

APPLICATION FILED JULY 21, 1910.

Patented Oct. 25, 1910.

4 SHEETS—SHEET 1.



## INVENTOR

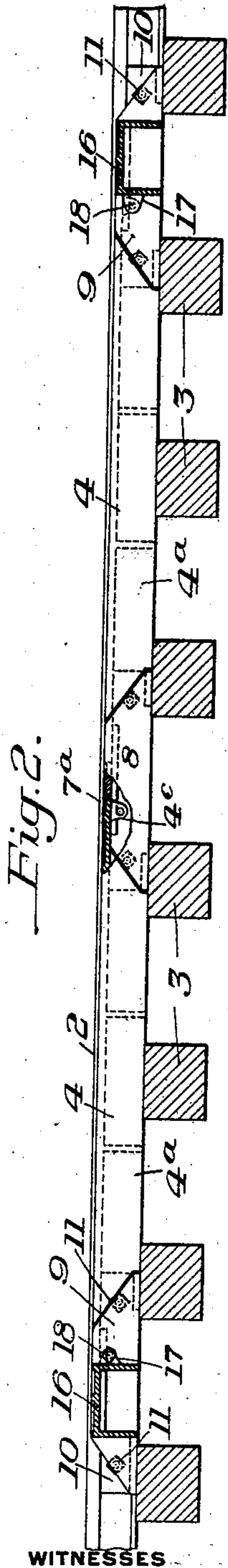
Wm L. Affelder,  
by Babcock, Byrnes & Pammel,  
his Attys.

973,904.

W. L. AFFELDER.  
RAILROAD CROSSING.  
APPLICATION FILED JULY 21, 1910.

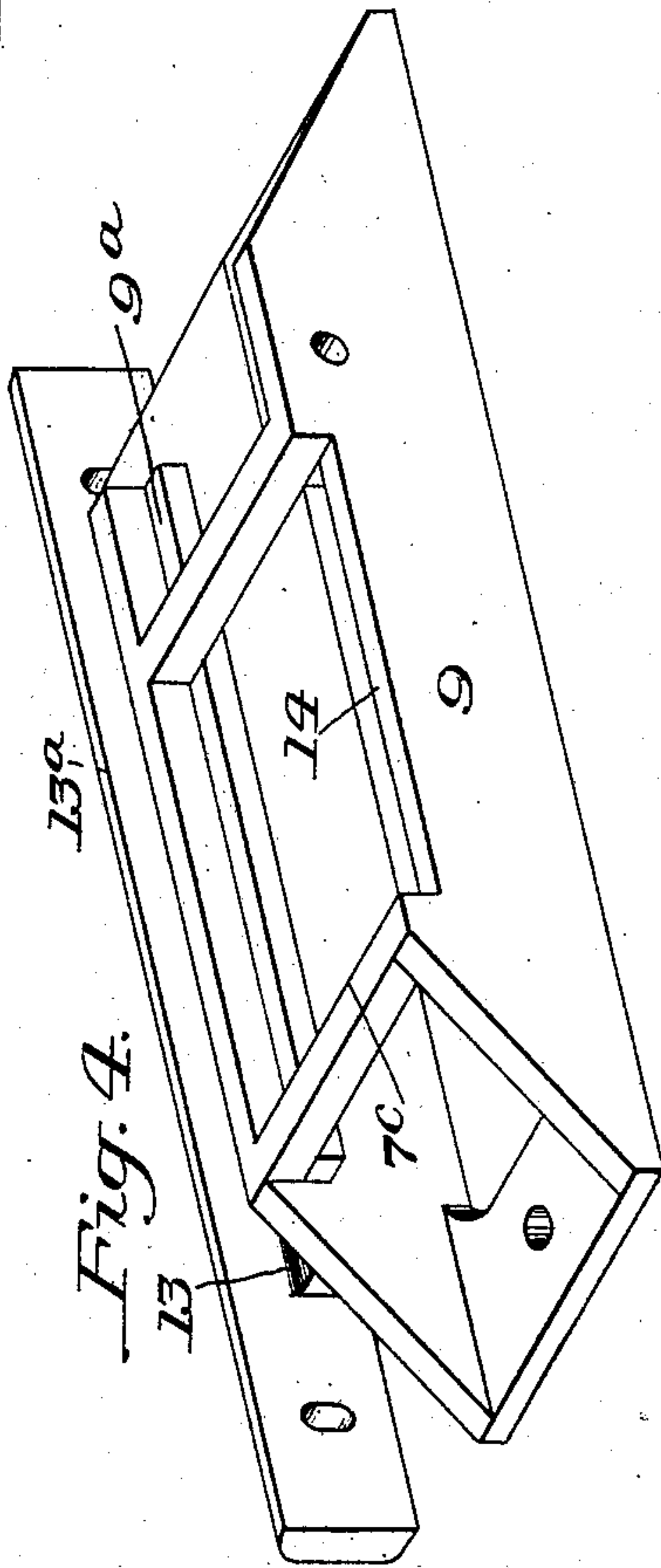
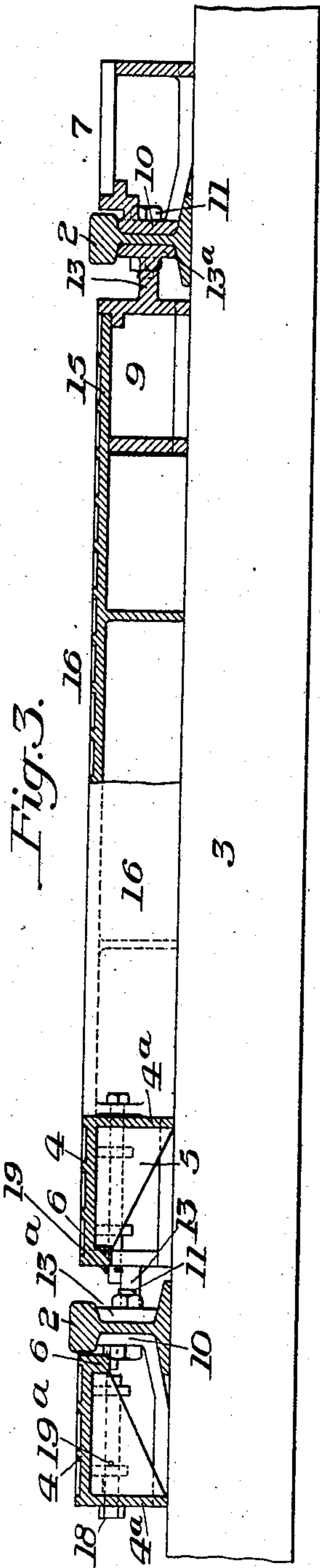
Patented Oct. 25, 1910.

