

No. 702,579.

Patented June 17, 1902.

E. T. MORLAN.
COMPOUND TRUSS RAIL.
(Application filed Oct. 23, 1901.)

(No Model.)

Fig. 1.

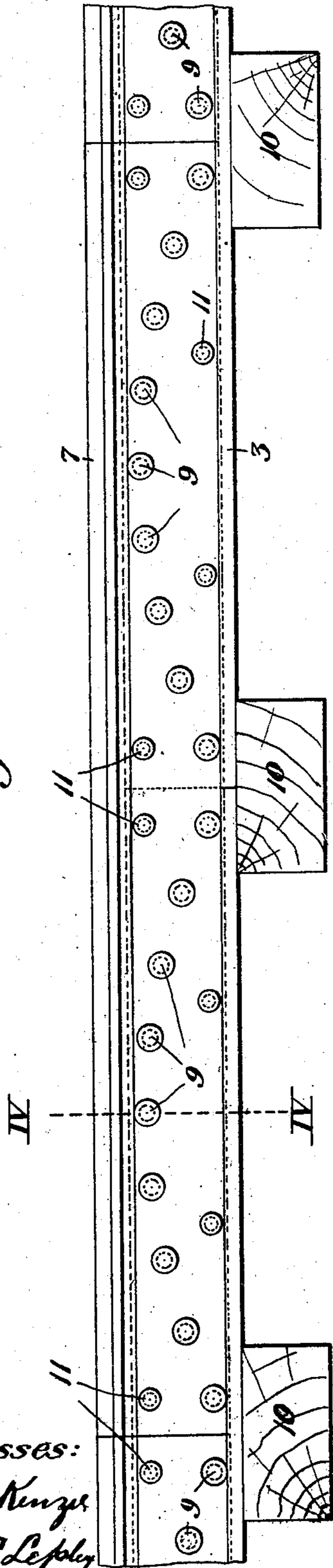


Fig. 2.

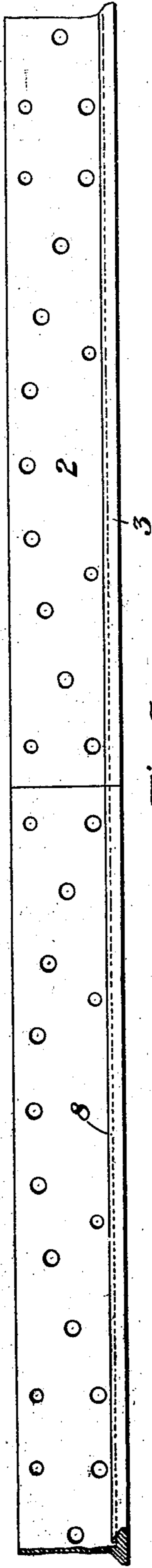


Fig. 3.

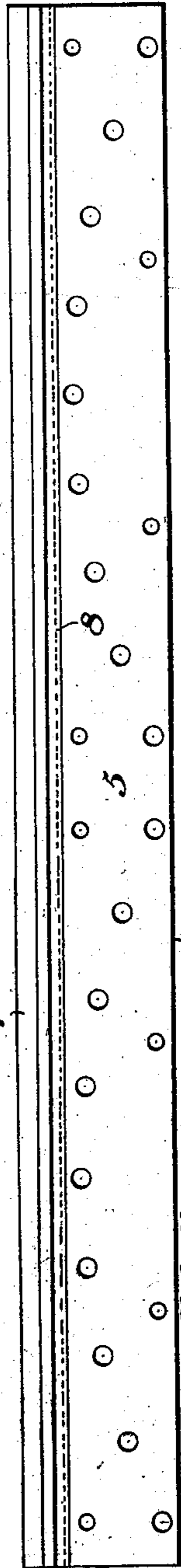


Fig. 4.

