

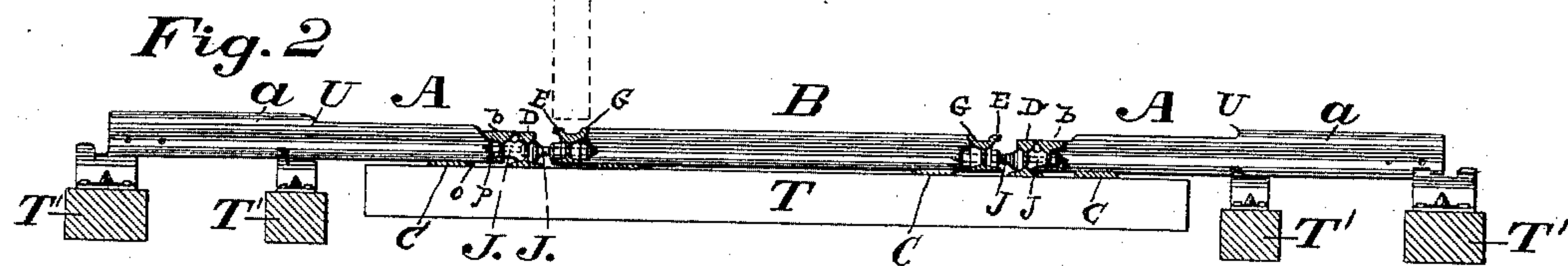
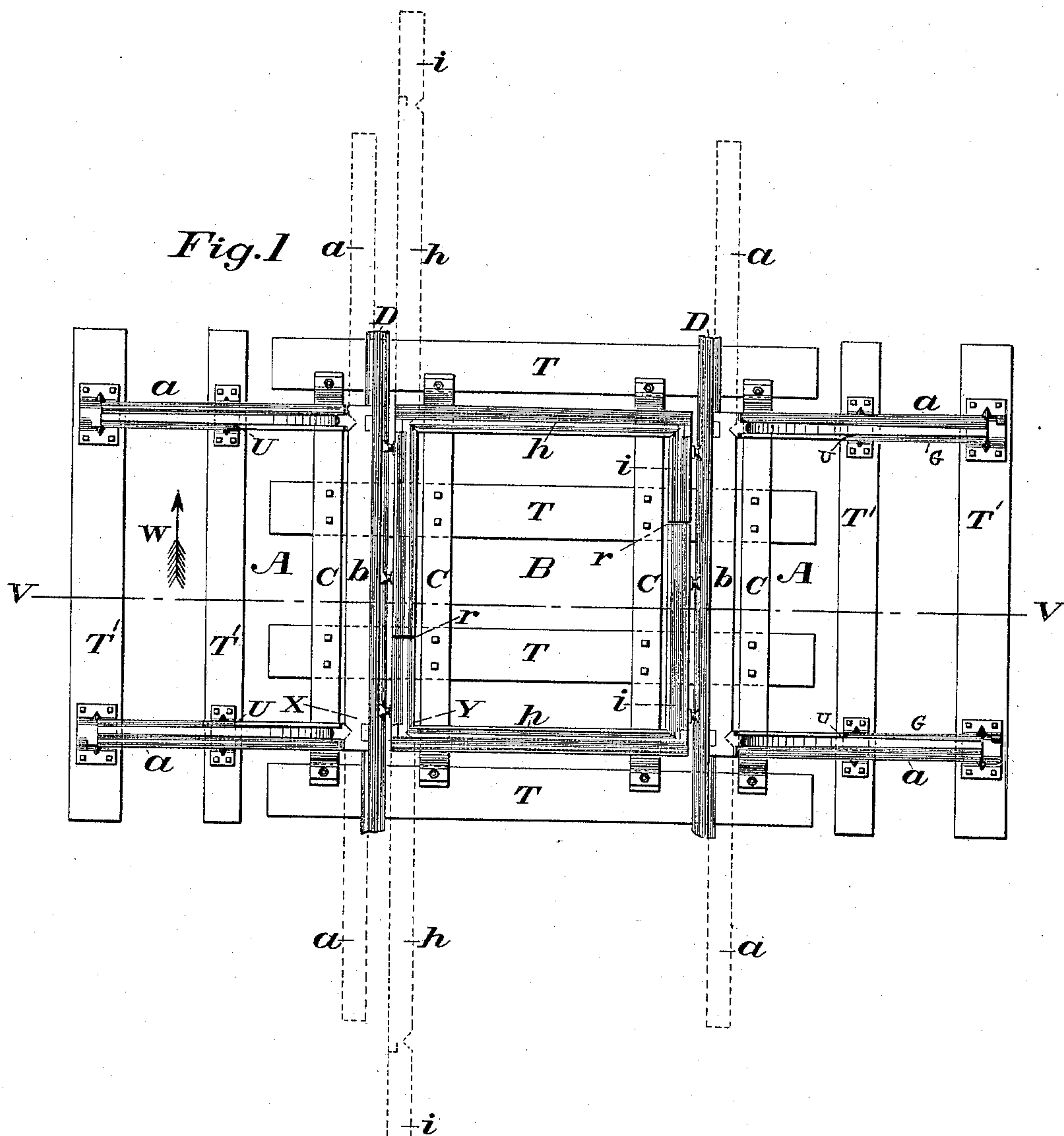
(No Model.)

