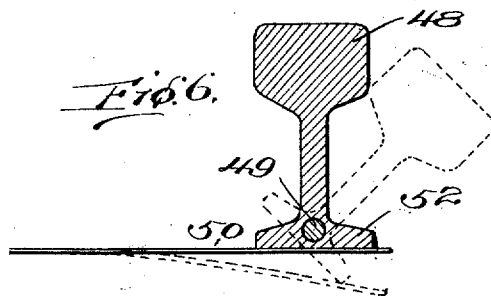
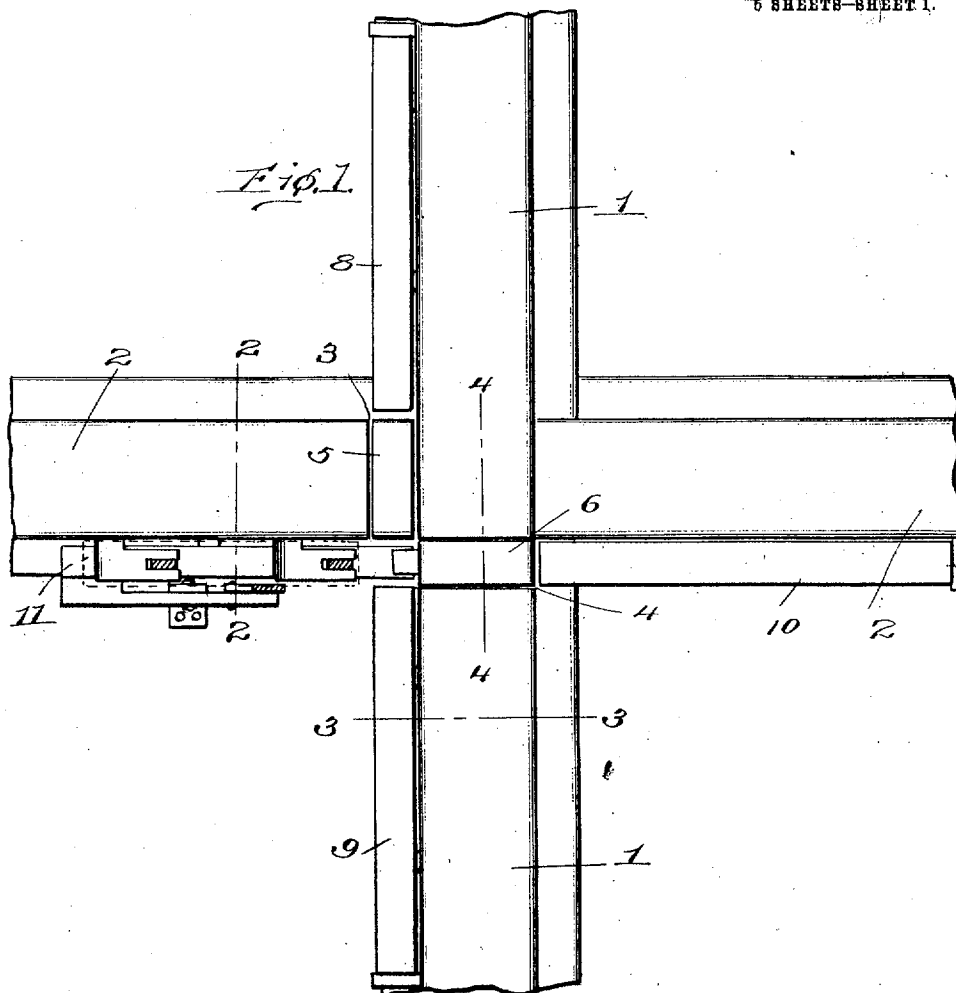


J. H. BRUMBACK.
RAILROAD CROSSING.
APPLICATION FILED NOV. 18, 1910.

986,356.

Patented Mar. 7, 1911.

