No. 842,226. PATENTED JAN. 29, 1907.

A. MORRISON.

METALLIC RAILWAY TIE AND FASTENING.

APPLICATION FILED FEB. 12, 1906.

Fig. 1.

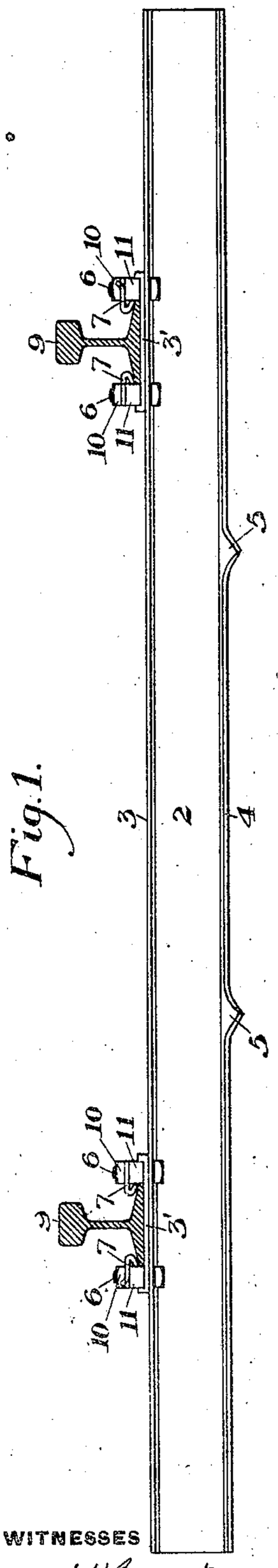


Fig. 2.

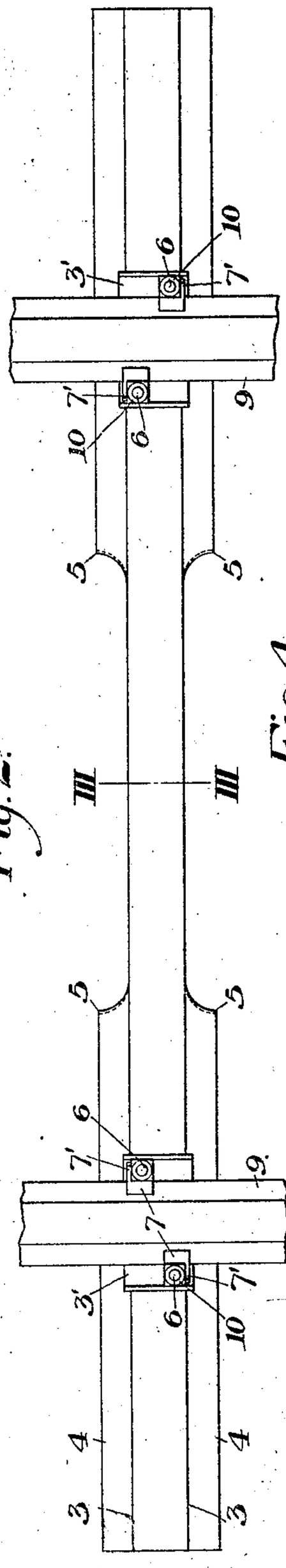


Fig. 4.