3 Sheets—Sheet 1.

A. J. MOXHAM.
RAILROAD CROSSING.

No. 477,687.

Patented June 28, 1892.



WITNESSES:

W. A. Brückel,
Francis P. Kelley.

INVENTOR

A. J. Moxham

BY

R. M. Doolittle

ATTORNEY

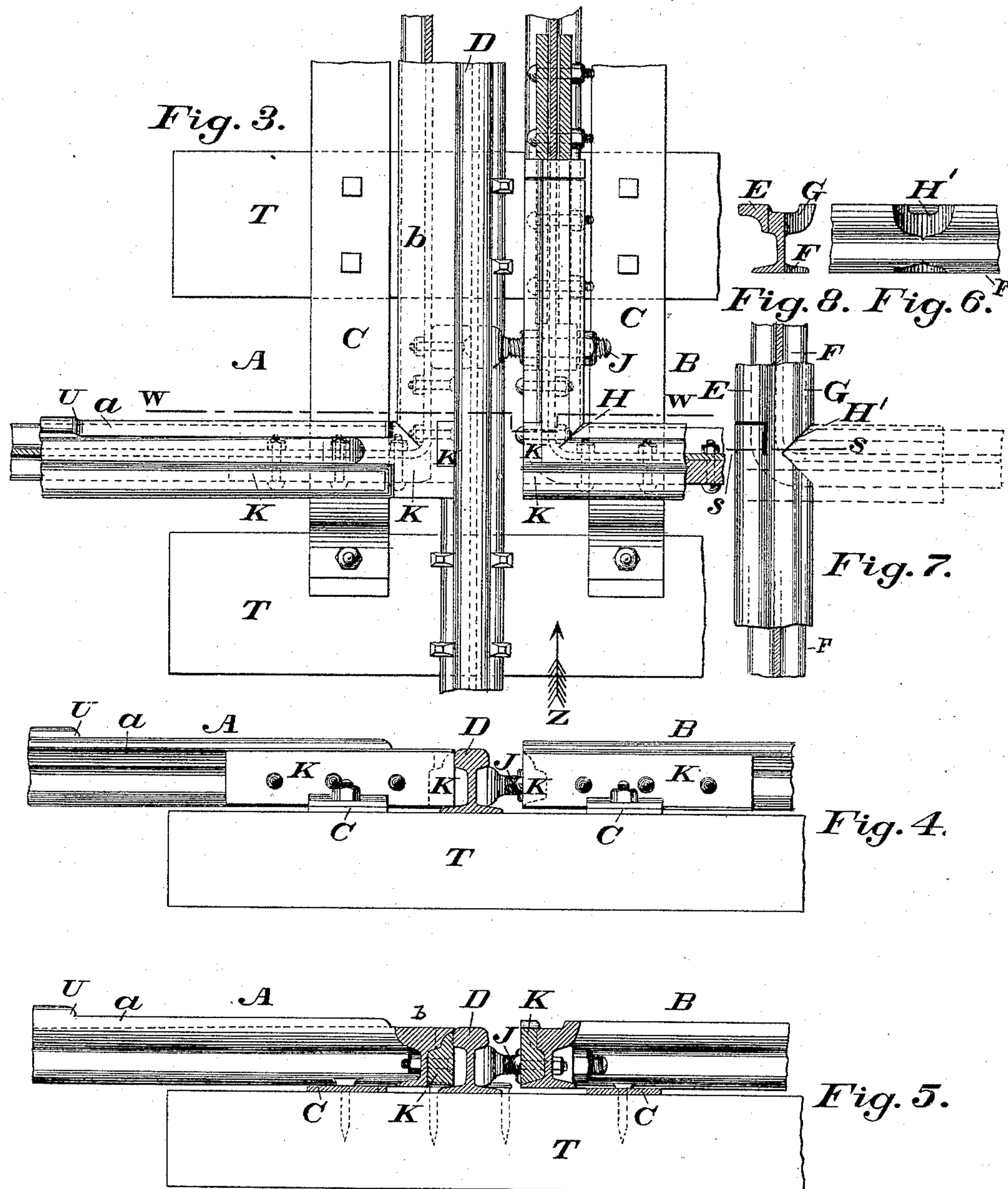
(No Model.)

3 Sheets—Sheet 2.

A. J. MOXHAM.
RAILROAD CROSSING.

No. 477,687.

Patented June 28, 1892.



WITNESSES:

W. H. Brückel,
Francis P. Kelly.

INVENTOR

A. J. Moxham
BY P. M. Dinkens

ATTORNEY

(No Model.)

3 Sheets—Sheet 3.

A. J. MOXHAM.
RAILROAD CROSSING.

No. 477,687.

Patented June 28, 1892.