5 SHEETS-SHEET 1.



Witnesses

J. M. Fowler
A. L. Kitchen

By

Inventor

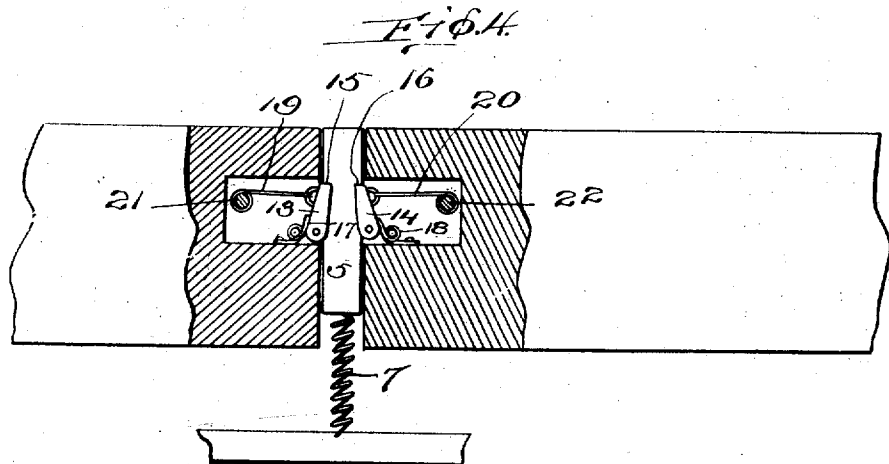
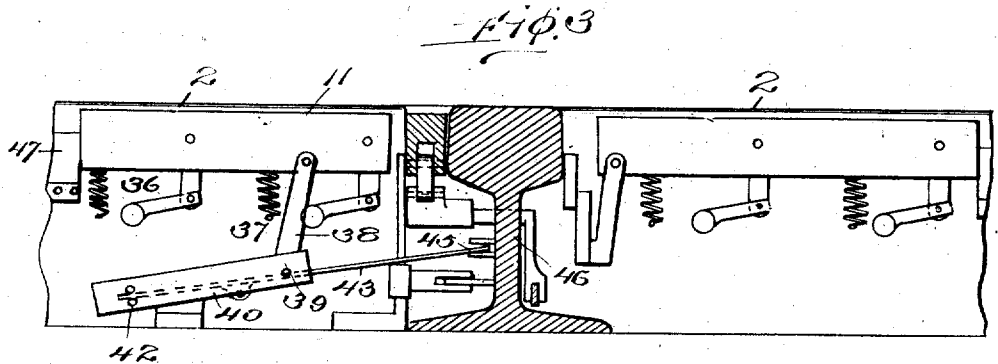
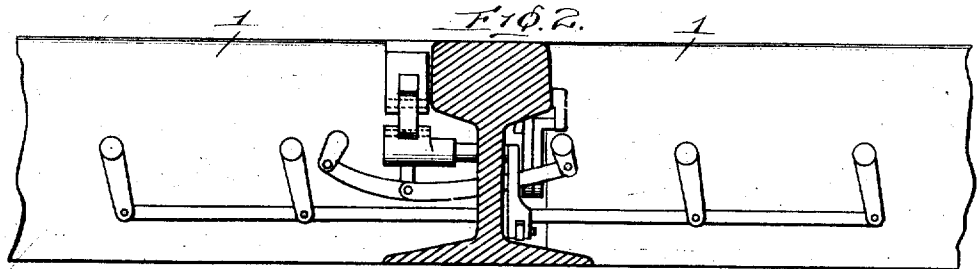
John H. Brumback
Beall & Fenwick
E. J. Fenwick his Attorneys

J. H. BRUMBACK.
RAILROAD CROSSING.
APPLICATION FILED NOV. 18, 1910.

986,356.

Patented Mar. 7, 1911.

