No. 850,688. PATENTED APR. 16, 1907.

G. E. STARNER.

RAILWAY CROSSING.

APPLICATION FILED AUG. 15, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

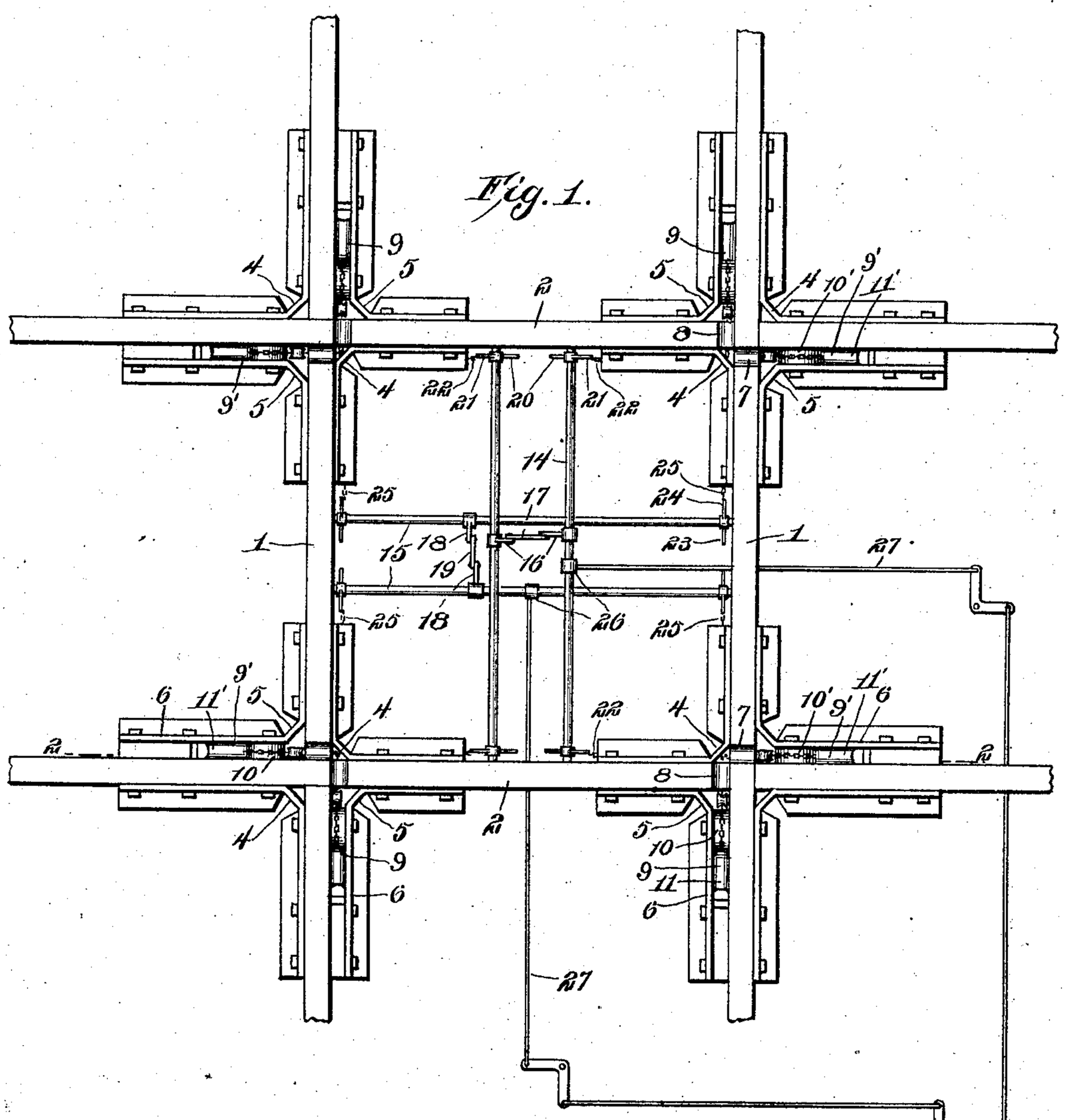
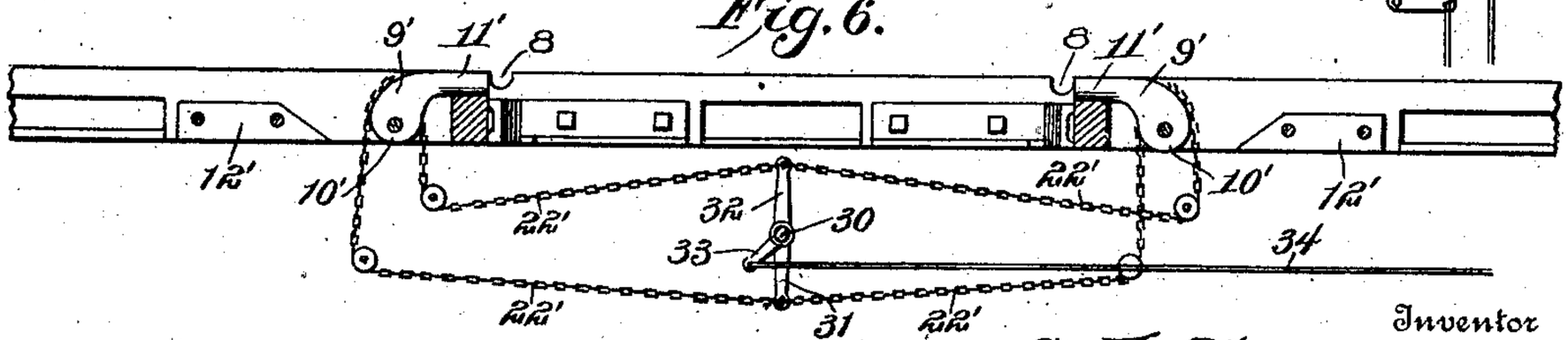