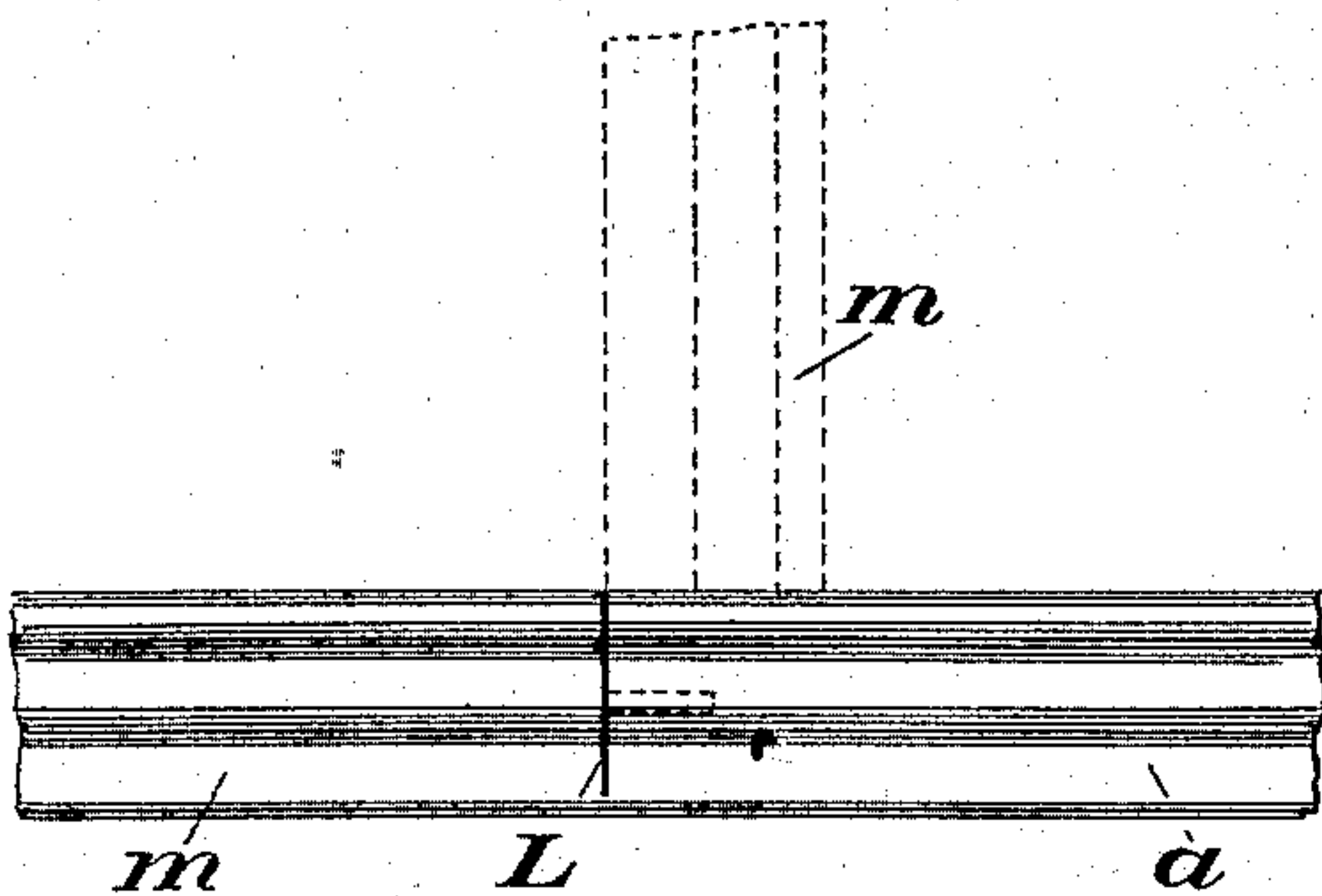


Fig. 9.

