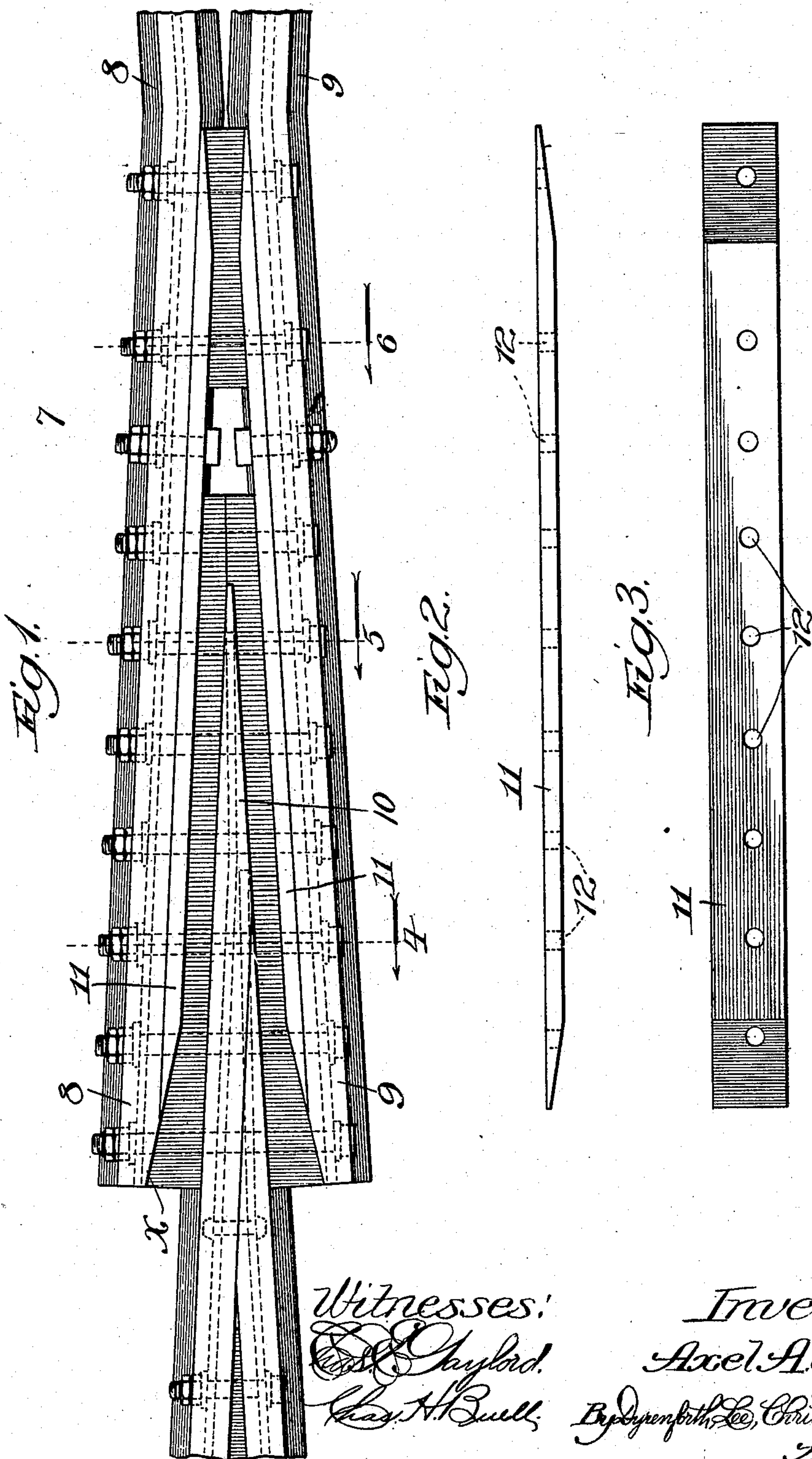


No. 858,678.

PATENTED JULY 2, 1907.

A. A. STROM.  
RAILWAY FROG.  
APPLICATION FILED MAY 22, 1907.

2 SHEETS—SHEET 1.



Witnesses:  
Ed. Chyld.  
Chas. H. Bull.