Fig. 6.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

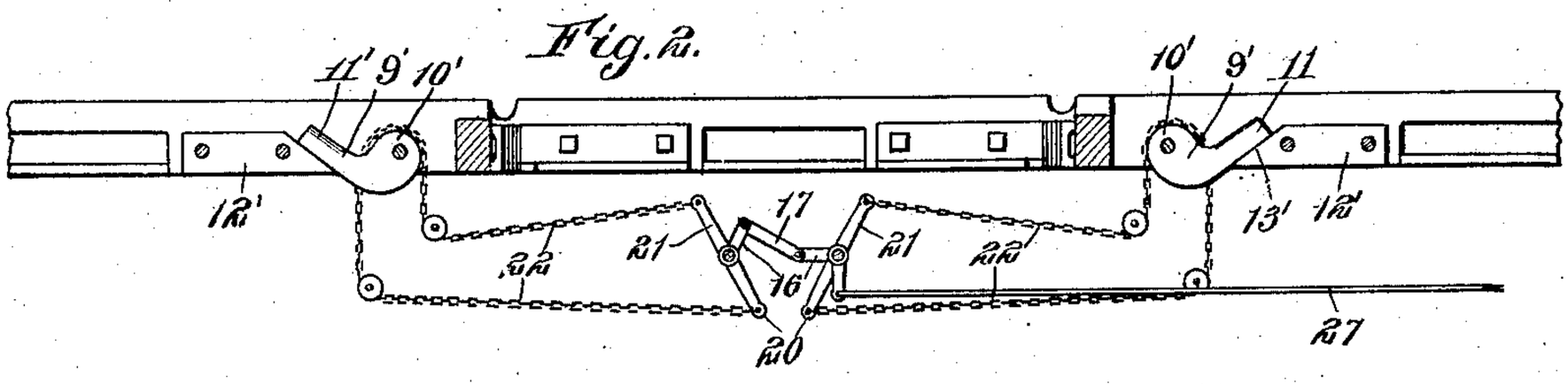


Fig. 3.