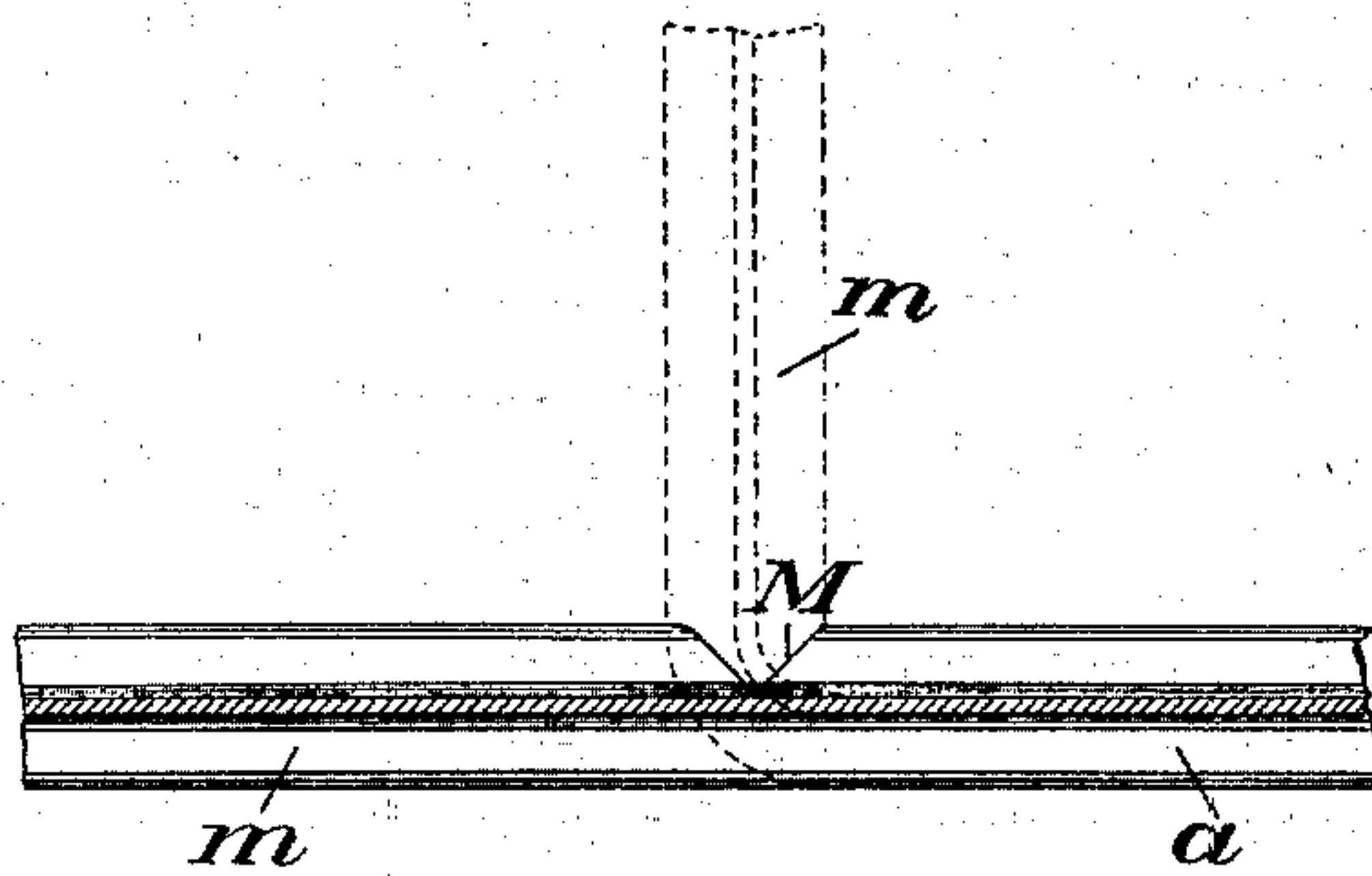


Fig. 10.

