



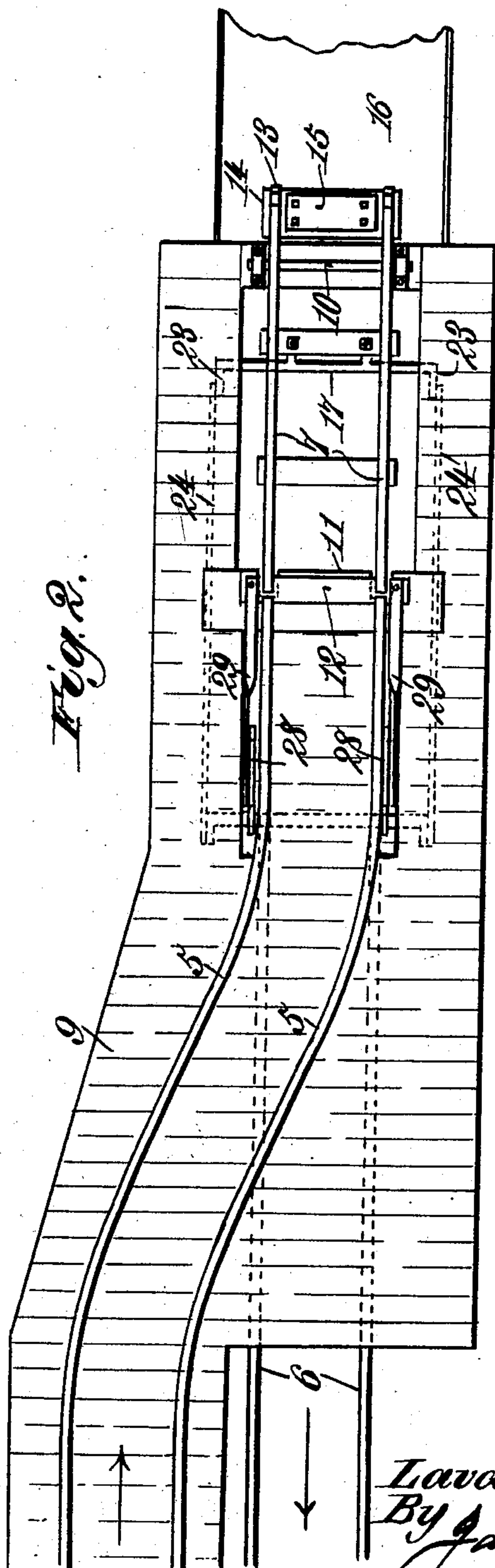
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L. L. LOGAN.  
CAR HANDLING APPARATUS.  
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NO MODEL.

2 SHEETS—SHEET 2.



Witnesses,  
*Robert Corbett,*  
*J. B. Keefe*

Inventor,  
*Lavalette L. Logan,*  
By *James L. Norrie,*  
*Atty.*



## UNITED STATES PATENT OFFICE

LAVALETTE L. LOGAN, OF ROBERTSDALE, PENNSYLVANIA.

## CAR-HANDLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 753,719, dated March 1, 1904.

Application filed May 15, 1903. Serial No. 157,278. (No model.)

*To all whom it may concern:*

Be it known that I, LAVALETTE L. LOGAN, a citizen of the United States, residing at Robertsdale, in the county of Huntingdon and State of Pennsylvania, have invented new and useful Improvements in Car-Handling Apparatus, of which the following is a specification.

This invention relates to a car-handling apparatus, this title having been selected merely as a convenient one, for the reason that the invention has been found highly advantageous for the purpose set forth in said title. The invention, however, may be used with equal facility in other fields.

The apparatus includes tracks upon which cars are adapted to travel and automatic mechanism for causing a car to be transferred from one track to another, the parts being so organized in the present case that the contents of a car are discharged therefrom after it leaves one track and before it passes onto another.