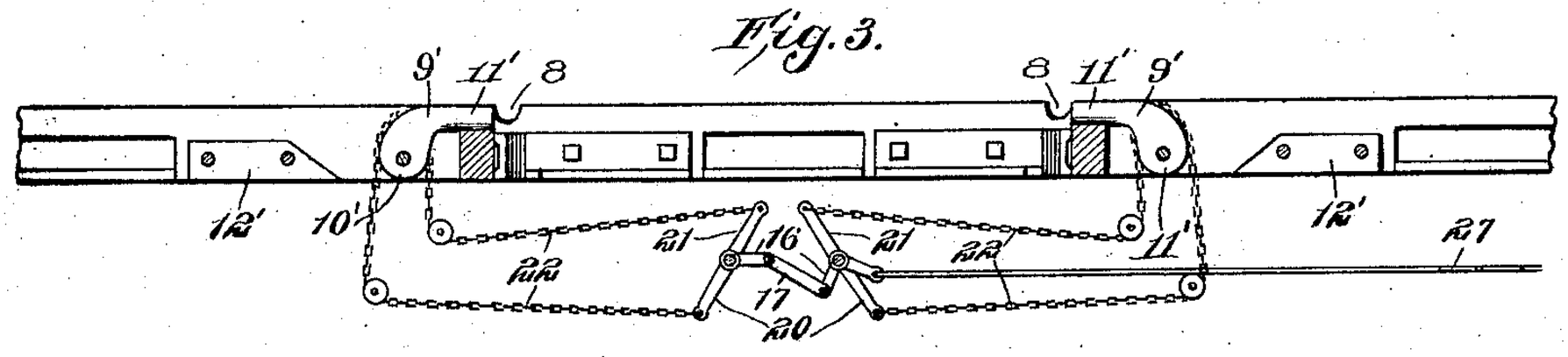


Fig. 4.

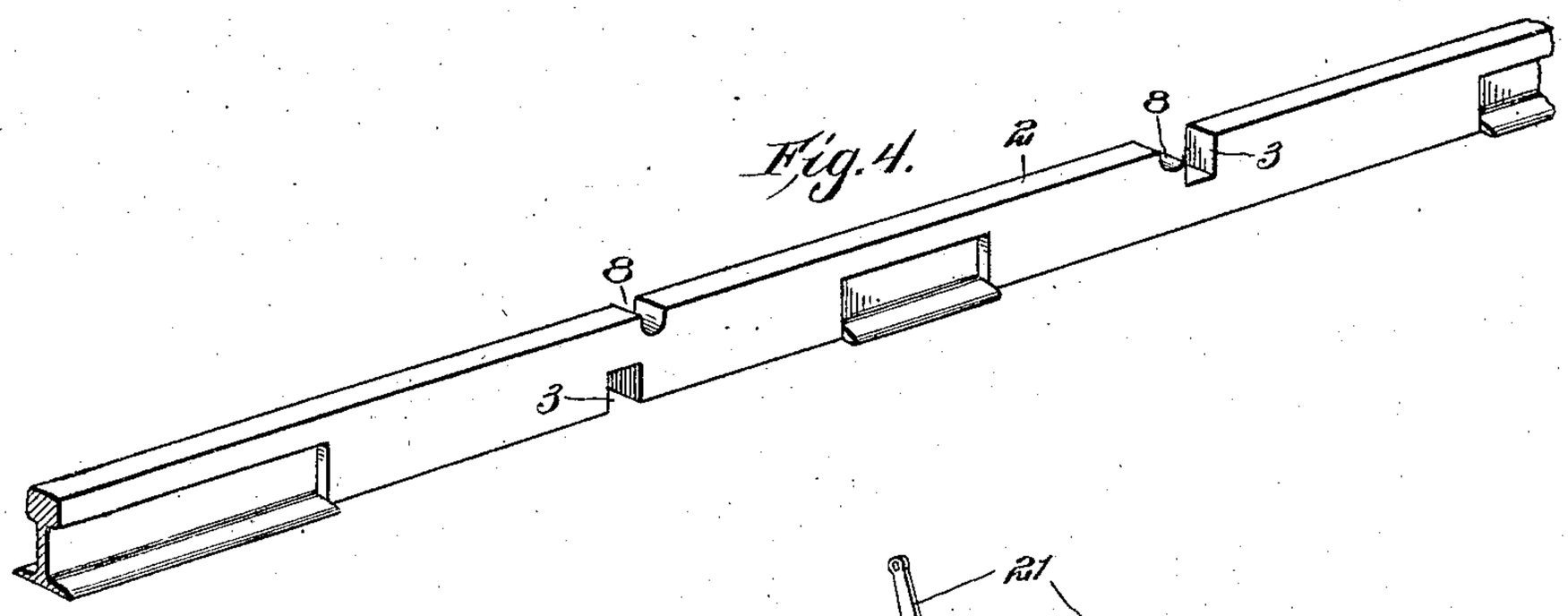
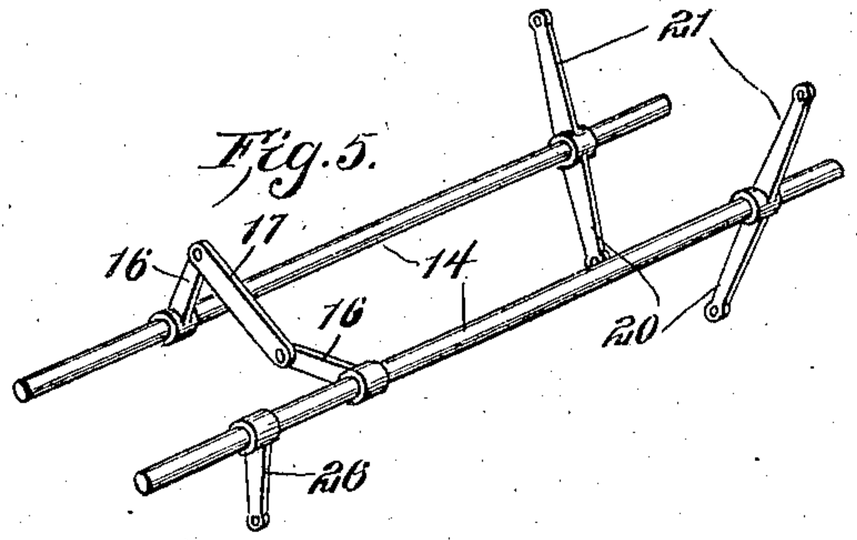