5 SHEETS—SHEET 2.



Witnesses

M. Fowler Jr.
A. L. Kitchen

Inventor

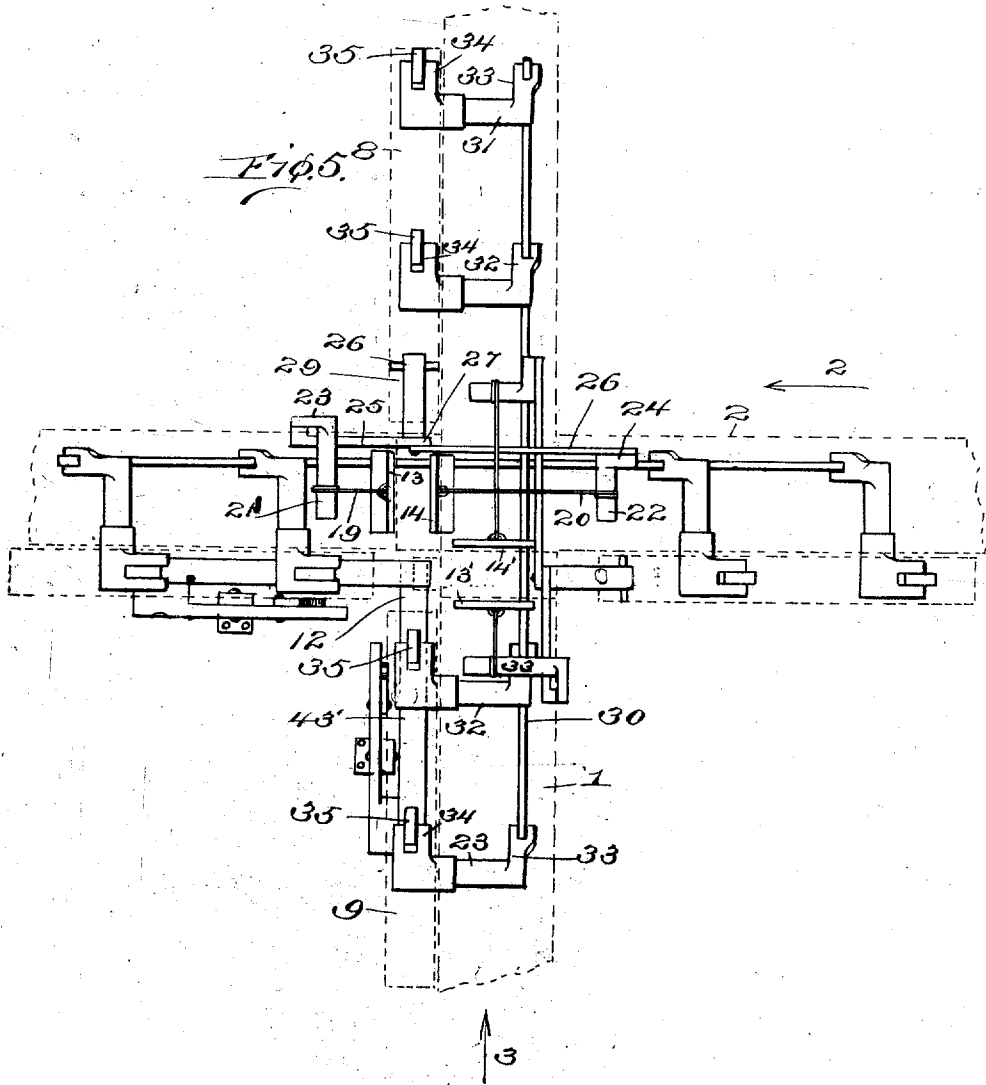
2311

John H. Brumback
Beall & Fenwick
E. T. Fenwick his Attorneys

J. H. BRUMBACK.
RAILROAD CROSSING.
APPLICATION FILED NOV. 18, 1910.

986,356.

Patented Mar. 7, 1911.
5 SHEETS—SHEET 3.



