base-flange of the rails and keep them secure against spreading. Holes 1, 2, and 3 are formed or molded through the rail for the reception of five-eighths-of-an-inch bolts having a length of from three and one-half to five inches, which are designed to engage the flange of the base of the rail and bolt the rails down securely on the ties. Under the bur or nut of each bolt will be placed a heavy spring-washer to save the bolt and parts engaged against fracture or other damage from expansion and contraction resulting from heat and cold, ice, and frost. The bottom portions of these holes 1, 2, and 3 are square, as shown, to fit the bolt, which is squared for a distance above its head to keep it from turning in its hole. These ties require a long time for the material or substance of which they are composed to set or harden. Hence it is proposed to make or mold them from six to eight months before they are used on the road-bed. The time mentioned will allow of the molding of the ties one season and the inserting or laying of the same the next season following.

When properly made and given sufficient time to set or harden, the ties will be as firm and solid as a single piece of granite and can

be treated in the same way. The tie will never wear out and after having been once laid will require no attention excepting to see that it is kept in place and that the bolts do not become loose. For these reasons it is better than the wooden tie and in the long run will be much cheaper.

Of course latitude is allowed for changes in form and arrangement of parts and features within the limits of mechanical skill that do not depart from the nature or spirit of the invention.

What I claim is—

1. A railway-tie formed of artificial stone having transverse grooves in its upper face, and bolt-holes on opposite sides of said grooves, said bolt-holes being made square in

their lower portions and round in their upper part or portions to receive bolts of correspondingly-constructed character.

2. A railway-tie formed of artificial stone having a brace on one end to engage the top of the flange on the base of the rail and stay the web, and a metallic clamp set in the tie under the brace and having a slightly-projecting end to engage the edge of the rail-flange and keep the rails from spreading.

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

FELIX J. BAIVIER.

Witnesses:

G. N. LIVDAHL,
J. R. MEAGHER.