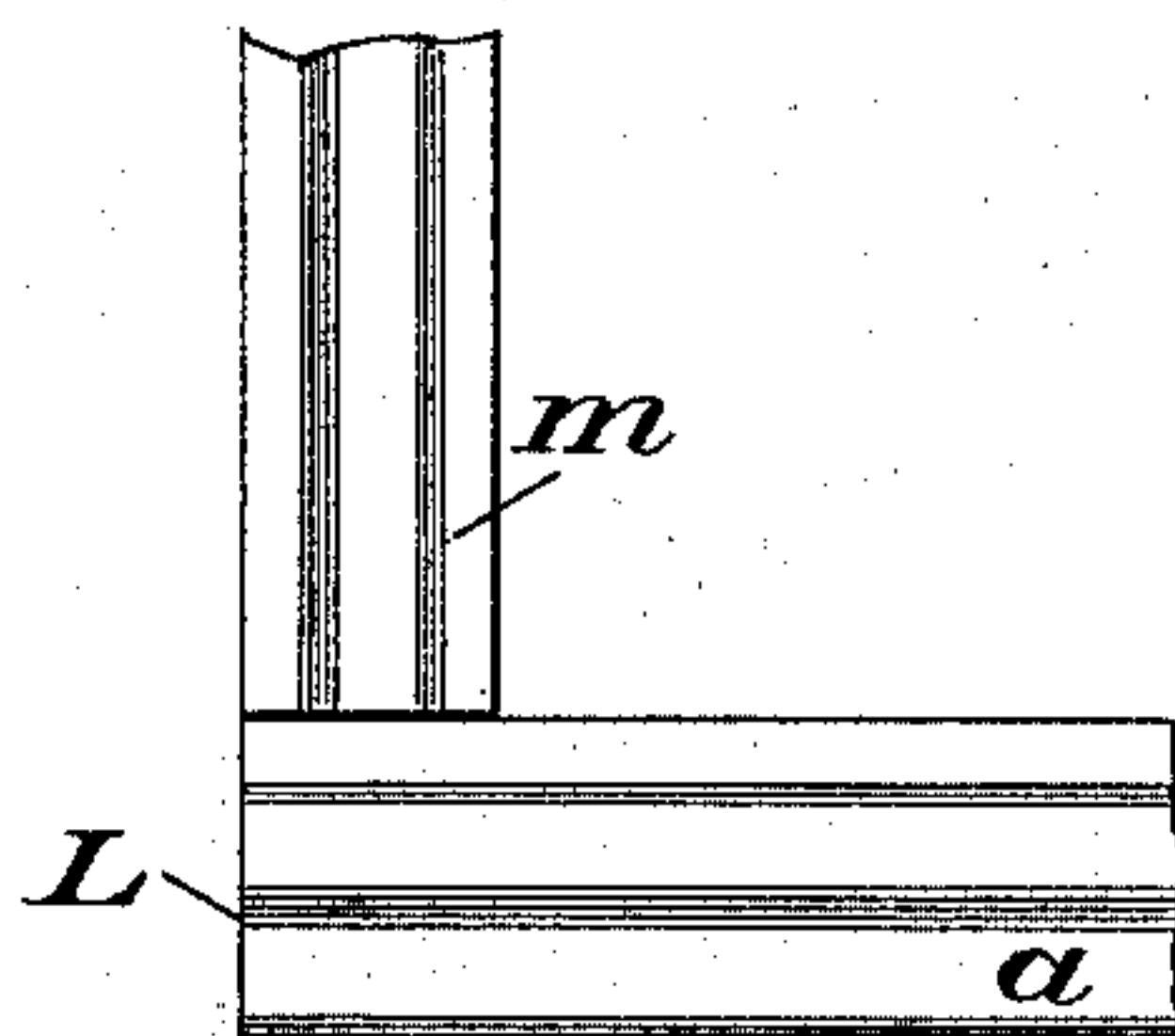


Fig. 11.

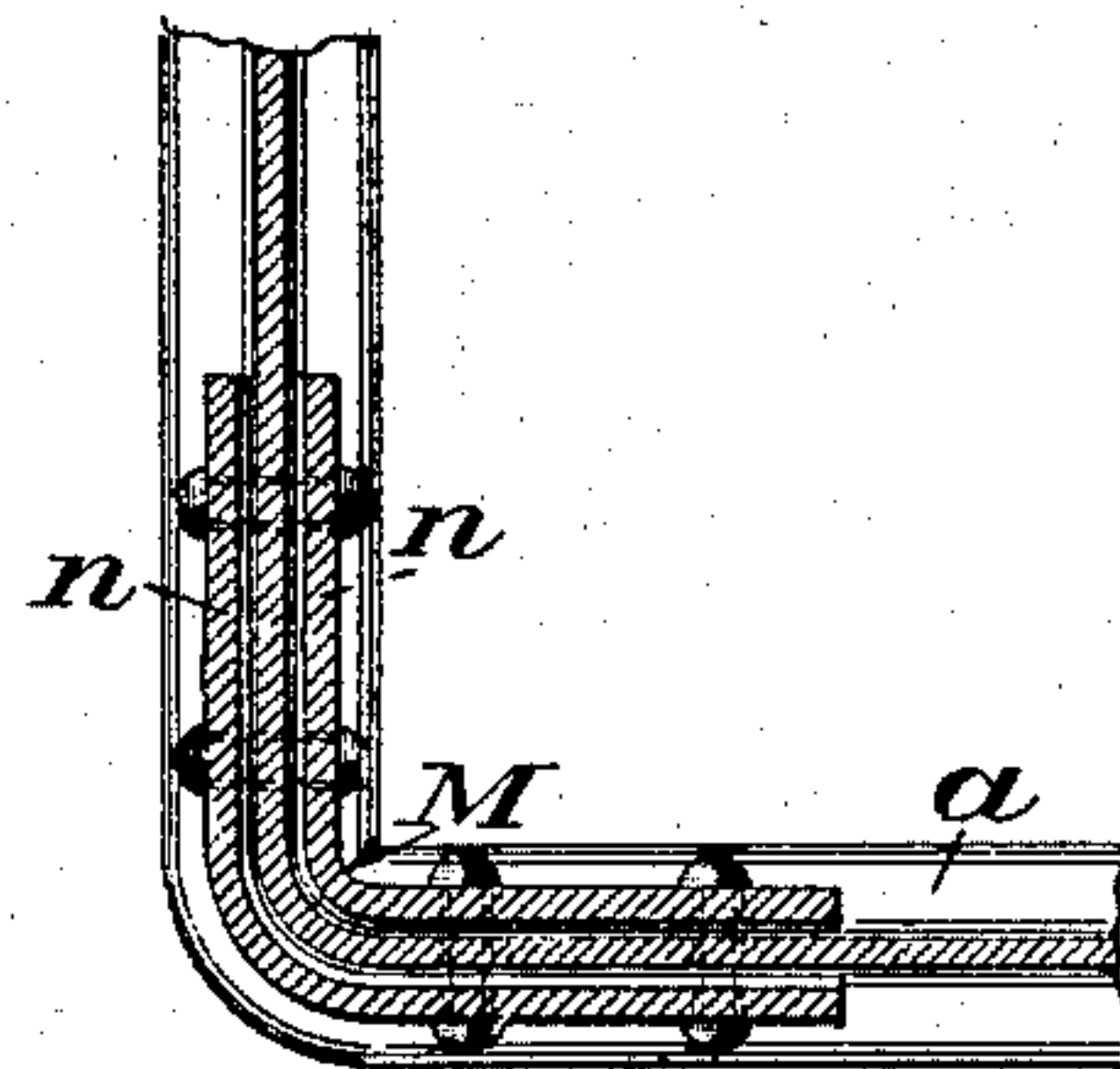


Fig. 15.