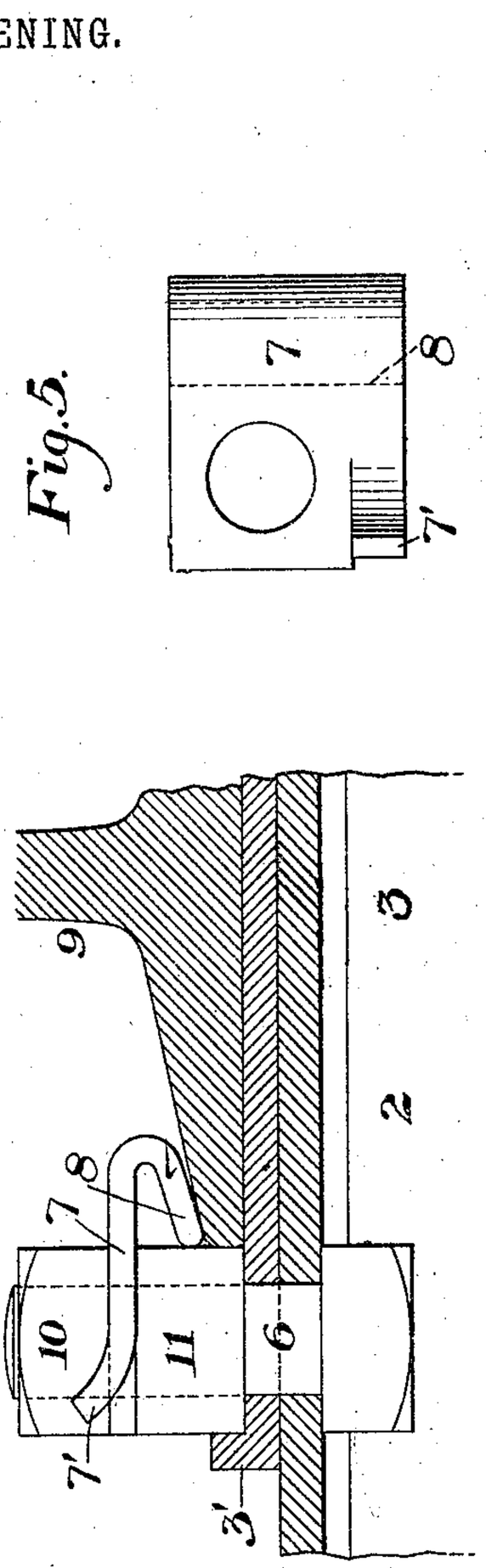
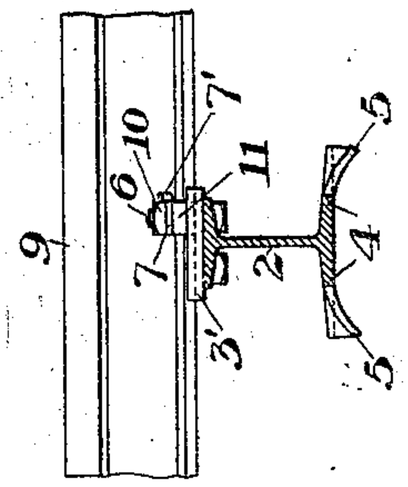


Fig. 5.

Fig. 3.



WITNESSES

Warren W. Swartz

R. A. Balderson

INVENTOR

Andrew Morrison

by Dickinson Bynum

his attys

UNITED STATES PATENT OFFICE.

ANDREW MORRISON, OF PITTSBURG, PENNSYLVANIA.

METALLIC RAILWAY-TIE AND FASTENING.

No. 842,226. Specification of Letters Patent. Patented Jan. 29, 1907.

Application filed February 12, 1906. Serial No. 300,582.

To all whom it may concern:

Be it known that I, ANDREW MORRISON, of Pittsburg, Allegheny county, Pennsylvania, have invented a new and useful Metallic Railway-Tie and Fastening, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a cross-section of a railway-track provided with my improved tie and fastening. Fig. 2 is a top plan view of the same. Fig. 3 is a cross-section on the line III III of Fig. 2; and Figs. 4 and 5 are detail views of the combined clip and nut-lock which I prefer to employ.

My invention relates to the class of metallic ties, and is designed to provide a simple, cheap, and effective structure which may be formed of rolled metal of a uniform section. A further object is to provide a clip which will allow a slight vertical movement of the rail relative to the tie and also to provide a combined clip and nut-lock.

In the drawings I show the tie as consisting of a rolled section of I-beam form having a web 2 with narrow top flanges 3 3 and wider base-flanges 4 4. This I-beam form is rolled of uniform section throughout and is then cut up into tie lengths. The middle portion of each lower flange is then sheared out for a certain distance, which may be varied within certain limits, thus reducing the area of the tie-base through its central portion and reducing the tendency to rocking of the tie.

If the tie has a wide base at the center, it is liable to become center-bound, the support under its center portion acting as a fulcrum to give an endwise rocking of the tie. The cutting away of the flanges, or at least a part of them, through this portion reduces such tendency. In connection with this cutting away of the lower flanges through the intermediate portion I preferably form stops to reduce the tendency to endwise movement by turning down inclined lips 5 5 at each end of the cut-away part. As shown in Fig. 3, these lips taper from the outside inwardly toward the web and are preferably curved outwardly in opposite directions on the same side of the tie. Their form and shape may, however, be changed without departing from my invention. These lips being at the intermediate portion of the tie engage the more solid central ballast of the road-bed and are less liable to lose their effective engagement with the same than if placed near the ends of the tie.