Fig. 5.



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UNITED STATES PATENT OFFICE.

GETTIS E. STARNER, OF DUNKIRK, OHIO.

RAILWAY-CROSSING.

No. 850,688. Specification of Letters Patent. Patented April 16, 1907.

Application filed August 15, 1906. Serial No. 330,756.

To all whom it may concern:

Be it known that I, GETTIS E. STARNER, a citizen of the United States, residing at Dunkirk, in the county of Hardin and State of Ohio, have invented new and useful Improvements in Railway-Crossings, of which the following is a specification.

This invention relates to railway-crossings; and it has for its object to obviate the discomfort to passengers and the injury to rolling-stock usually experienced at such crossings when the wheels pass over the open spaces in the rails that are left open for the passage of the flanges of wheels passing over the intersecting rails. Further objects of the invention are to simplify and improve the construction and operation of this class of devices.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations, and modifications within the scope of the invention may be resorted to when desired.

In the drawings, Figure 1 is a top plan view of a railway-crossing embodying the invention. Fig. 2 is a vertical sectional view taken on the plane indicated by the line 2 2 in Fig. 1 and showing the filling-blocks or levers open. Fig. 3 is a view similar to Fig. 2, but showing the filling-blocks or levers closed. Fig. 4 is a perspective detail view of one of the rails. Fig. 5 is a perspective detail view showing one end of a pair of rock-shafts whereby the filling-blocks or levers are operated. Fig. 6 is a sectional detail view illustrating a modification.

Corresponding parts in the several figures are denoted by like characters of reference.

The rails 1 1 and 2 2 of the main line and of the intersecting line or crossing are provided with notches 3, as shown in Fig. 4 of the drawings, and said rails are gained together at the points of intersection, so that the treads of the rails shall lie at the same level. The rails are connected at the points of intersection by angle-plates 4 4 and 5 5, which are bolted or otherwise suitably secured upon the webs of the rails, each of the plates 5 having a wing 6, which is spaced from the adjacent rails 1 or 2, as the case may be. The rails 1 1 and 2 2 are provided adjacent to the points of intersection with notches 7 and 8 for the passage of the wheel-flanges.

In the spaces between the wings 6 of the angle-plates 5 and the adjacent portions of the rails 1 are pivoted filling-blocks or levers 9, having cam-shaped heads 10 and filling portions 11, the latter being adapted to extend into the notches 8 of the rails 2. Similar filling-blocks or levers 9′, having cam-shaped heads 10′ and filling portions 11′, are pivoted in the spaces between the wings 6 and the adjacent portions of the rails 2. Supporting-blocks 12 and 12′, having inclined faces 13 and 13′, are secured between the wings 6 of the angle-plates 5 and the adjacent portions of the rails 1 and 2.

It will be seen that by swinging the levers 9 and 9′ upon their fulcra the filling portions of said levers may be made to engage the notches 8 and 7 of the rails 2 and 1, respectively, or said filling portions may be swung back to an out-of-the-way position in contact with the inclined faces of the blocks 12 and 12′.