In the adaptation of the apparatus illustrated in the accompanying drawings, forming a part of this specification, said apparatus includes two tracks, a shiftable track-section normally in working relation with one of said tracks and movable into working relation with the other track, and automatic means for operating said shiftable track-section, the car being discharged while upon said shiftable track-section. In order to secure simplicity, the tracks in question are mounted in superposed relation or at different levels, the shiftable track-section normally constituting, in effect, a continuation of the upper one, so that a car can pass from said upper track onto the shiftable track-section and after it is dumped can be transferred by said shiftable track-section to the lower track.

I wish to state at this point that I do not limit myself to the exact disclosure made by the drawings above mentioned and the following description, for, as I consider myself a pioneer, material and divers changes may be made in the character and relation of the parts, as well as other features, within the scope of my claims succeeding said description.

Referring to the drawings, Figure 1 is a

side elevation of an apparatus involving my invention. Fig. 2 is a plan view of said apparatus.

Like characters refer to like parts throughout the views.

The apparatus in the form thereof illustrated by the accompanying drawings involves in its construction tracks 5 and 6, which are represented as being in superposed relation or one above the other. Of course when I speak of said tracks being "superposed" I mean that this relation is adopted near their outer ends, for it is not essential what their relation be at a point remote from that at which the cars are dumped. The upper track is preferably at a slight downward inclination in order to facilitate the gravitation of the filled cars onto a shiftable track-section, as 7. The framework for carrying the tracks 5 and 6 and the shiftable track-section 7 is denoted in a general way by 8, and as it may be of any suitable character a detailed description of the same is deemed unnecessary except to remark that it is provided along its top with a deck or platform 9, upon which attendants may walk to reach the cars. The shiftable track-section 7 is illustrated as being oscillatory in order that it may be tipped to secure the emptying of a car thereon.

The oscillatory track-section is suitably fastened to a rock-shaft 10, carried by suitable bearings upon the framework 8. Said oscillatory track-section 7 is normally in working relation with the upper track 5, it constituting virtually a continuation of said upper track, as seen by full lines in Fig. 1. The distance between what might be considered the inner or left end of the shiftable or oscillatory track-section and its center of motion is greater than that between the opposite end and said center of motion, and I provide means for positively preventing the depression of the left hand or inner portion of said track-section as a car enters the same, and the means illustrated for this purpose will now be set forth.

Fastened to the outer ends of the side girders constituting a part of the framework 8 is a beam or bracket 11, represented as being



section, and in a plane un-  
 the terminal rails of the  
 which terminal rails  
 section are adapted to  
 approximately so when said track-section  
 is in working relation with said upper  
 track. A web of said beam projects out-  
 ward beyond the free ends of said terminal  
 rails and a latch 12 of said track-section  
 when the latter is in the position shown by  
 full lines in Fig. 1. This beam or bracket 11  
 constitutes a suitable support for a latch 12,  
 which engages under the inner free end of the  
 shiftable track-section 7, so as to maintain the  
 latter in its normal position or approximately  
 in line with the upper track 7. This latch 12 is  
 slidable inwardly, so as to be moved from under  
 the inner free end of the shiftable track-section  
 in order to release the inner free end of said  
 track-section, whereby the left branch of said  
 track-section, which, it will be seen, is of ap-  
 proximately lever form, may drop in order  
 to bring its inner end into working relation  
 with the entering end of the lower track 6, as  
 shown by dotted lines in Fig. 1, so that an  
 empty car from said track-section can pass  
 therefrom and onto the said lower track. As  
 the inner branch of the movable track-section  
 moves downward the inner ends of the rails  
 thereof pass through the notches or apertures  
 in the outer edge of the beam or bracket 11,  
 which notches were uncovered by the latch as  
 it was moved into its ineffective position.  
 This latch, as will hereinafter appear, is auto-  
 matically operated.