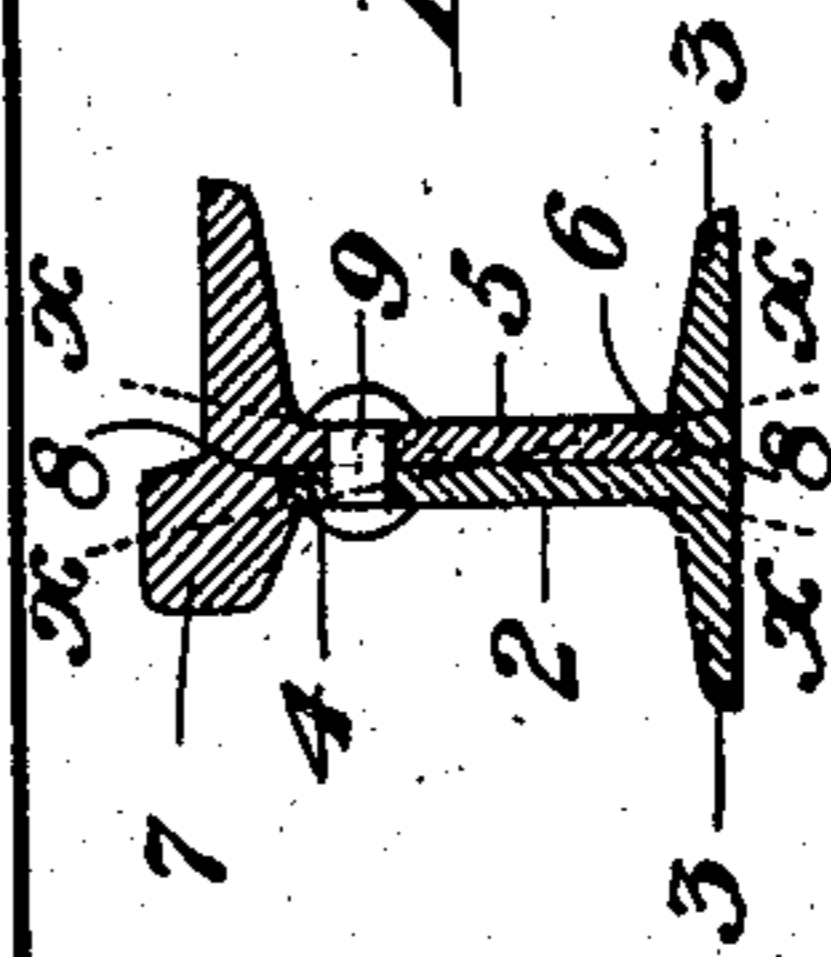


Fig. 5.

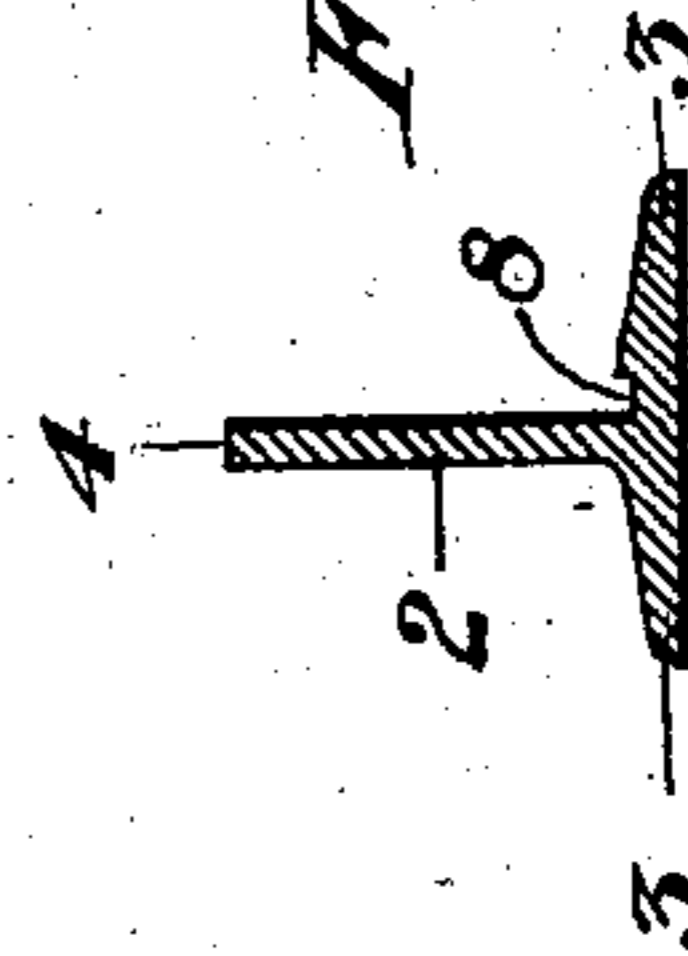
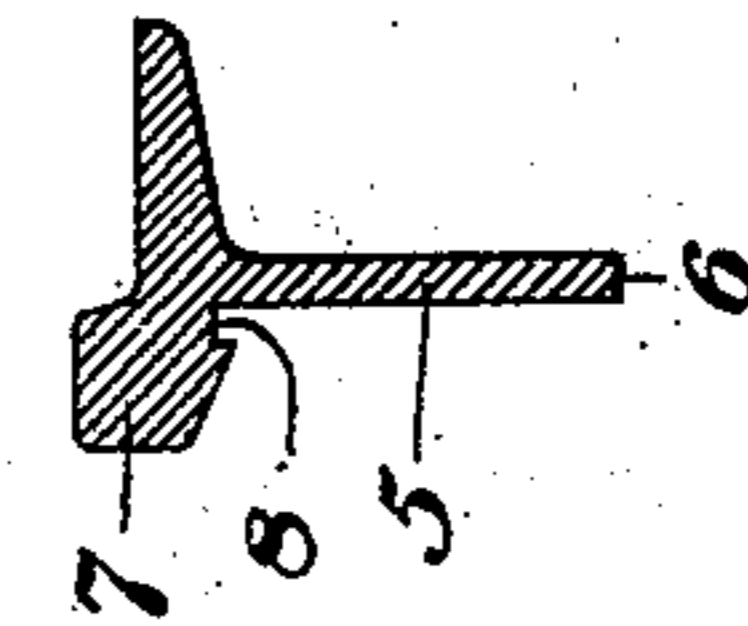