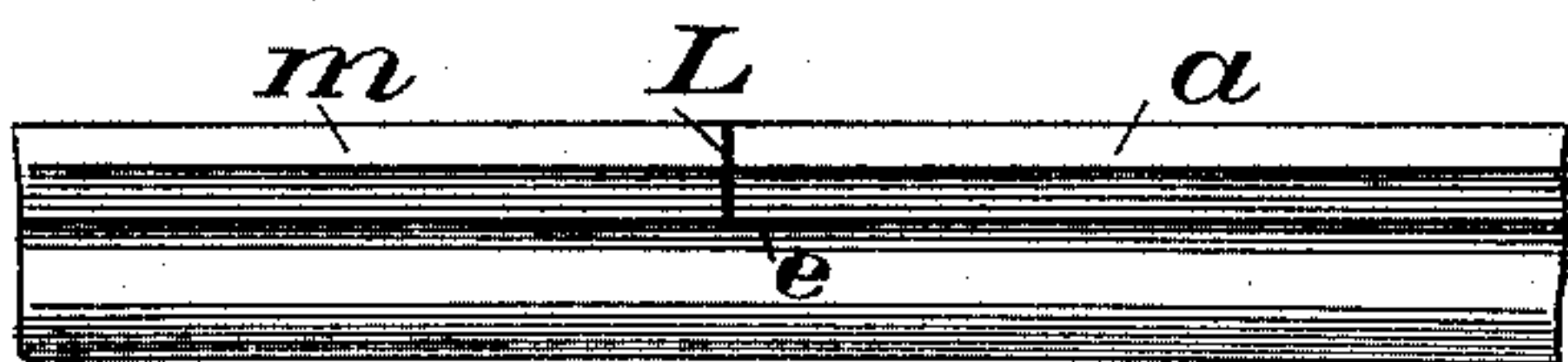


Fig. 12.

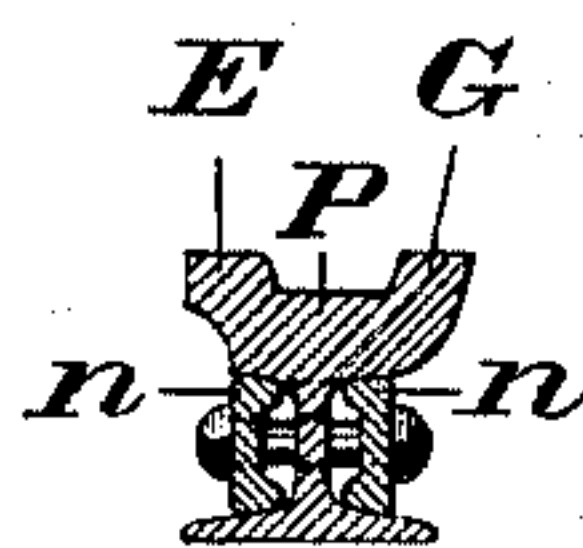


Fig. 13.



Fig. 14.

WITNESSES:

W. H. Brückel,
Francis P. Kelly.

INVENTOR

A. J. Moxham
BY P. M. Dorr

ATTORNEY

UNITED STATES PATENT OFFICE.

ARTHUR J. MOXHAM, OF JOHNSTOWN, PENNSYLVANIA.

RAILROAD-CROSSING.

SPECIFICATION forming part of Letters Patent No. 477,687, dated June 28, 1892.

Application filed December 5, 1890. Serial No. 373,660. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR J. MOXHAM, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Railroad-Crossing, which invention is fully set forth and illustrated in the following specification and accompanying drawings.

The object of this invention is to provide a strong, safe, and durable crossing for street-cars over or across steam-railroad tracks, which shall at the same time require no disturbance of the steam-railroad track.

The invention will first be described in detail, and then particularly set forth in the claims.

In the accompanying drawings, Figure 1 shows a general plan of the crossing. Fig. 2 is a vertical section through Fig. 1, taken at the line V V. Fig. 3 shows in plan, enlarged, details of the corners marked X and Y in Fig. 1. Fig. 4 is an elevation of Fig. 3, looking in the direction of the arrow Z. Fig. 5 is a part cross-section and part side elevation taken at the line W W of Fig. 3. Fig. 6 is a side elevation of a part of the guard-rail used, showing a cut made therein for the purpose hereinafter described. Fig. 7 is a view in plan of the same rail before being bent, as hereinafter described. Fig. 8 is a cross-section through Fig. 7 at the line S S. Figs. 9 to 15 illustrate another method of cutting and bending the rails hereinafter described. Fig. 9 is a view in plan showing such method of cutting one of the crossing-rails where it is to form a corner. Fig. 10 is a view similar to Fig. 9, the head of the rail being omitted, showing the cut made in the flange of the rail. Fig. 11 is a view in plan of said rail as it appears after being bent. Fig. 12 is a side elevation of Fig. 9. Fig. 13 is a cross-section taken through the portion *m* of Fig. 11. Fig. 14 is a side elevation of Fig. 11 looking in the direction of the arrow *q*. Fig. 15 is a view similar to Fig. 11, the head of the rail being removed.

In said figures the several parts are respectively indicated by reference-letters, as follows:

It will be observed that the street-railroad crossing consists of three separate parts, the two similar parts A A, Fig. 1, outside of the through steam-railroad rails D D, and the cen-

tral part B of rectangular shape between said rails.