Witnesses
John Fowler Jr.
A. Kitchen

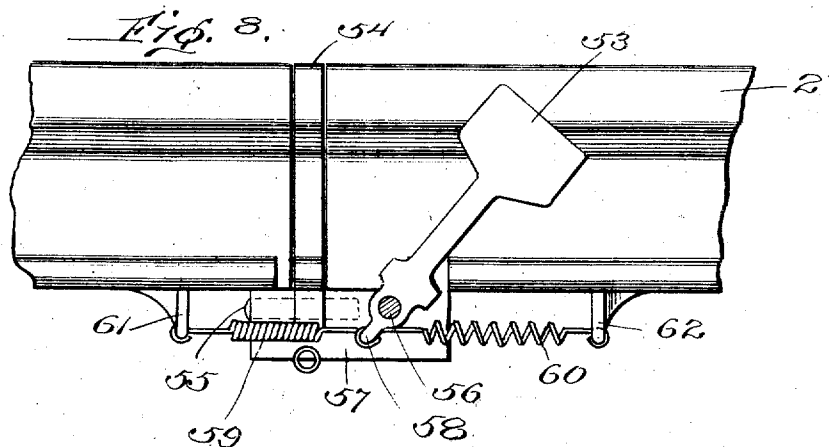
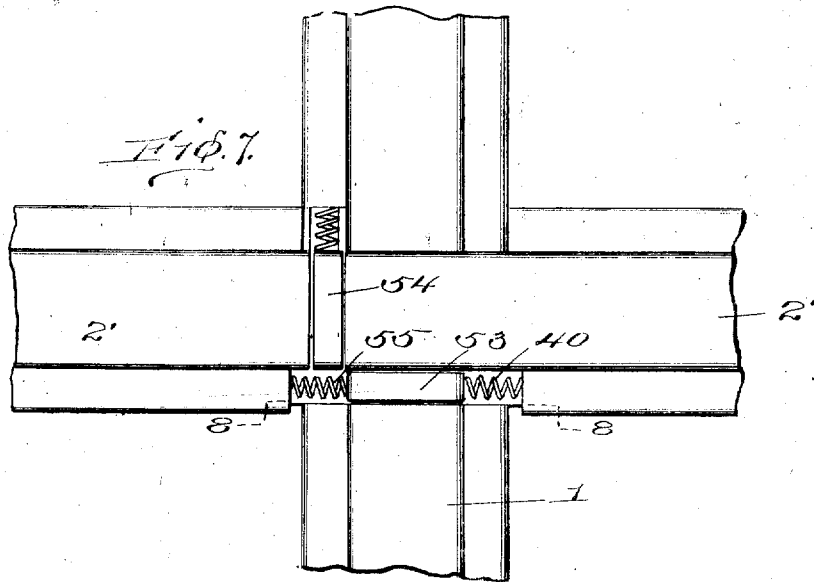
Inventor
John H. Brumback
By *Beall & Fenwick*
E. J. Fenwick his Attorneys

J. H. BRUMBACK.
RAILROAD CROSSING.
APPLICATION FILED NOV. 18, 1910.

986,356.

Patented Mar. 7, 1911

5 SHEETS—SHEET 4.



Inventor

Witnesses

J. M. Fowler Jr.
A. L. Kitchen

By

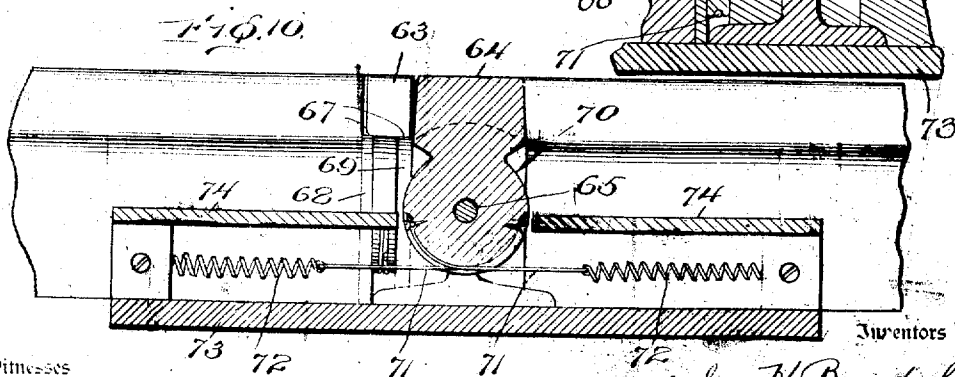
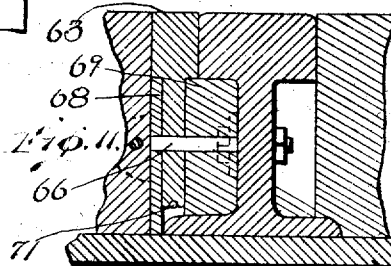
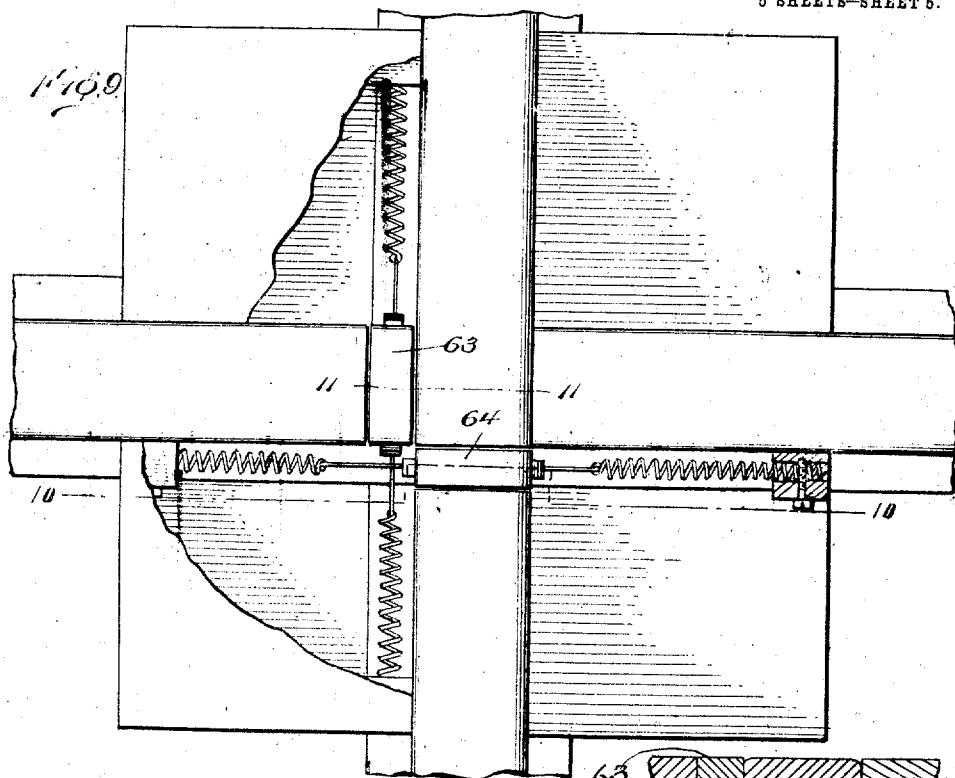
John H. Brumback
Beall & Denwick
E. J. Emurek his Attorneys