4 SHEETS-SHEET 2.



WITNESSES

*R. A. Balderson*  
*W. T. Amari*



INVENTOR

*Wm L. Affelder*  
*by Bohrer, Byrnes & Parmelee*  
*his Atty*

W. L. AFFELDER.

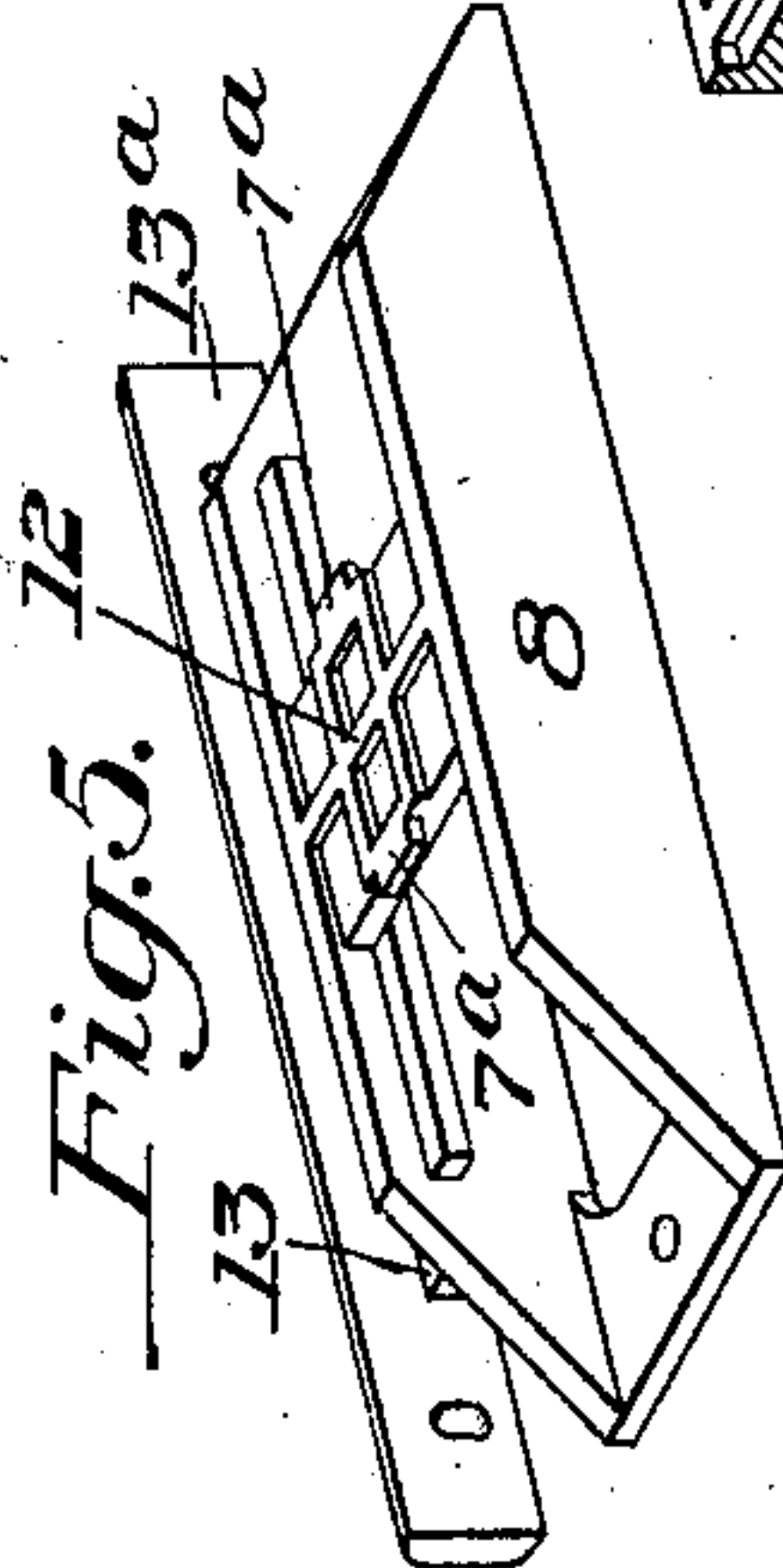
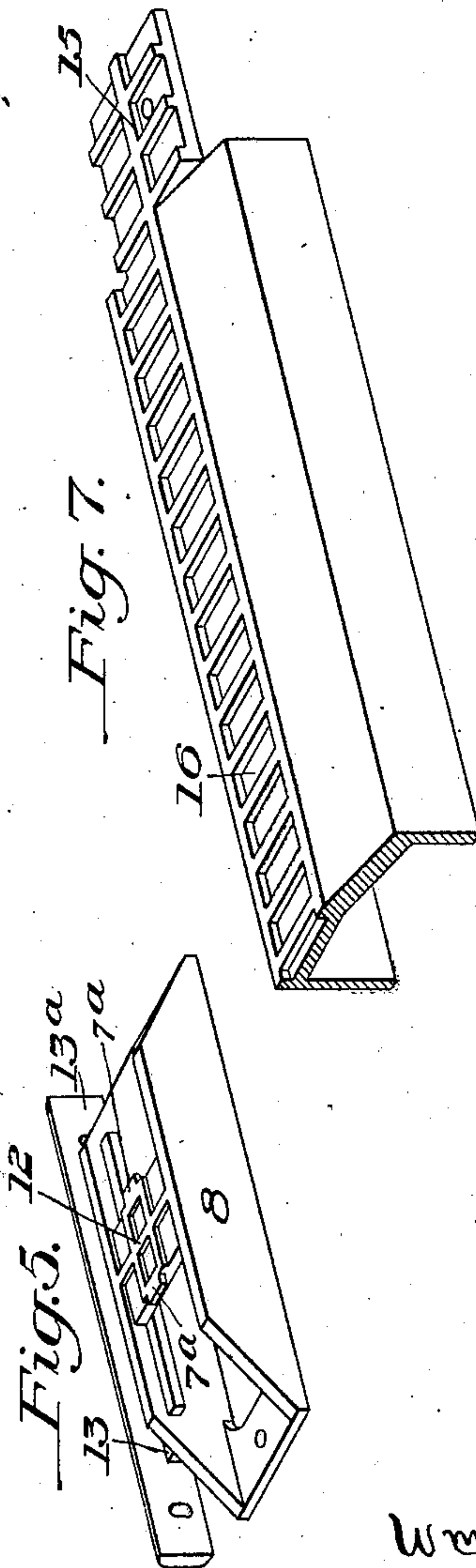
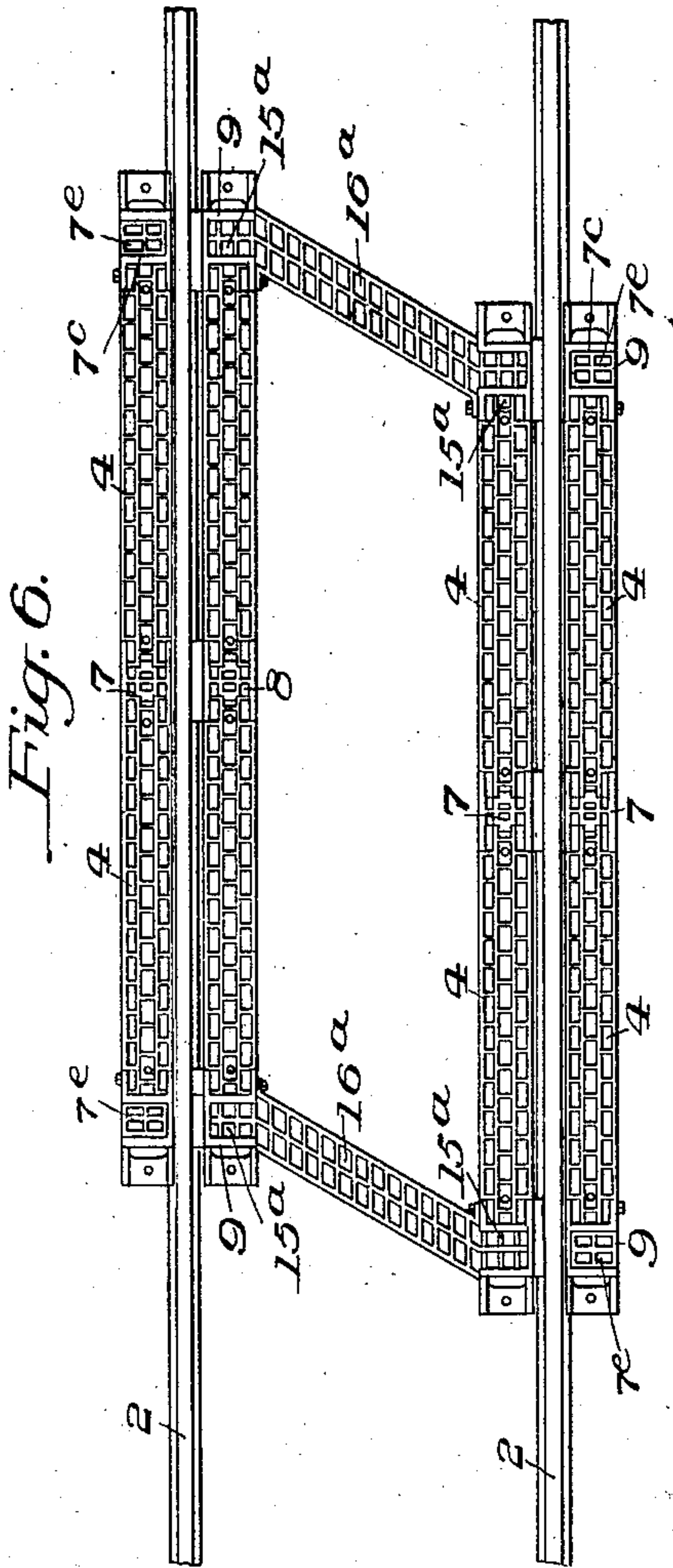
RAILROAD CROSSING.