It will be assumed that a car has been run  
 onto the shiftable track-section 7 and that its  
 contents have been discharged, which opera-  
 tion takes place at the outer end of said track-  
 section: After the car has been emptied the in-  
 ner portion of said track-section is caused to au-  
 tomatically drop to bring the inner ends of the  
 rails thereof into coincidence with the entering  
 ends of the rails of the lower track 6, where-  
 by the empty car can pass from the track-  
 section onto said lower track, it being under-  
 stood, of course, that said track-section at this  
 time is at an inclination, so that the empty car  
 can freely pass onto the said lower track. The  
 outer portion of the lower track is first at a  
 descending inclination and then at an ascend-  
 ing inclination, so as to insure the travel of the  
 empty cars onto the inner and slightly down-  
 wardly-inclined portion of said lower track.

The outer end of the track-section 7, or that  
 branch thereof to the right of its center of  
 motion, has a stop or bumper 13 for the cars,  
 against which stop or bumper the forward  
 wheels of said car are adapted to strike. This  
 stop may be formed by curving the outer ends  
 of the rails of said track-section upward. Said  
 rails at the right of the center of motion are  
 united upon their under sides by a plate 14,

to the upper side of which is suitably fastened  
 a weight 15, which slightly overbalances the  
 left branch of the track-section, and the pur-  
 pose of which is to return said track-section  
 to its normal position after the delivery of an  
 empty car onto the lower track. The right  
 branch of the track-section should be of such  
 a length that when a filled car is upon said  
 track-section the center of gravity of the filled  
 car will be to the outside or right of the cen-  
 ter of motion of said track-section, whereby  
 the right branch of the latter will be lowered  
 and the left one elevated, the parts being so  
 proportioned generally that upon such motion  
 the track-section will assume an angle of about  
 thirty degrees to the horizontal, as indicated  
 by dotted lines in Fig. 1, whereby the filled  
 car upon the track-section will be automat-  
 ically tilted, so that its contents can pass there-  
 from and onto a chute or runway 16, located  
 with its entering end in proximity to the shaft  
 10. It will be understood that when the for-  
 ward wheels of the filled car strike against  
 the stop or bumper 13 the right branch of the  
 track-section is lowered and that the left one  
 is elevated in order to effect automatically the  
 dumping of said car, as will hereinafter be  
 more fully set forth.

A horizontally-disposed rock-shaft 17 is car-  
 ried by suitable bearings upon the diagonally-  
 disposed parallel struts 18, constituting part  
 of the framework 8, which struts are united  
 upon their upper sides by suitable ties in order  
 to provide a rigid structure for upholding the  
 inner branch of the track-section when the  
 same is lowered, as previously indicated. The  
 deck or platform 9 at its outer end of course is  
 cut away to permit the free downward-tilting  
 movement of the track-section. Parallel arms  
 19 depend from the rock-shaft 17 and are  
 united near their lower ends by a weight 20,  
 which normally rests against a suitable buffer  
 on the framework 8. The arms 19 and con-  
 necting-weight 20 constitute a suitable lever  
 for automatically operating the track-section  
 7 to bring the same into coincidence with the  
 lower track 6, and the arms 19, constituting a  
 part of the same, have outwardly-disposed an-  
 gular portions connected by the cross-rod 19',  
 which passes through longitudinal slots in the  
 links 21. The upper ends of these longitudi-  
 nally-slotted links are united with the eye-  
 bolts 22, depending from the under side of  
 the track-section 7 at the left of its axis. By  
 this construction provision is made for a cer-  
 tain amount of lost motion between the lever  
 and shiftable track-section. In other words,  
 the connections between the shiftable track-  
 section and the actuating shifting-lever there-  
 for involve a sliding or loose joint.