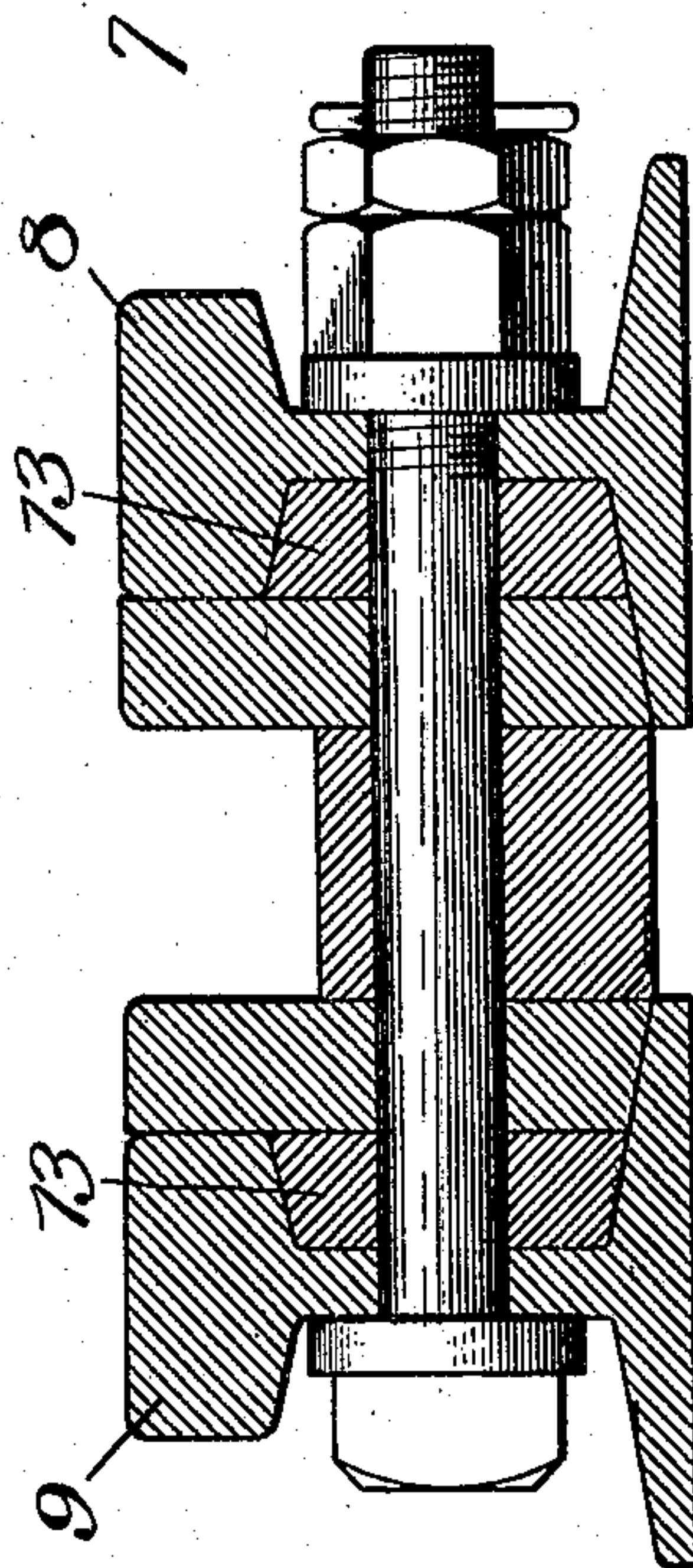
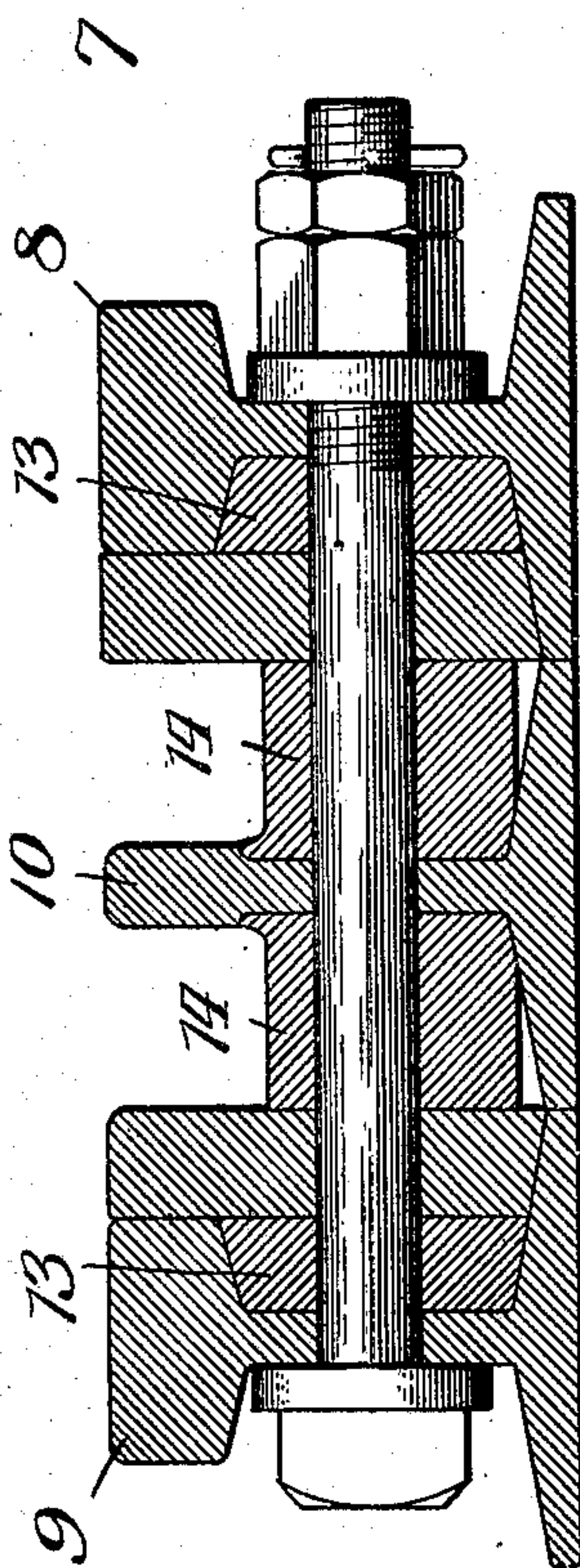
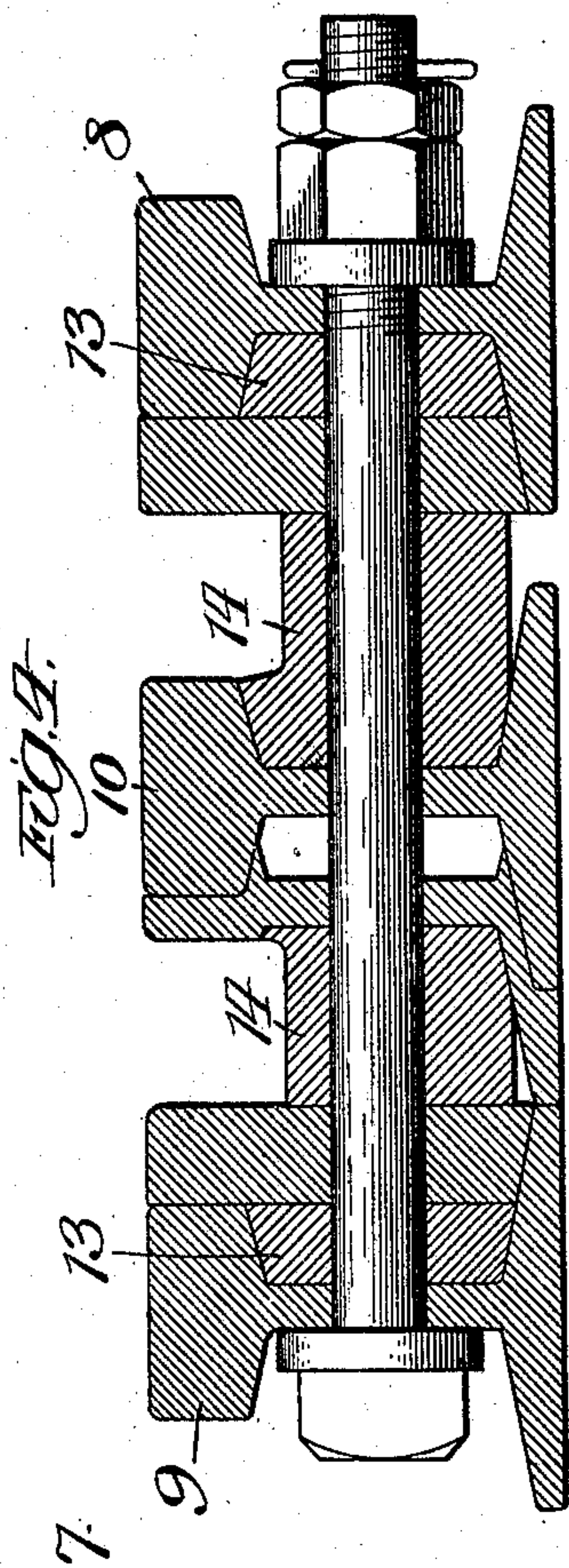
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2 SHEETS—SHEET 2.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