APPLICATION FILED JULY 21, 1910.

Patented Oct. 25, 1910.

4 SHEETS—SHEET 3.

973,904.



WITNESSES

R. A. Baldwin  
W. F. Mariss

INVENTOR

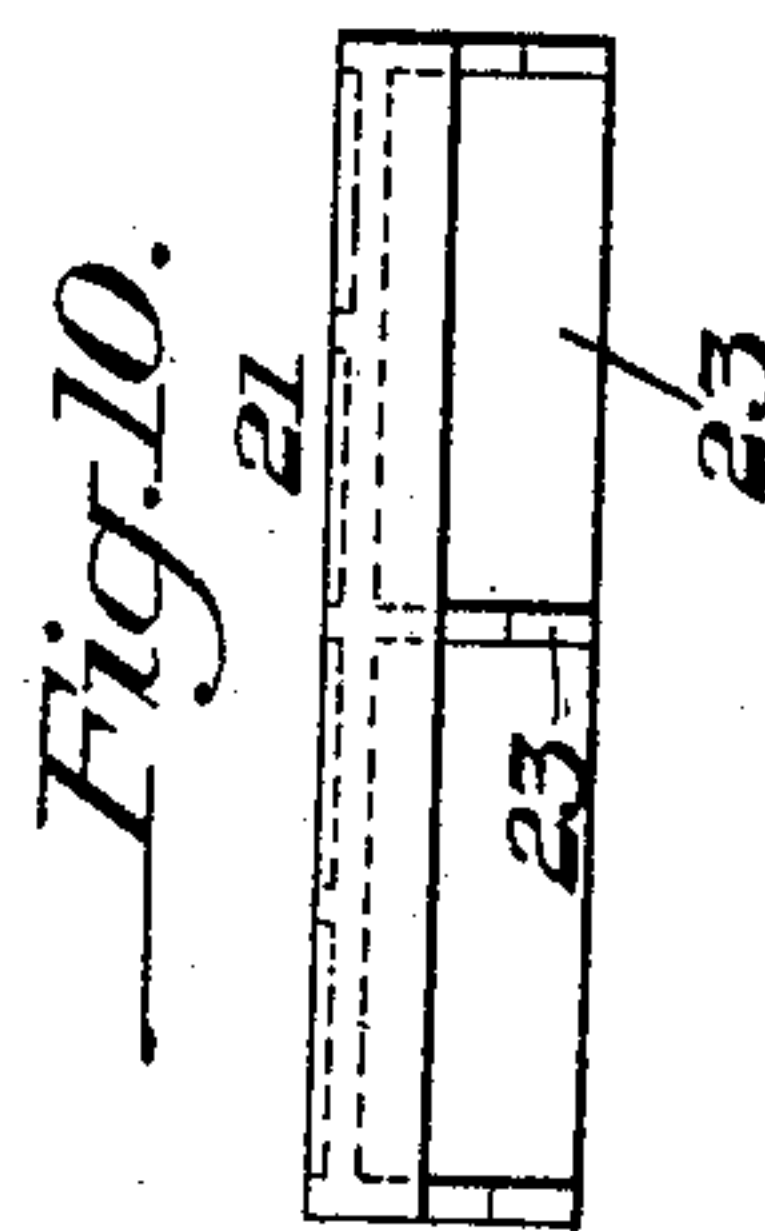