At the opposite ends of the rock-shaft 17 are  
 aligned crank-arms 23, having pins working in  
 longitudinal slots at the forward ends of the  
 connecting-rods 24. The rear ends of these



connecting-rods 24 are pivoted to the lower ends of the crank-arms 25, depending from the rock-shaft 26. From the upper side of the rock-shaft 26 crank-arms 27 rise, said crank-arms having elbow-shaped forwardly-extending branches 28, the purpose of which will hereinafter appear. At the junction of the bodies of the arms 27 with their branches 28 are pivoted the straps 29, the forward ends of which are suitably united to the sliding latch 12. The crank-arms 25 and 27 and shaft 26 constitute a rocker for transmitting the motion of the counter-weighted lever hereinbefore mentioned to the latch 12, and it will be understood that the connections between said parts involve a sliding or slip joint in order, as in the other case hereinbefore mentioned, to provide for a certain amount of lost motion of one of the parts relative to another.

The purpose of the weight 20 is to lower the left or inner branch of the track-section 7 automatically into registration with the lower track 6 after the contents of a car have been discharged therefrom and all the wheels of said car placed upon said track-section, said weight being automatically elevated by virtue of its connection with the track-section when the inner branch of the latter is raised by a loaded car, as hereinbefore indicated.

It will be assumed that a filled car has been run from the track 5 onto the track-section 7 and that said track-section has been tipped. After the track-section has reached an angle of thirty degrees to the horizontal, as hereinbefore indicated, the car will be further tipped automatically to such an angle that the contents thereof can freely gravitate onto the chute or runway 16. When said track-section is in its normal position, the lower walls of the longitudinal slots in the links 21 will be in contact with the cross-bar 19', so that the instant that the left branch of said track-section is elevated a corresponding motion follows with respect to the weight 20 through the elevation of the arms 19. The weight will be carried toward the horizontal line, it being understood that the load upon the track-section at the right of the center of motion thereof overbalances said weight 20. The moment of the weight 20, however, when the latter is in its elevated position exceeds that at the right of said center when the car is empty. As soon as the car is emptied, it is swung downward by an attendant, so as to bring its rear wheels onto the track-section, and when this condition is reached the weight 20 can lower, and as it does so it pulls down on the links 21, and hence on the left branch of the track-section 7. As the downward movement of the weight 20 is an accelerated one, it will serve to carry said left branch downward to bring the inner end thereof into correspondence with the outer end of the lower track 6, it being understood that the latch 12 has been thrown to its ineffective

position during the initial upward movement of the track-section 7. As just stated, the weight 20 during its descent has a rapid motion, so as to impart, through the intermediate connections, a corresponding motion to the shiftable track-section, whereby when said weight strikes its bumper (at which point the track-section will be in a horizontal position) said track-section will be carried by its momentum into registration with the lower track. This latch is operated from the weighted arms 19 mentioned. As the said weighted arms 19 are moved upward they serve, through the intermediate crank arms 23, to draw the connecting-rods forward, whereby through the agency of the straps 29, operatively connected, as hereinbefore set forth, with said rods, the latch 12 is moved from under the inner free end of the track-section. As the latch upon the initial movement of the track-section is thrown to its ineffective position the left branch of said track-section may be lowered by the falling weight 20 in order to permit the rolling of an empty car from said track-section onto the lower track. As soon as the empty car passes from the track-section onto said lower track the weight 15, which at this time is in its elevated position or that of its highest efficiency, can lower in order to return the track-section to its initial position, with the inner free end thereof in line with the upper track 5. When the weight 20 was elevated in the manner hereinbefore described, the arms 19 acted, through the intermediate connections, to draw the connecting-rods 24 to the right to shift the latch 12 into its ineffective position. By virtue of the sliding or loose connection between the crank-arms 23 and said rods 24 said weight as it returns to its initial position to effect the automatic operation of the track-section will not thrust the rods 24 rearward or to the left, as in case it did the latch would be put into its effective position to block the complete return movement of the shiftable track-section 7. Means operative independent of said weight 20 are provided for returning the latch to its normal or effective position. When the weight 20 strikes its buffer, the pins at the free ends of the crank-arms 23 will be at or near the inner ends of the slots in said connecting-rods, said pins traversing said slots during the falling of said weight. The free ends of the angular branches 28 as the rods 24 are drawn toward the right under the action of the ascending weighted arms 19 are elevated to a point above the top of the track 5 and in position to be engaged by the treads of the forward wheels of a filled car, it being understood that the said free ends are located back of the junction between the free end of the track 5 and the inner free end of the track-section 7. Of course the free ends of the branches 28 are maintained in this position until they