J. H. BRUMBACK.
RAILROAD CROSSING.
APPLICATION FILED NOV. 18, 1910.

986,356.

Patented Mar. 7, 1911.

5 SHEETS—SHEET 5.



Witnesses

R. S. Hogner
A. Kitchen

Inventors

John H. Brumback
Beall & Demick
E. J. Farnick his Attorneys

UNITED STATES PATENT OFFICE.

JOHN H. BRUMBACK, OF STRASBURG, VIRGINIA.

RAILROAD-CROSSING.

986,356.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed November 18, 1910. Serial No. 593,106.

To all whom it may concern:

Be it known that I, JOHN H. BRUMBACK, a citizen of the United States, residing at Strasburg, in the county of Shenandoah and State of Virginia, have invented certain new and useful Improvements in Railroad-Crossings, of which the following is a specification.

This invention relates to improvements in railroad crossings, and particularly to improved means arranged at the crossing and forming part thereof for preventing the continual pounding or jolting of the cars as the same pass over a crossing.

The object in view is the arrangement of improved means designed to be actuated by the wheels of trains approaching the crossing for moving supporting members at the crossing where the rails are cut for forming a continuous rail.

With these and other objects in view the invention comprises certain novel constructions, combinations, and arrangement of parts as will be hereinafter more fully described and claimed.

In the accompanying drawings: Figure 1 is a top plan view of a crossing embodying the invention, certain parts being broken away. Fig. 2 is a section through Fig. 1 on line 2—2. Fig. 3 is a section through Fig. 1 on line 3—3. Fig. 4 is a section through Fig. 1 on line 4—4. Fig. 5 is a top plan view of an embodiment of the invention, the tracks and flange operated members being shown in dotted lines. Fig. 6 is a detail fragmentary sectional view of a slightly modified form of the invention. Fig. 7 is a top plan view of another slightly modified form of the invention. Fig. 8 is a section through Fig. 7 on line 8—8. Fig. 9 is a top plan view of a further modified form of the invention, certain parts being broken away. Fig. 10 is a section through Fig. 9 on line 10—10. Fig. 11 is a detail fragmentary sectional view on line 11—11 of Fig. 9.