AXEL A. STROM, OF CHICAGO, ILLINOIS, ASSIGNOR TO PETTIBONE, MULLIKEN & CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## RAILWAY-FROG.

No. 858,678.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed May 22, 1907. Serial No. 375,011.

*To all whom it may concern:*

Be it known that I, AXEL A. STROM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Railway-Frogs, of which the following is a specification.

My invention relates to the feature of improvement in the construction of railway-frogs, which consists in providing to extend at the inner side of a wing-rail, or more usually of each wing-rail, a wearing-surface of very hard steel, such as manganese steel, to prolong the life of the frog by thus increasing its resistance to wear from the passage of the wheels over it at the part or parts where such wear is greatest.

As such wear-resisting medium has hitherto been provided in the prior art, it has presented objectionable features of construction of the frog which it is the object of my present improvement to avoid.

The principal objections among those referred to are due to mutilation of the wing-rail, either by deflecting it, which is undesirable because it is expensive and tends to weaken the rail, or by cutting away the head of the wing-rail along its inner side to form a recess to receive the wear-resisting medium as an insert, which also materially weakens the rail and involves an expensive operation. Moreover, these reinforcing inserts of the prior art are formed of a very expensive quality of metal, and, as used, are provided as fillings between the wing-rails and adjacent rails of the frog to space them apart, thus applying large quantities of this metal to the filling purpose. Besides, the steel employed for providing the wear-resisting surfaces is so extremely hard that it is very difficult and expensive to tool or grind for shaping it to fit the recesses provided to receive it in the wing-rails; and, furthermore, as hitherto more usually provided, these inserts have required cutting away of the opposing flanges of the rails embracing them to give the proper distance between the heads of the running rails, which not only involves work and consequent expense, but narrows the rail-bases with the result of impairing their stability. These last-named objections are entirely avoided by the present improvement, as illustrated in the accompanying drawings, in which—

Figure 1 shows a railway-frog by a plan view, containing my improvement; Fig. 2 is a plan view of a bar of hard steel used as a wing-rail facing, and Fig. 3, a view of the same in side elevation, and Figs. 4, 5 and 6 are sections taken, respectively, at the lines 4, 5 and 6 on Fig. 1 and viewed in the direction of the arrows.