Referring now to the portions of the crossing marked A A, each of said portions consists of one piece of girder guard-rails *a b*, the parts *a* being bent at the desired angle to the part *b*, as hereinafter described. The guard portion G of said rail is partially cut away, as shown, to the point U, the reason for such cutting away being that said guard is superelevated and it is desirable that no part of the structure should be above the head of the T-rail or steam-railroad rail D at this point, or there would be danger of snow-plows, which are sometimes attached to locomotives and overhang the track on either side, catching in such elevated portion. The part *b* of said guard-rail, which closely abuts against the T-rail D on the outside, has its head portion E and guard portion G (see Figs. 8 and 13) planed or otherwise cut away (see Fig. 5) to a level with its floor portion P, and so presents a level top surface. This rail *b* abuts against the T-rail D, preferably level with or slightly below the head of said T-rail, in order to prevent the tread of the locomotive-wheels, which are wider than and overlap the head of the T-rail, riding on the crossing and breaking the same.

Abutting against the T-rail D and guard-rails *a b* are the chocks J, Fig. 2, which so lock said rails that the street-railroad crossing must be raised or depressed when the T-rails are raised or depressed, and in this manner the level of the crossing is preserved. Said chocks are removable and are attached to the guard-rail by means of bolts or studs *o*, passing through the web of the rail and secured by nuts *p*.

Referring now to the portion of the crossing marked B, this is composed of two pieces of guard-rail *h i h i*, properly cut and bent, as hereinafter described, abutting each other at the points *r r* and there joined by means of splice-bars. Each of these pieces of rail *h i* before being abutted are of a double-L shape, and when abutted they form a rectangle, as shown in Fig. 1. The object of making the portion B in two pieces is for convenience of manufacture; but it is evident that, if desired, the whole of it can be formed of one piece of rail properly bent. Said por-

tion B is attached to the T-rails D in the same manner as that just described for the portions A A by means of the chocks J J, the only difference being that said chocks are made longer, in order that the guard-rails may be so located as to leave a groove between them and the through-rails D to allow for the passage of the flanges of locomotive-wheels. (See Figs. 2, 4, and 5.) The super-elevated guards G of the guard-rails *h i* are only cut away level to the heads of said rails, more cutting away than this being unnecessary at this point. (See Fig. 2.) From this description of the portion B it will be seen that the rail or rails composing said portion act not only as crossing-rails, but also as guards for the through-rails.

The method of bending the respective rails to form the parts desired is as follows:

Referring now to Figs. 3 to 8, inclusive, the head E of the rail *a* is cut through in plan, as indicated by the L-shaped dark line, Fig. 7, and a miter cut H' is made in its side and lower flange F, as shown in Figs. 6, 7, and 8, thus leaving the vertical web intact. The rail is then bent at the desired angle, as indicated by the dotted lines, Fig. 7, to form the corners of the crossing. When the rail is so bent, an opening is left on its upper surface, and this opening is filled and the whole corner reinforced by the angle chock or portion K K, (see Figs. 3, 4, and 5,) bolted or riveted to the web of the bent rail.

Another method of bending the rails is shown in Figs. 9 to 15, inclusive. In this method the top of the rail is cut square across and down to the web connection *e* and then horizontally, as shown at L, Figs. 9, 11, and 12, and the lower flange (if one exists) is mitered, as shown at M, Fig. 10. The rail is then bent at the desired angle, as shown in dotted lines in Figs. 9 and 10 and full lines in Figs. 11 and 15. When the rail has been so bent, its head portion overhangs, as shown at L', Fig. 14, and this is reinforced by two plain splice-bars *n*, riveted or bolted to the web of the rail, as shown in Figs. 13, 14, and 15. In bending the rail its web portion is stretched to permit the corners to pass each other, and the space so created is closed up after the bend is made, so that the upper surfaces are in contact. This can easily be done by heating before bending.

It is obvious that whichever method of bending the rails is employed the crossing when completed presents the following-named features: first, a continuous and through web at the point of the bend, and, second, a continuous and through surface for the street-car wheels to take on the outside portions A A.

The dotted lines marked *a h* in Fig. 1 are intended to show in outline the rails marked *a h* in full lines before being bent into the required shape.

The letters T T' indicate, respectively, the cross-ties of the steam and street railroad

tracks, and C plates laid under the rails of the street-car track. It is preferable that the rails composing the street-car track should be of less height than the T-rails of the steam-railroad track, because the latter rails vary in height in different places. By making the former rails of less height the adjustment of the surface level can be effected by inserting the plates C, of a thickness to suit each case, under the street-car rails. If the latter were made deeper than the T-rails, the ties under the steam-railroad track would have to be cut or leveled down.

The crossing herein described can be put in a T-rail or steam-railroad track without disturbing the latter in any way, which is a great desideratum.

The rails of the street-railroad track shown in the crossing are what is well known to the trade as "girder guard-rails" and are preferably provided, as shown in the drawings, with lower flanges, although this is not a necessity. If desired, any other suitable form of rail may be used instead of girder guard-rails.

Having thus fully described my said invention, I claim—

1. In a railroad-crossing, in combination with a through-rail, a crossing track-rail bent at the desired angle for the cars to cross, so that a continuous rail is formed at the angles or corners adjacent to said through-rail.