In constructing a crossing device embodying the invention a block or supporting member is arranged to be either held normally or to be raised flush with the top of the track and to occupy notches or cut out portions therein usually provided for accommodating the flanges of the wheels. These supporting members are designed to be quickly and automatically removed from the path of movement of any of the flanges

of the wheels of a train moving in either direction across the crossing. At the same time that the supporting means is automatically removed in front of the flanges, the supporting means directly in the path of movement of the body of the wheel is rigidly held in position, so as to form a continuous, unbroken track for the wheels as the same pass over the crossing.

In one form of my invention a pair of operating bars and a plurality of connecting mechanisms, together with retractile springs, are used for causing the supporting members to be raised to their proper position at the proper time, and to be retracted or brought to their normal position when not in use. If desired pivotally mounted supporting means may be used and springs for normally maintaining the same in position. Either the preferred or modified forms of the device may be used, but in any event the means are designed to cause a track to present an even surface for the passage of the wheels thereof, regardless of whether or not the same pass over the main line or the cross line.

In order that the invention may be more clearly understood an embodiment of the same is shown in the accompanying drawings, in which—

1 indicates the rails of the main line, and 2 the rails of the cross line. The cross line rails 2 are cut at 3 for permitting the passage of the flange of the wheels of cars on main line rails 1, while main line rails 1 are cut at 4 for permitting the free passage of the flanges of the wheels of cars on the cross line rails 2. The opening 3 is designed to be filled by a supporting bar 5, while the opening 4 is filled by supporting bar 6. These supporting bars 5 and 6 are normally moved to their raised position, as shown in full lines in Fig. 4, and are held in their upper position, as shown in full lines in Fig. 4, when a train is passing over the respective rails. The supporting bar 5 is held in a raised position when a train is passing over the rails of the cross road, while supporting bar 6 is held in a raised position and supporting bar 5 is lowered when a train is passing over the rails 1 of the main line. When not positively held in their raised position the supporting bars 5 and 6 are moved to their lowered position by spring 7, more clearly shown in Fig. 5.

The supporting bars 5 and 6 are lowered respectively by springs 7 upon the depressing of flange engaging bars 8, 9, 10 and 11. When the flanges of the wheels of cars moving over rails 1 engage either of the bars 8 or 9 supporting bar 5 will be depressed and held in a depressed position, so as to form a continuous unbroken rail for the cars and a free passage for the flange of the wheel. The same action is, of course, true in respect to rail 2 and associated means for raising bar 5. When the flanges of the wheels of the cars are removed from any of the bars 8, 9, 10 or 11 the respective bars are moved immediately to a raised position, which will cause the immediate raising of the supporting bars 5 and 6 to their raised or normal position. A car coming from any direction toward the crossing will operate one of the flange engaging bars and lower one of the bars 5 or 6 for forming a continuous rail in front of the car, and will cause the lowering of the other supporting bar. The supporting bar 5 is positioned loosely in opening 3, but is moved to a lowered position as soon as released, by spring 7. A resilient or spring arm 12 loosely engages the same for raising the supporting bar to an elevated position whenever flange bars 10 and 11 are raised. As soon as the supporting bar 5 is raised pivotally mounted supporting pawls 13 and 14 are moved toward each other and engage notched out portions 15 and 16 of bar 5 for rigidly holding the same in an elevated position as long as flange bars 10 and 11 are in a raised position. Suitable springs 17 and 18 are provided for normally tending to force toward each other the pawls 13 and 14, so as to instantly move into the notched out portions 15 and 16 when the retractile cables 19 and 20 are released. Cables 19 and 20 are wound upon journal members 21 and 22, so that when the journal members are turned in one direction pawls 11 and 12 will be moved out of notches 15 and 16 and when moved in the opposite direction the pawls will be permitted to freely enter notches 15 and 16. Journal members 21 and 22 are journaled in rails 2 and have secured thereto crank arms 23 and 24. Pivotaly connected with crank arm 23 is a link 25, and pivotaly connected with crank arm 24 is a link 26. Links 25 and 26 are pivotaly connected together at 27 so that whenever the pivotal connection 27 is raised or lowered movement will be conveyed to journal members 21 and 22 for rocking or partially rotating the same. Connected to links 25 and 26 at 27 is a power link 28 which is pivotaly connected at 29 to flange bar 8 so that whenever flange bar 8 is depressed link 28 will be moved longitudinally in a downward direction, for pulling downwardly on links 25 and 26. This will rotate journal members 21 and 22 so as