In order to secure the rails to these ties, I preferably perforate the upper flanges and use the bolt 6 in combination with a spring-clip 7. This clip 7 is provided with a downwardly and rearwardly inclined lip 8, which presses on the base-flange of the rail 9 and is preferably held between the nut 10 and the collar 11. The clip is preferably made of spring-steel and allows a slight upward-and-downward movement of the rail relative to the tie.

If it is desired to use a nut-lock, as I prefer to do, I preferably draw the temper of the steel clip in its outer portion and form the bolt-hole at one side, as shown in Fig. 4, a curved tongue 7′ being slit and bent up at one side of the clip, so as to rest against one face of the nut after the nut has been turned to place. It will be understood that this tongue is not of spring material, but is rendered more malleable by the treatment in drawing the temper of the outer portion of the spring-clip plate. The tongue will therefore be turned up to prevent turning of the nut after the nut has been screwed home. The clip is prevented from turning as a whole by the abutting of its lower edge against the square collar or sleeve surrounding the bolt.

I show a wear-plate 3′ between the rail-base and the top of the tie, though this may be used or not, as desired.

The advantages of my invention will be apparent to those skilled in the art. The tie being of uniform section except in the reduced flange portions may be rolled and these flange portions then sheared out. The lips which are formed reduce the tendency to endwise movement, while at the same time they do not form an absolute stop, and hence the track may be more easily moved into alinement than if there were positive stops extending across the bottom of the tie The spring-clip is of advantage in allowing a slight movement of the rail relative to the tie to prevent raising and lowering the tie in the ballast under the wave action of the rail. The clip also affords a cheap, convenient, and efficient nut-lock when formed as above described. The squared angular face or collar is of advantage in lifting the clip to the proper height to rest on the rail-base and also in preventing turning of the clip when performing its double function of a clip and nut-lock.

Changes may be made in the form and arrangement of the tie, clip, &c., without departing from my invention.

I claim—

1. A metallic railway-tie of uniform I-beam section having its upper flanges of full width throughout the length of the tie, and having lower flanges cut away through the intermediate parts; substantially as described.

2. A metallic railway-tie of uniform I-beam section except at the center where the base-flanges are reduced in width, said base-flanges being elsewhere of greater width than the top flange; substantially as described.

3. A metallic tie consisting of a rolled I-beam having the intermediate portions of its lower flanges cut away and its top flanges of uniform width throughout; substantially as described.

4. A metallic tie of I-beam form having its lower flanges cut away through their intermediate parts, and lips turned down from the inner ends of the flanges at each side of the central web; substantially as described.

5. A metallic tie of I-beam form with the lower flanges reduced in width at the central part, said flanges having turned-down lips at each side of the central web to reduce endwise movement; substantially as described.

6. In a metallic tie-fastening, a bolt, and a clip through which the bolt extends, said clip having a rearwardly and downwardly inclined spring-tongue with its end portion bearing on the outer part of the rail-base; substantially as described.

7. In a metallic tie-fastening, a bolt, a collar surrounding the bolt, and a spring-clip between the nut and the collar; substantially as described.

8. In a metallic tie-fastening, a spring-clip having a bent tongue arranged to coact with a face of the nut to prevent turning thereof; substantially as described.

9. In a metallic tie-fastening, a spring-clip arranged to bear on the rail-base and having a hole therethrough for the bolt, said clip having a tongue of more malleable material arranged to be bent up against the face of the nut after the nut is turned to position; substantially as described.

10. A metallic tie of I-beam form, having its lower flanges cut away through their intermediate parts, and lips turned down from the flanges at their inner ends, said lips being tapered from the outside inwardly toward the web and outwardly curved; substantially as described.

11. A metallic tie of I-beam form, the lower flanges thereof being of reduced width throughout the intermediate portion of the beam, and separate downwardly-turned lips at the junction of the narrower and wider portions of said flanges upon opposite sides of the central web of the beam; substantially as described.

In testimony whereof I have hereunto set my hand.

ANDREW MORRISON.

Witnesses:
H. M. CORWIN,
JOHN MILLER.