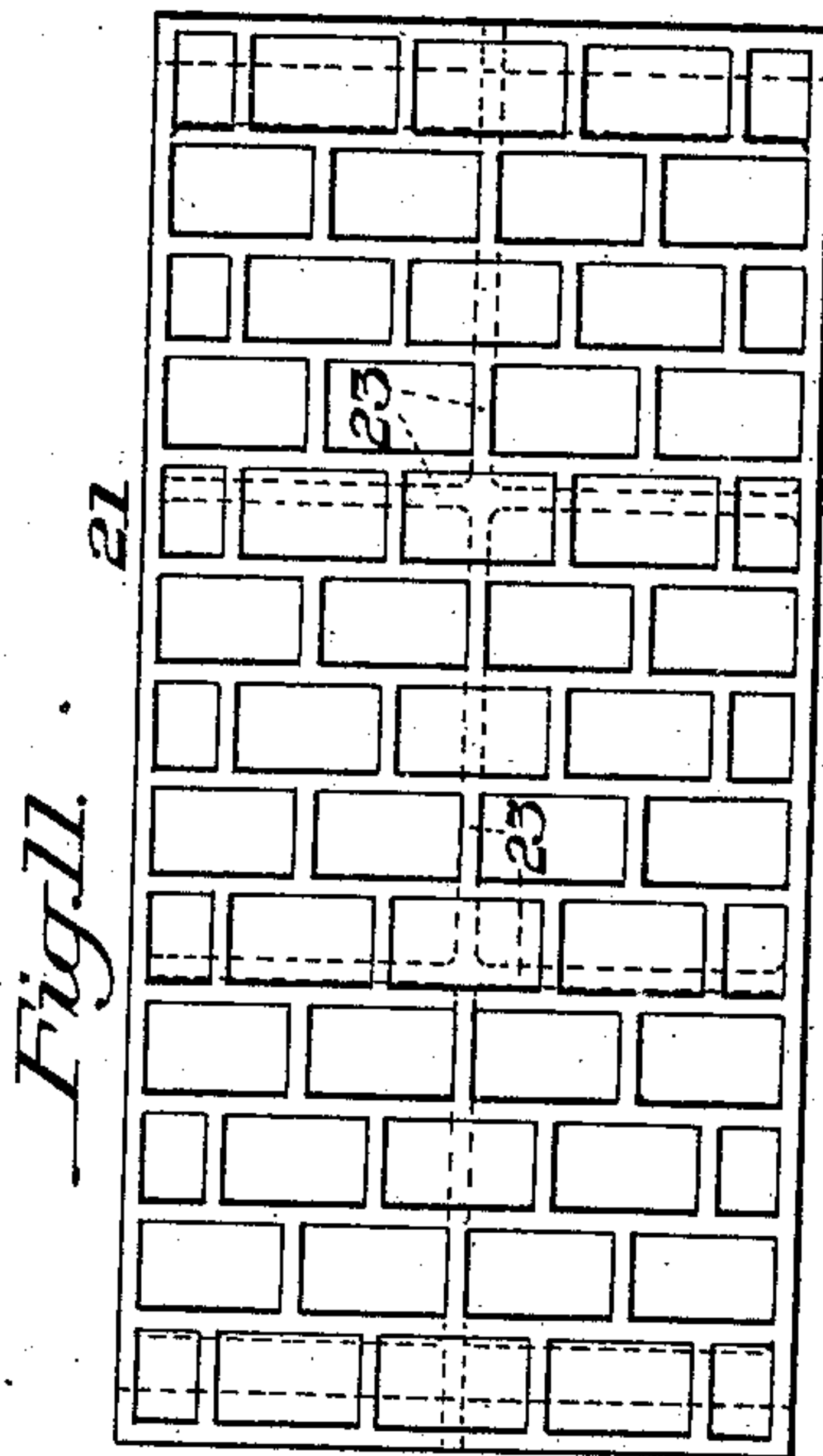
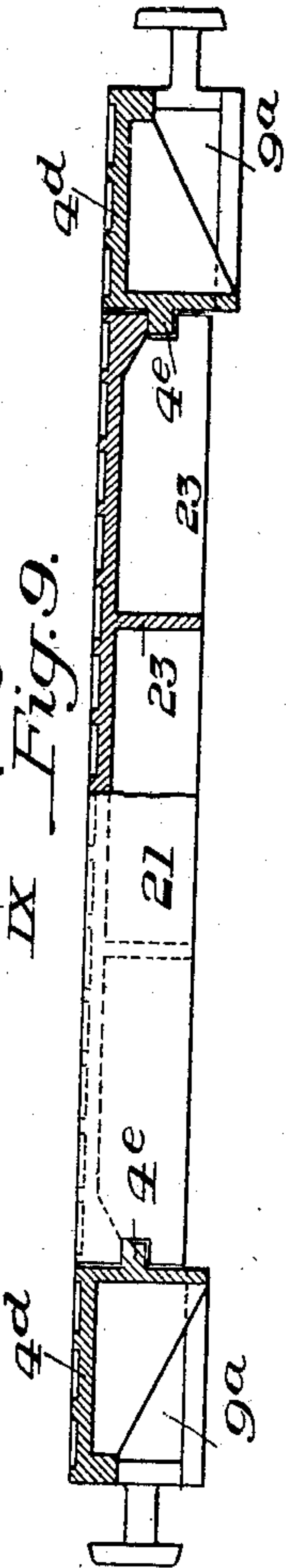
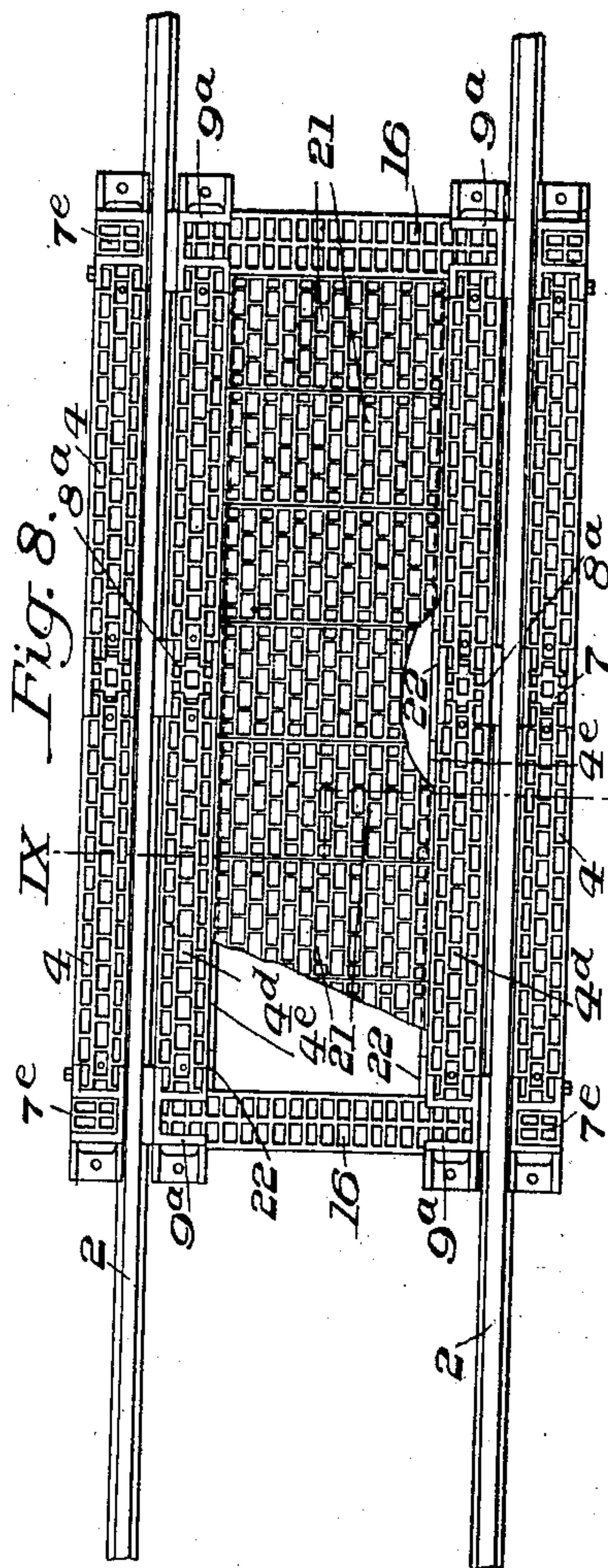
Wm. L. Affelder.  
by Bahwell, Dymes & Parmelee,  
his Attys.