Supported in suitable bearings beneath the road-bed are two pairs of rock-shafts 14 and 15, the former of which are parallel to the rails 1, while the latter are parallel to the rails 2. The rock-shafts 14 have arms 16, connected by a link 17, whereby said rock-shafts will move in opposite directions. The rock-shafts 15 are similarly provided with arms 18, connected by a link 19. The rock-shafts 14 are provided with oppositely-extending arms 20 and 21, that are connected by suitably-guided chains 22 or other flexible connections with the upper and under sides of the cam-heads 10′ of the levers or filling-blocks 9′. In like manner the rock-shafts 15 are provided with oppositely-extending arms 23 and 24, that are connected by suitably-guided chains or other flexible connections 25 with the upper and under sides of the cam-heads 10 of the levers or filling-blocks 9. One rock-shaft of each set or pair is provided with a crank 26, with which is connected an operating-link 27, that extends, either directly or through the medium of intermediate bell-cranks, to the station of the operator.

It will be seen that by operating the rock-

shafts 14 the filling members 9′ may move to a position where they will engage the notches 7 of the rails 1, causing the latter to present an unbroken surface for the passage of wheels over said rails. In like manner by operating the rock-shafts 15 the filling members 9 may be thrown to a position where they will occupy the notches 8 of the rails 2, thus opening the latter for the passage of trains. Normally the members 9 and 9′ will be supported upon the blocks 12 and 12′, and the crossing will thus be regarded as closed to the passage of trains.

Within the scope of the invention springs or similar mechanical means may be used for automatically throwing the filling members in one direction, said filling members being operated in the opposite direction by means substantially as herein described. Usually, however, the positive operating means herein shown will be deemed preferable.

In Fig. 6 it has been illustrated how in lieu of each of the pairs of rock-shafts hereinbefore described, as 14 14 and 15 15, a single rock-shaft may be employed, if preferred. In said Fig. 6 has been shown a rock-shaft 30, provided with oppositely-extending arms, (here designated 31 32,) which are connected by suitable guide-chains or flexible elements (here designated 22′,) with the upper and under sides of the cam-heads 10′ of the levers or filling-blocks 9′, the upward-extending arm 32 of the rock-shaft being connected with the upper side of the cam-head of the filling-block at one side of the track and with the under side of the cam-head of the filling-block at the other side of the track, while the upper and under sides of the cam-heads unconnected with the arm 32 are connected with the downwardly-extending arm 31. The rock-shaft 30 has a rocker-arm 33, from which a link or connecting-rod 34 extends to the station of the operator. It will be seen that when this construction is employed a single rock-shaft will serve to operate the filling-blocks at both sides of the track. This construction will sometimes be found preferable on account of its greater simplicity.

Having thus described the invention, what is claimed is—

1. In a railway-crossing, line-rails and intersecting rails having notches adjacent to the points of intersection, filling members pivoted to the rails and having cam-shaped heads and extended filling portions adapted to enter the notches in the rails, a rock-shaft having oppositely-extended arms, and suitably-guided flexible connections between said arms and the cam-heads of the filling members.

2. In a railway-crossing the line-rails and crossing-rails having notches adjacent to the points of intersection, angle-plates secured at the corners or intersecting portions of the rails and having wings spaced from the webs of the latter, and filling members pivoted between the wings of the angle-plates and the rails and adapted to engage the notches in the latter.

3. In a railway-crossing the line-rails and intersecting rails having notches adjacent to the points of intersection, angle-plates secured at the corners and having wings spaced from the webs of the rails, filling members pivoted between the wings and the rails and having cam-shaped heads and extended filling portions adapted to engage the notches in the rails, and supporting-blocks secured between the wings of the angle-plates and the rails and having inclined faces adapted to support the filling members.

4. In a railway-crossing the line-rails and intersecting rails having notches adjacent to the points of intersection, angle-plates secured at the corners and having wings spaced from the rails, filling members pivoted between the wings and the rails and having cam-shaped heads and extended filling portions adapted to engage the notches in the rails, and suitably-connected pairs of rock-shafts having oppositely-extending arms and suitably-guided flexible members connecting said arms with the upper and under sides of the cam-heads of the filling members.

5. In a railway-crossing the line-rails and intersecting rails having notches adjacent to the points of intersection, angle-plates secured at the corners and having wings spaced from the rails, filling members pivoted between the wings and the rails and having cam-shaped heads and extended filling portions adapted to engage the notches in the rails, rock-shafts having oppositely-extending arms, and suitably-guided flexible members connecting said arms with the cam-heads of the filling members.

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

GETTIS E. STARNER.

Witnesses:

W. N. TREECE,

A. J. BROSEKE.