2. In a railroad-crossing, the combination, with through-rails, of crossing track-rails bent at the desired angles for the cars to cross, so that a continuous rail is formed at the angles or corners adjacent to said through-rails.

3. In a railroad-crossing, in combination with through-rails, outer rails bent to lie parallel and adjacent said through-rails and in line with the crossing-rails.

4. A street-railroad crossing consisting of three parts, each of said parts constructed of a rail or rails bent at the desired angles, so as to form a continuous whole at the angles or corners adjacent to the through-rails.

5. A railroad-crossing for steam-railroad tracks, constructed of girder guard-rails bent at the desired angle, so that the parallel rails and their respective connecting-rails form a continuous whole at the angles or corners adjacent to the through-rails.

6. A railroad-crossing constructed of girder guard-rails bent to lie parallel and adjacent to the through-rails and in line with the crossing-rails, the through-rails and crossing-rails being connected together, substantially as described.

7. A street-railroad crossing consisting of three parts, each of said parts constructed of a girder guard rail or rails bent at the desired angles, so as to form a continuous whole at the angles or corners adjacent to the through-rails.

8. A railroad-crossing constructed of rails outside of the through-rails bent so as to lie parallel with the through-rails and in line with

the crossing-rails, and rails within the through-rails bent so as to lie parallel with the through-rails and in line with the crossing-rails.

9. A railroad-crossing constructed of rails outside of the through-rails bent so as to lie parallel and adjacent to the through-rails and in line with the crossing-rails, and rails within the through-rails bent so as to lie parallel and adjacent to the through-rails and in line with the crossing-rails, and chocks interposed between the through-rails and those portions of the crossing adjacent thereto.

10. In a railroad-crossing, in combination with the through-rails of a steam-railroad track, a crossing track rail or rails, as *h*, bent at the desired angles to form a guard rail or rails, as described.

11. In a railroad-crossing, in combination with the rails of a steam-railroad track, girder guard-rails outside of said steam-railroad rails, having their upper surfaces cut away and their ends bent at right angles to said steam-railroad rails.

12. In combination with the rails of a steam-railroad track, a street-railroad crossing consisting of three parts, as A A B, each of said parts composed of a girder guard rail or rails bent at the desired angle and having their upper surfaces cut away, as described.

13. A railroad-crossing constructed of girder guard-rails bent to lie parallel and adjacent to the through-rails and in line with the crossing-rails, the guard portions of said crossing-rails in line with the crossing-rails being cut away, as described, and the guard and head portion of said guard-rails on that portion of the crossing outside of and parallel to the through-rails being cut away to the level of the heads of the through-rails.

14. A railroad-crossing constructed of girder guard-rails bent to lie parallel and adjacent to the through-rails and in line with the crossing-rails, the guard portions of said crossing-rails in line with the crossing-rails being cut away, as described, and the guard and head portion of said guard-rails on that portion of the crossing outside of and parallel to the through-rails being cut away to the level of the floor of said guard-rails, the through-rails and crossing-rails being connected together, substantially as described.

15. A railroad-crossing constructed of rails outside of the through-rails bent so as to lie parallel with and adjacent to the through-rails and in line with the crossing-rails and rails within the through-rails bent so as to lie

parallel with the through-rails and in line with the crossing-rails, that portion of the crossing outside of the through-rails having its guard cut away, as described, on that portion of the rail in line with the crossing-rails and having its guard and head cut away, as described, on that portion of the crossing parallel to the through-rail, and the guard portion of the crossing-rail within the through-rail being cut away, as described.

16. A railroad-crossing constructed of the parts A outside of the through-rails, consisting of girder guard-rails bent so that one portion thereof will lie parallel and adjacent to the through-rails, the other in line with the crossing-rails, the guard of that portion in line with the crossing-rails being cut away, as described, and the heads and guards of the rails parallel with the through-rails being cut away, as described, a portion within the through-rails consisting of girder guard-rails bent so as to lie parallel with the through-rails and in line with the crossing-rails, the through-rails and crossing-rails being connected together, substantially as described.

17. In a railroad-crossing, an inner portion consisting of a rail or rails bent so as to form both a guard-rail and a crossing-rail, as and for the purposes set forth.

18. In a railroad-crossing, the combination of steam-railroad through-rails and street-railroad-crossing rails and interposed chocks, as J, secured to the webs of the street-railroad rails where parallel with said through-rails, whereby said through-rails are braced, as and for the purposes set forth.

19. In a railroad-crossing, the combination of movable chocks and plates, as C, as and for the purposes set forth.

20. In a railroad-crossing, in combination with a bent-girder crossing-rail, angle chocks or bars secured to the web of the same at the bend or angle adjacent to the through-rail, for the purposes set forth.

21. In a railroad-crossing, a crossing-rail having an L-shaped cut in its upper portion and bent thereon, for the purposes set forth.

22. In a railroad-crossing, a crossing-rail having a vertical cut in its head and a miter cut in its side and bent thereon, for the purposes set forth.

ARTHUR J. MOXHAM.

Witnesses:

H. W. SMITH,
P. FITZPATRICK.