973,904.

W. L. AFFELDER.  
RAILROAD CROSSING.  
APPLICATION FILED JULY 21, 1910.

Patented Oct. 25, 1910.  
4 SHEETS—SHEET 4.



WITNESSES

R. A. Balderson  
W. L. Lumaris

INVENTOR

Wm. L. Affelder,  
by Baker, Byrnes & Parmelee,  
his Attys



# UNITED STATES PATENT OFFICE.

WILLIAM L. AFFELDER, OF BROWNFIELD, PENNSYLVANIA.

## RAILROAD-CROSSING.

973,904.

Specification of Letters Patent.

Patented Oct. 25, 1910.

Application filed July 21, 1910. Serial No. 573,020.

*To all whom it may concern:*

Be it known that I, WILLIAM L. AFFELDER, of Brownfield, Fayette county, Pennsylvania, have invented a new and useful Improvement in Railroad-Crossings, 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 plan view of a crossing embodying my invention; Fig. 2 is a longitudinal section on the line II—II of Fig. 1; Fig. 3 is a cross-section on the line III—III of Fig. 1; Fig. 4 is a perspective view of one of the end supporting members; Fig. 5 is a similar view of one of the central supporting members; Fig. 6 is a plan view showing a modified form of crossing; Fig. 7 is a perspective view of a portion of one of the connecting pieces, in a modified form; Fig. 8 is a plan view partly broken away showing another modification; Fig. 9 is a partial section on a larger scale taken on the line IX—IX of Fig. 8; Fig. 10 is an end view of one of the channels; and Fig. 11 is a plan view of the same on a larger scale.

My invention has relation to railroad crossings for use where a public road or driveway crosses a railroad track at grade; and is designed to provide a metal crossing which will take the place of the plank crossing now commonly employed.

A further object of my invention is to provide a metal crossing of this character which can be readily manufactured and put in place; which can be readily removed in whole or in part to permit of repairs to the track; and which will be strong and durable.

The nature of my invention will be best understood by reference to the drawings, in which I have shown the preferred embodiment thereof, and which will now be described, it being premised, however, that various changes can be made in the details of construction and arrangement of the parts without departing from the spirit and scope of my invention as defined in the appended claims.

Referring first to the construction illustrated in Figs. 1 to 5, inclusive, the numeral 2 designates the rails of a railway track, and 3 the cross-ties thereof at a crossing, these figures illustrating a crossing in which

the road or driveway crosses the tracks at substantially right angles.

4 designates metal plates placed parallel with each of the rails 2 at both the inner and outer sides thereof. Each of these plates is made of any desired length, two or more of them being arranged end to end at each side of each rail, according to the length of the crossing, or the character of the traffic, and the length to which the sections can be safely made without the necessity for supports intermediate of their ends. In some cases, where a narrow crossing will suffice, a one-piece plate can be used. Each of these plates preferably consists of cast iron, although cast, rolled, or pressed steel, or reinforced concrete may be employed. Each plate is preferably cast with a roughened top surface, and is of L-shape in cross-section, the vertical flange 4<sup>a</sup> of the plate being at the edge thereof farthest away from the rail. The angle between the horizontal and vertical portions of the sections can be suitably braced by the webs or gussets 5, and the opposite edge of each plate may have a short, depending stiffening rib 6.