Fig. 6.



Witnesses:
E. V. Mackenzie
Chas. S. Lepler

Inventor:
E. T. Morlan
by C. M. Clarke
his Attorney

UNITED STATES PATENT OFFICE.

EBEN T. MORLAN, OF PITTSBURG, PENNSYLVANIA.

COMPOUND TRUSS-RAIL.

SPECIFICATION forming part of Letters Patent No. 702,579, dated June 17, 1902.

Application filed October 23, 1901. Serial No. 79,607. (No model.)

To all whom it may concern:

Be it known that I, EBEN T. MORLAN, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Compound Truss-Rails, of which the following is a specification, reference being had therein to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view in front elevation of a portion of my improved sectional truss-rail. Fig. 2 is a similar view of portions of two of the base members in abutting contact. Fig. 3 is a similar view of one section of the head member adapted to interfit with and conform to the base members, the rivet-holes being so located as to correspond. Fig. 4 is a cross-section through the compound rail, taken on the line IV IV of Fig. 1. Fig. 5 is a similar section through the base member detached. Fig. 6 is a similar view through the head member detached.

My invention consists of an improvement in rails for street-railroads or other rails; and the object is to provide a compound truss-rail consisting of base and head members interfitted into each other in such a manner as to provide a practically integral rail, each section of which overlaps the meeting ends of the opposite section, forming a continuous construction, and riveted or bolted together in such a manner as to provide between the ties reinforced trussed sections capable of carrying or supporting heavy loads and of great rigidity.

Referring to the drawings, 2 is the vertical web portion of the base member, provided with the usual flanges 3 3, adapted to seat upon and be secured to the ties in the usual manner, the upper portion of the web 2 terminating in a square edge 4. The head member consists of a similar web portion 5, also terminating in a lower square edge 6 and formed at the top into a wheel base or tread 7, which may be the standard T-rail head or of any other suitable form—as, for instance, a street-railway rail—as shown in Figs. 4 and 6. Each of the members 2 and 5 may be provided at its inner meeting extremity, below and above, respectively, with a square recess 8, into which the square edges 4 and 6, respectively, will enter when the members are assembled, as shown in Fig.

4, thus forming when connected together a complete rail. A simpler form of joint, however, may be secured by eliminating the recesses 8, the edges 4 and 6 of the webs simply abutting against the under portion of the head and the angle of the web, respectively, such meeting portions being made to fit neatly, and the rail-sections thus formed are more easily rolled. The meeting ends of one set of members or the joint on one side is located midway of the length of the opposite member, the joints of which likewise are located midway of the length of the other member, thus reinforcing the joints on each side equally and forming throughout the length of the rail a continuous lap-joint. Each section is of the same length, so that in a continuous track such arrangement may be maintained for any distance. The sections are secured together by rivets or bolts 9 at suitable intervals, passing through both sides or webs 2 and 5, as shown, and firmly connecting the sections throughout the length of the track. At intervals the track is supported upon ties 10, such ties being preferably located at the joints of each front and back section, as shown, while between the ties the rail extends as in the form of a girder. The ties, however, may be located wherever desired, and any number may be employed more or less than those shown.