to pull upon cables 19 and 20 for removing pawls 13 and 14 from notches 15 and 16. As soon as this is done bar 5 will be moved to its lower position by spring 7. In order to operate link 28 by the depression of bar 9, as well as bar 8, the same are connected together by a connecting bar 30 and a plurality of associated moving parts. These moving parts comprise a plurality of journals 31 and 32 each of which is formed with arms 33 and 34. Arms 33 are pivotaly connected to bar 30, while arms 34 are each connected to a link 35. Links 35 are in turn pivotaly connected with flange bars 8 and 9 respectively, so that whenever either of the flange bars is depressed the links 35 will be moved in a downward direction and transmit movement to arms 34, which movement is conveyed to bar 30 through shafts 31 and 32 respectively, and the respective arms 33 for moving substantially longitudinally the bar 30. From this it will be evident that when either of the flange bars 8 or 9 is depressed link 28 will be moved downwardly for operating mechanism heretofore set forth for releasing bar 5 by pulling pawls 13 and 14 out of engagement therewith. The bars 8, 9, 10 and 11 are all held normally in a raised position by suitable springs 36 and 37. These springs, of course, act in opposition to spring 7, but are sufficiently strong to easily overcome spring 7 and maintain all of the bars 8, 9, 10 and 11, and also supporting bars 5 and 6, in an elevated position until operated by the flange of a train passing over the rails of the track.

Bar 11 has connected therewith a pivotal link 38 which is also pivotaly connected at 39 to a lever 40 pivotaly mounted at 41 upon a suitable bracket connected with one of the rails 2 or mounted in any desired way. Lever 40 has loosely pivoted thereto at 42 an arm 43 preferably somewhat resilient. Arm 43 is pivotaly mounted at 44 to one of the rails 2 so that whenever link 38 is depressed pivotal point 42 will be raised and end 45 of arm 43 will be lowered. The reverse action, of course will be true so that when bar 11 is elevated by springs 36 and 37 pivotal point 42 will be lowered and end 45 will be raised. End 45 is loosely mounted between brackets 46 rigidly secured to supporting bar 6 so that when end 45 is raised the supporting bar 6 will be moved to a raised position for permitting pawls 13 and 14 to engage the same and hold the same in an elevated position in a similar manner to the way pawls 13 and 14 hold supporting bar 5 in an elevated position. Main line rails 1 are provided with a resilient arm 43 similar to arm 43 and the same is also associated with parts identical to the parts associated with arm 43, and therefore will need no further description, the same acting to elevate the supporting bar 5 in a similar

manner to the way supporting bar 6 is elevated.

The pivotally mounted pawls 13 and 14 are mounted in rails 2, and are operated by mechanism loosely connected with rails 1, as heretofore set forth. Pivotally mounted pawls 13' and 14' are mounted in rails 1, and are operated principally by mechanism associated with rails 2, said mechanism corresponding to the mechanism in rail 1 for operating pawls 13 and 14. In other words, the mechanism on one rail, and the associated mechanism for acting therewith, is merely duplicated for the other rail, both mechanisms operating independently of each other. The mechanisms are arranged so that the flange bars are normally in an elevated position, and the supporting bars 5 and 6 are normally in an elevated position. When a train passes over the tracks in either direction the mechanism on the track over which the train passes is operated for lowering the supporting bar which is in the way of the flanges of said train, and as soon as the train has passed the lowered supporting bar is immediately raised and also the flange operated bars 8, 9, 10 and 11 the same are provided with guiding members 47, which permit only an up and down movement in order to cause a proper motion to be imparted to the various journal members and other moving parts. These guiding members, if desired, may be omitted at the ends of the flange bars nearest the crossing as the flange bars may be made to act as a guide one for the other.

In Fig. 6 is disclosed a slightly modified form of the invention in which is disclosed a supporting bar 48 designed to have the same function as supporting bars 5 and 6, but to be mounted pivotally on a supporting journal 49, which journal is held in place in any desired manner, preferably by being connected with the rails of the track. A flat spring 50 is secured in position in any desired manner, and bears against the under surface of the base 52 of support 48, and is designed to return support 48 to its normal upright position, after having been forced therefrom by the flange of the wheel. This form of supporting bar normally fills the notch or opening at the crossing, and remains in an upright position at all times, except when moved from that position by the flange of a wheel mounted on either of the crossing tracks.