The plates are supported and held in their proper positions by means of the supports 7, 8 and 9. One of the blocks 9 is shown in perspective in Fig. 4, and one of the supports 8 is shown in perspective in Fig. 5. These blocks may be of various forms, and the particular forms shown are illustrative only, although they are of a character which can be very conveniently made and used. The supports 7 are used at the outside of each rail. They consist each of inner and outer parallel side portions, suitably connected at their lower portions, the inner side portion 10 being adapted to fit the outer side of the web of the adjacent rail, as shown in Fig. 3, and to be secured thereto by bolts 11. The side portions of the central support 7 are also preferably connected at the top by a central portion 12, and are provided with inwardly projecting ribs which form a seat for the projecting end 4<sup>b</sup> of a plate 4. These projecting ends seat flush on these ribs between the side members of the support.

The end supports 7 may or may not be provided with seats 7<sup>c</sup> to receive end plates 7<sup>d</sup> (shown in dotted lines in Fig. 1), when the crossing is used on a double track road. When these seats are not used, they may be



closed by filler plates such as shown at 7<sup>e</sup>. The blocks 8 are used at the inside of each rail at the intermediate portion of the crossing, and are in general similar to the supports 7, except that their inner side portions are set sufficiently away from the gage edges of the rails to form the necessary wheel flange clearance, the plates 4 at the outer side of the rails fitting the outer edges of the rails rather closely, while the plates at the inner sides must of course be set sufficiently away from the gage lines of the rails to provide the wheel flange clearance throughout the crossing. To enable the supports 8 and 9 to be attached to the webs of the rails, their inner sides are provided some distance below their upper edges with the lateral extensions 13 having the vertical portions 13<sup>a</sup> at their inner edges, which fit the webs of the rails between the heads and bases thereof, as best seen in Fig. 3.

The supports 9 are used at the insides of the rails at the ends of the crossing. They are similar to the supports 8, except that they have but one seat 9<sup>a</sup> for a plate 4, and are also provided with another seat 14 at substantially right angles to the seat 9<sup>a</sup> to receive the end extension 15 of connecting pieces 16 which connect each pair of the end supports between the rails. The supports 7, 8 and 9 may, as shown, be provided with bolt or spike holes, so that they can be secured to the ties. I prefer, however, not to positively secure them to the ties.

The pieces 16 may be of plain channel form in cross-section, as shown in Fig. 2, or they may be of modified channel form, as shown in Fig. 7, in which the outer portion is inclined downwardly and outwardly.

The pieces 4 and 16 may be secured to the supports in any suitable manner. In the drawings I have shown the supports 7 and 8 as having lips 7<sup>a</sup> at each side adapted to fit over the end of an adjacent plate 4, as shown in Fig. 2. Plates 4 are also provided at their end portions with depending lugs 4<sup>c</sup>. The connecting pieces 16 may be formed with the lugs or projections 17, and bolts 18 can be inserted through these projections and also through the depending lugs 4<sup>c</sup> of the plates 4. By providing the plates 4 with the lugs 4<sup>b</sup> at each end, said plates may be used interchangeably at either side of their rail by simply turning them end for end. The bolts 18 may be secured by pins or cotters 19 and 19<sup>a</sup>, the cotters 19 passing through the ends of the bolts at the inside of the rails where they are accessible, while the cotters 19<sup>a</sup> may be placed adjacent to one of the lugs 4<sup>c</sup>, where the bolts are used outside of the rails and the inner ends of the bolts are not accessible. These cotters can readily be inserted and removed.

The space between the inside plates 4 may be filled to the proper level with fine bal-

last, or any other suitable road-making material, the connecting pieces 16 being provided to confine this material.

Where the road or driveway extends across the railway tracks at an oblique angle, as shown in Fig. 6, the construction is substantially the same as that before described, except that the plates 4 instead of being placed directly opposite each other, are moved endwise relatively to each other to correspond to the angle of the crossing; and the connecting pieces 16<sup>a</sup> instead of extending at substantially right angles to the rails extend at an oblique angle thereto, their seating end portions 15<sup>a</sup> in this case being at an angle to the length of the pieces and at substantially right angles to the rails. This enables the same supports 9 to be used for a crossing of this character as in a right-angle crossing.

In the forms of my invention so far described, the central portion of the crossing between the side and end plates is intended to be filled with ballast. In some cases, however, it is desired to have a solid crossing throughout, and in some cases this is a necessity. I, therefore, provide the modification shown in Figs. 8, 9, 10 and 11. In the construction shown in these figures, the side and end plates are arranged precisely as in the form first described, but the space between the rails is covered by a series of metal channels 21. To support these channels, the inside plates 4<sup>a</sup> are provided at their inner sides with suitable ribs or projections 4<sup>e</sup>, and the supports 9<sup>a</sup> and 8<sup>a</sup> are provided with similar ribs or projections 22. These ribs or projections form supports for the channels 21 in the manner shown. These channels preferably consist of flat upper portions having a suitably roughened top surface with depending supporting and strengthening webs 23. By the use of these plates, I am enabled to provide a solid metal crossing throughout of a very desirable character.

The advantages of my invention are many. While the first cost of the crossing will, of course, exceed that of the ordinary plank crossing, this increased cost will be more than compensated for by the extended life of the metal crossing, and by the saving of the constant repairs which are required in a plank crossing. Furthermore, the crossing can be readily removed without injury to permit re-spikeing of the rails, resetting of the ties, and other track repairs. In a plank crossing this tearing up of the crossing injures the planks, whereas, with the metal crossing herein described, the parts can be removed and replaced without in any way injuring them. Furthermore, one end of the crossing may be removed to permit of track repairs, while the other end remains in place, thus enabling the crossing to be used while the repairs are going on.