As to its general construction the frog 7 presents no features of novelty, but involves the wing-rails 8 and 9 and the frog-point 10, fastened together by bolts, with the wing-rails spaced apart from the frog and from each other. The rails are of full cross-

tional dimensions. Along the unmutilated inner side of each wing-rail extends from the heel-portion to the throat-portion of the frog a continuous straight bar 11 of very hard steel, preferably manganese steel, the bar being of rectangular cross-section with tapered ends, as shown, and of relatively small thickness, but of a width to extend from the upper surface of the head of the respective wing-rail to the flange thereof, on which it bears and to the bevel of which it conforms. The bar 11 may be formed by casting, when the bolt-holes 12 in it may be cored, or by rolling, when the bolt-holes would have to be drilled, though this is rendered a comparatively easy operation because of the relative thinness of the bar, which may constitute a bar of merchant metal, in the sense that it requires no special fitting to adapt it for my purpose in different situations. The bar 11 forms a mere facing extending lengthwise along the inner side of a wing-rail, being embraced between a filling-block 13 confined against the web of a wing-rail from the heel to the throat of the frog, between its head and flange, and a filling-block 14 confined against the web of the frog-point between its head and flange. The rails with the interposed filling-blocks and wear-resisting bars 11 are tied together by the bolts passing through them. To maintain the proper width of the throat of the frog, the wing-rails are removed from the frog sufficiently to compensate for the intermediate space taken up by the width of the bars 11, which is such as to adapt the flanges of the several rails to abut against each other along their edges, as represented in Fig. 5, without cutting any portion away from them, whereby their entire base-area is retained and their stability of support is not impaired.

By beveling the ends of the wearing-bar, as shown, one extremity is caused to aline with the inner face of the head of the rail which it meets adjacent to the bend in that rail, and the other extremity is caused to aline with the adjacent end of the wing-rail by slightly beveling its head as shown at *x* in Fig. 1, thereby avoiding any necessity for bending the wing-rail.

By providing the wear-resisting medium as a mere facing of the hard metal along the inner side of a wing-rail, the advantages heretofore pointed out are attained, and in addition thereto the facing may be applied and removed with extreme facility in repairing the frog.

What I claim as new and desire to secure by Letters Patent is—

1. In a railway-frog, the combination of a wing-rail having its head unmutilated along its inner side, and a wear-resisting bar of relatively hard metal fitting against and secured to said rail-side, for the purpose set forth.

2. In a railway-frog, the combination of a wing-rail having its head unmutilated along its inner side, and a wear-



resisting bar of relatively hard metal fitting against and secured to said rail to extend from the heel-portion to the throat-portion of the frog and fitting along its base against the wing-rail flange, for the purpose set forth.

5 3. In a frog, the combination with a wing-rail and the frog-point, of a wear-resisting bar of relatively hard metal secured to extend along the inner side of the rail, rising from the rail-flange to fit against the head of said rail, a filling of relatively cheap metal in the wing-rail behind  
10 said bar, and a similar filling fitting between said bar and frog-point.

4. In a railway-frog, the combination with a wing-rail, of a straight wear-resisting bar, of rectangular cross-section, formed of relatively hard metal, said bar being secured and fitting against the inner side of the wing-rail  
15 head, for the purpose set forth.

5. In a railway-frog, the combination with a wing-rail, of a straight wear-resisting bar of rectangular cross-section formed of relatively hard metal and having tapered  
20 ends, said bar being secured and fitting against the inner side of the wing-rail head, for the purpose set forth.

6. In a railway-frog, the combination with the frog-point, of a wing-rail having an unmutilated inner head-side and beveled outwardly toward its heel-end, a straight

wear-resisting bar of rectangular cross-section, formed of 25 relatively hard metal, extending along said rail-side from the heel to the throat-portion of the frog and provided with beveled ends, a filling of relatively cheap metal confined between said bar and wing-rail, a similar filling confined between said bar and the frog, and bolts passing 30 through the rails, fillings and bars to fasten them together, for the purpose set forth.

7. A railway-frog comprising, in combination, the point-rails and the wing-rails having their flange-portions of full cross-section, said wing-rails being unmutilated on their 35 inner sides, straight wear-resisting bars of rectangular cross-section, provided with tapering ends and formed of relatively hard metal, extending along said wing-rails from the heel to the throat-portion of the frog and fitting against the inner sides of the wing-rail heads, fillings of 40 relatively cheap metal confined between said bars and the adjacent wing-rails, similar fillings confined between said bars and the frog, and bolts passing through the rails, fillings and bars to fasten them together.

AXEL A. STROM.

In presence of—

J. H. LANDES,

R. A. SCHAEFER.