A novel feature of the invention consists in the arrangement of the rivets or bolts 9, which are placed along the rail between each joint in the form of an arch, the object of such arched arrangement being to provide a truss by arching the most closely connected portions of each member from one joint to another, and the result of such arched arrangement of rivets or other securing devices is that the length of rail from the joint on one side to the next joint on the other is greatly strengthened and stiffened over the normal strength of its mere cross-section, while the strain of the rolling load at any point is distributed equally throughout the rail in both directions along the line of the arch and any tendency to displacement is counteracted.

If desired, the number of arched rows of rivets may be increased in a single section to any number desired, while the number of ties may be also increased in proportion to suit varying conditions of use. Thus for

steam-railway service or other work where maximum loads are to be carried a number of short arches may be made in each section from tie to tie, the ties in such cases being
5 comparatively nearer together.

It will be understood that the length of the sections may be varied to suit the conditions and requirements of use and that when so assembled and connected the ties may be lo-
10 cated at a considerable distance apart, thus greatly reducing the number required. A further result of such arrangement is that the objections of an absolutely-solid road-bed are overcome and avoided, thus simplifying
15 the construction of roads of this character.

In a track consisting of two side-by-side members inserted into each other at top and bottom, as shown, there is a resulting bracing effect as to lateral or transverse strains, and
20 in the arrangement of my improved rail this effect is increased by reason of the interfitting square shoulders 4 and 6, by which such strains are opposed and provided for. In Fig. 4 I have indicated the lines of such
25 strains and the sectional strength as opposed to them by the oblique lines X X and X X. A further important advantage of interfitting the members at top and bottom is that the strain is equally distributed throughout and
30 the shearing off of the rivets prevented.

In addition to the main rivets 9, arranged in arch form, I prefer to employ supplemental rivets 11, located at convenient positions, as shown, to further strengthen and connect the
35 members at such places as may by reason of their area be unconnected by the main rivets.

In making the track the sections are previously punched for the rivets, and the track is then laid continuously on the ties, each sec-
40 tion being riveted as it is laid, and as the main body portion may be covered to the top of the head by ballast or roadway the track is not subject to variations due to changes in temperature and will remain as laid during
45 its life.

In making connections with any special construction—as, for instance, curves, switches, or with the conventional standard rails at present in use—one or both sections of my
50 improved rail may be sheared off, so as to provide a square section, to which attachment may be made by fish-plates or bars in the usual manner.

The advantages of a track constructed in
55 the manner I have shown and described will be appreciated by all familiar with this class of equipment and it will be found to provide

a serviceable, substantial, and economical track.

What I claim is—

1. A continuous compound rail consisting of a plurality of base members and a plurality of head members, each provided with interfitting web portions, overlapping each other, and connected together by securing
60 means constituting an arch.

2. A continuous compound rail consisting of base members provided with a web portion and a square recess at the base thereof, head members provided with a web portion, and a
70 square recess at the upper edge thereof, such members overlapping each other and connected together by securing means constituting an arch.

3. A continuous compound rail consisting
75 of base members provided with a web portion and a square recess at the base thereof, head members provided with a web portion and a square recess at the upper edge thereof, such members overlapping each other and connect-
80 ed together by rivets arranged in the form of an arch between the joints.

4. A continuous compound rail consisting of base members provided with a web portion and a square recess at the base thereof, head
85 members provided with a web portion and a square recess at the upper edge thereof, such members overlapping each other and connected together by rivets arranged in the form of an arch between the joints, and supplemen-
90 tary rivets located at intervals.

5. A compound-rail base member consisting of a vertical web having a square upper edge, a corresponding square recess at the base of the web, a flanged bottom, and pro-
95 vided with a series of rivet-holes through the web, arranged in the form of an arch.

6. A compound-rail head member consisting of a vertical web having a square lower edge, a corresponding square recess at the
100 upper edge thereof, a wheel-base, and provided with a series of rivet-holes through the web, arranged in the form of an arch.

7. A compound rail consisting of a base member having flanges and a web, a head
105 member having a head and a web, and means connecting the webs arranged in the form of an arch.

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

EBEN T. MORLAN.

Witnesses:

R. H. McLARN,
C. M. CLARKE.