The plates 4 being open adjacent to the inside of the rails, gives ample space for dirt and other obstructions which may drop into the space between the rails and the plates to work back and thus not obstruct the wheel flange clearance spaces. All the plates 4 can be cast in the same pattern; and as before pointed out, the same plates 4 can be used for either a right angle or an oblique angle crossing, the only change for the latter form of crossing being in the connecting plates 16. These plates can, of course, be omitted, if desired, but I prefer to employ them, however. If desired, the plates 4 can be supported upon the ties intermediate of their end supports.

While I have shown the invention as applied to a single track crossing, its application to a double track will be obvious, the construction for each track being the same as shown for the one track. End plates such as indicated in dotted lines in Fig. 1 will preferably be used between the two tracks with a filling of ballast, or with a solid filling such as is shown between the rails in Fig. 8. My invention is also obviously applicable to the construction of platforms such as are often used outside of a railroad track, or between two railroad tracks, in order to provide a crossing for passengers or for baggage trucks.

It will also be understood that while I prefer to provide separate supports such as described to carry the crossing plates, it will be obvious that the plates and supports may be cast in a single piece and secured directly to the track, either to the rails or ties. While such construction does not possess the same facility of removing and resetting the plates, it may be desirable in some cases.

What I claim is:—

1. A metal railway crossing, comprising plates placed substantially parallel with the track rails at both the inner and outer sides thereof, and supports for said plates secured to the track; substantially as described.

2. A metal railway crossing, comprising plates placed substantially parallel with the track rails at both the inner and outer sides thereof, and supports for said plates secured to the track, said plates being formed in sections; substantially as described.

3. A metal railway crossing, comprising metal plates placed at the inner and outer sides of each rail and substantially parallel therewith, supports for such plates secured to the track, and connecting pieces at the ends of the crossings connecting the plates at the inner sides of the two rails; substantially as described.

4. A metal railway crossing, comprising a plurality of supports secured to the track at each side of the rails, and a plurality of metal crossing plates removably seated on said supports; substantially as described.

5. A metal railway crossing, comprising a plurality of supports secured to the track at each side of the rails, and a plurality of metal crossing plates removably seated on said supports, together with means for removably securing the plates to the supports; substantially as described.

6. A metal railway crossing, comprising a plurality of supports adapted to rest on the cross-ties and having portions to be connected to the track rails, and a plurality of sectional crossing plates removably seated on said supports; substantially as described.

7. In a metal railway crossing, a plurality of supports secured to the track and having seats, and crossing plates removably supported on said seats and secured thereto; substantially as described.

8. In a metal railway crossing, a plurality of supports secured to the track and having seats, and crossing plates removably supported on said seats and secured thereto, said plates being of angle form with their vertical portions at the edges farthest from the rails and having open sides adjacent to the rails; substantially as described.

9. A metal railway crossing, comprising a plurality of supports adapted to be secured to the track rails and to rest upon the cross-ties of the track, said supports having seats and crossing plates arranged parallel with the rails and detachably secured to said supports, the plates at the inner sides of the rails having depending flanges at their inner edges and being open underneath adjacent to the rails; substantially as described.

10. A metal railway crossing, comprising a plurality of supports adapted to be secured to the track rails and to rest upon the cross-ties of the track, said supports having seats and crossing plates arranged parallel with the rails and detachably secured to said supports, the plates at the inner sides of the rails having depending flanges at their inner edges and being open underneath adjacent to the rails, together with connecting pieces connecting the plates at the inner sides of the rails at the end portions of the crossing; substantially as described.

11. A metal railway crossing, comprising a plurality of supports adapted to be secured to the track rails and to rest upon the cross-ties of the track, said supports having seats and crossing plates arranged parallel with the rails and detachably secured to said supports, the plates at the inner sides of the rails having depending flanges at their inner edges and being open underneath adjacent to the rails, together with connecting pieces connecting the plates at the inner sides of the rails at the end portions of the crossing, said connecting pieces being detachably secured to the end supports for said plates; substantially as described.

12. A metal railway crossing, comprising



plates placed substantially parallel with the track rails at both the inner and outer sides thereof, and supports for said plates secured to the track, together with a plurality  
5 of transverse plates or channels supported between the inner plates; substantially as described.

13. A metal railway crossing, comprising plates placed substantially parallel with the  
10 track rails at both the inner and outer sides thereof, and supports for said plates secured to the track, together with a plurality of transverse plates or channels supported between the inner plates and supported by  
15 said plates and their supports; substantially as described.

14. In a metal railway crossing, a plurality of supports secured to the track and having seats, and crossing plates removably  
20 supported on said seats and secured thereto, said plates being of angle form with their vertical portions at the edges farthest from the rails and having open sides adjacent to

the rails, and a series of filler plates or channels between the plates at the inner sides of  
25 the rails; substantially as described.

15. A metal railway crossing, comprising plates substantially parallel with the track rails at both the inner and outer sides thereof, and having supporting means secured to  
30 the track; substantially as described.

16. A railway crossing, comprising plates placed substantially parallel with the track rails at both the inner and outer sides thereof, and supports for said plates secured to  
35 the track, said supports having means for holding said plates in position, both as to proper elevation with respect to the track rails, and also laterally with relation to the track rails; substantially as described. 40

In testimony whereof, I have hereunto set my hand.

WILLIAM L. AFFELDER.

Witnesses:

HOWARD G. EBERT,  
RALPH ROSS.