In Figs. 7 and 8 is disclosed a further modified form of the invention in which supporting bars 53 and 54 are provided which have the same function as supporting bars 5 and 6. Supporting bar 54 is pivotally mounted upon a journal 55, while supporting bar 53 is pivotally mounted upon a journal 56. Journals 55 and 56 are

shown as supported by a bracket 57, but it will be evident that they may be supported by a plurality of brackets or in any other desired manner for sustaining properly the weight exerted thereon. Supporting bar 53 is provided with a projection 58 which has connected therewith springs 59 and 60 arranged in opposition. Spring 59 is connected with bracket 61, and spring 60 is connected with bracket 62. Springs 59 and 60 are of the same strength and are balanced so as to normally hold supporting bar 53 in a vertical position, but permit the same to be easily moved to one side by the flange of a wheel passing over rails 2'. When a train passes over rails 1' support 54 will be moved to one side and support 53 will remain upright, so as to present a continuous track surface for the wheels of the train. Supporting bar 54 is constructed and provided with similar springs and associated parts as supporting bar 53 and will therefore need no additional description.

In Figs. 9 to 11 inclusive is shown a form of the invention somewhat similar to that shown in Figs. 7 and 8. Referring more particularly to these figures, 63 and 64 indicate supporting bars pivotally mounted on suitable journal bars 65 and 66. Each of the supporting bars 63 and 64 is formed with shouldered portions 67 designed to rest against supports 68 and 69 when considerable pressure is brought to bear on the respective members 63 and 64. The members 68 and 69 have the upper ends formed arc-shaped with the center of the arc at a point coincident with the center of the respective journals 65 and 66, so that the members 63 and 64 may easily turn upon their journals, and yet slidably engage the supports 68 and 69. The arrangement of the shouldered portions 67 and the supports 68 and 69 is of considerable importance as these means practically take all the strain off of the journals 65 and 66 when a train passes over the respective members 63 and 64. In constructing the members 63 and 64 the same are preferably formed almost circular in shape at the bottom part 70, to which is secured suitable cables 71 connected with suitable springs 72 which normally hold the respective members 63 and 64 in the position shown in Fig. 9. The crossing is also provided preferably with a base plate 73 for acting as a suitable support for the ends of the rails, and for the members 68 and 69. In addition to plate 73, which is preferably constructed of metal, there are also a plurality of plates 74 arranged to almost contact with the portions 70 of members 63 and 64, so as to protect the operating parts of the device, and prevent foreign matter from passing to the lower parts of the device.

What I claim is:

1. In a device of the character described, a supporting bar arranged in each flange opening at the crossing of rails, each of said supporting bars being formed with a shoulder portion, means arranged to engage said shoulder portion for supporting the bars and assisting the bars in resisting a vertical pressure, and means for normally maintaining said supporting bars in a vertical position.
2. In a device of the character described, a supporting bar arranged in each flange opening at the crossing of rails, means for pivotally supporting the same, a pair of retractile springs for normally holding the bar in a vertical position and yieldingly resisting the pivotal movement of the bar, and a pair of bracing supporting members engaging the supporting bar for holding the same in an elevated position against a vertical pressure.
3. In a device of the character described, a supporting bar arranged in each flange opening at the crossing of rails, means for normally holding the supporting bar with the upper end flush with said rails, a flange operated bar, a plurality of levers connecting said flange operated bar and said supporting bar for causing said supporting bar to be released when the flanges of the wheels of a train press against said flange bar, a

spring for moving said supporting bar so that the upper end of the same will be below the upper surface of said rail and in such a position as to leave the flange opening unobstructed, and retractile means acting on said flange bars for moving the same back to their original position when the flanges of the wheels of the train passing thereover have been removed therefrom.

4. In a device of the character described, a supporting bar arranged in each flange opening at the crossing of rails, means for normally holding said supporting bars in an elevated position for filling said opening, a flange operated bar, means for connecting said flange operated bar and said first mentioned means for causing said first mentioned means to release said supporting bars when the flanges of the wheels of a train press against said flange bar, and means for moving said supporting bars for leaving said opening unobstructed when the means holding said supporting bars have been released.

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

JOHN H. BRUMBACK.

Witnesses:

E. O. LARINK,
H. G. CANTER.