are engaged by the treads of the forward wheels of a filled car. As soon as said treads strike said free ends the branches 28 will be lowered to their initial positions, whereby the crank-arms 25 are swung toward the left, the rods 24 moving into corresponding directions, so as to carry the outer ends of the slots in said rods against the pins at the free ends of the crank-arms 23. During the lowering of said branches 28 by the wheels the rods or straps 29 are thrust toward the right, so as to carry the sliding latch 12 under the inner free end of the track-section 7, which latter in the interval had resumed its primary position. By virtue of the loose connection between the track-section 7 and the links 21 the inner branch of said track-section can have a lowering movement without imparting a thrust to the weighted arms 19. During the ascending movement of said inner branch under the action of the weight 15 the links 21 will have an ascending movement relatively to the at this time stationary weighted arms 19, and when the track-section reaches its normal position the lower walls of the slots of said links will strike the cross-bar 19' in order to positively arrest said track-section when it reaches said normal position, it being understood that the weight 15 underbalances the weight 20. Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An apparatus of the class described including superposed tracks, a track-section shiftable into working relation with the respective tracks, and automatically-operative mechanism for causing the operation of said shiftable track-section.

2. An apparatus of the class described including superposed tracks, and an oscillatory track-section shiftable into working relation with the respective tracks.

3. An apparatus of the class described including superposed tracks, and a track-section supported for oscillation between its ends and movable into working relation with the respective tracks.

4. An apparatus of the class described including superposed tracks, a track-section supported for oscillation between its ends, adapted normally to occupy a position in working relation with the upper track and shiftable into working relation with the lower track, and a latch for holding said track-section in its normal position.

5. An apparatus of the class described including superposed tracks, a track-section supported for oscillation between its ends, adapted normally to occupy a position in working relation with the upper track and shiftable into working relation with the lower track, a latch for holding said track-section in its normal position, and mechanism operative with

the said track-section for moving the latch into its ineffective position.

6. An apparatus of the class described including superposed tracks, a track-section supported for oscillation between its ends, adapted normally to occupy a position in working relation with the upper track and shiftable into working relation with the lower track, a latch for holding said track-section in its normal position, mechanism operative with the said track-section for moving the latch into its ineffective position, and independent means for moving the latch into its operative position.

7. An apparatus of the class described including superposed tracks, a track-section supported for oscillation between its ends, adapted normally to occupy a position in working relation with the upper track and shiftable into working relation with the lower track, a latch for holding said track-section in its normal position, mechanism operative with the said track-section for moving the latch into its ineffective position, and car-operated means for moving said latch into its effective position.

8. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, supported for oscillation between its ends and its inner branch being longer than its outer one, a latch for holding the track-section in its normal position, and automatic mechanism for throwing the said latch into its ineffective position and for subsequently moving the track-section into working relation with the lower track.

9. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, supported for oscillation between its ends, its inner branch being longer than its outer one and the latter having a car-stop, a latch for holding the track-section in its normal position, and automatic mechanism for releasing said latch and subsequently moving the said track-section into working relation with the lower track.

10. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, supported for oscillation between its ends and its inner branch being longer than its outer one, means for holding the track-section in its normal position, mechanism for moving the track-section into working relation with the lower track, and independent means for subsequently returning said track-section to its normal position.

11. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, and automatically-operative mechanism for moving the track-section out of its normal



position and into working relation with the lower track and for subsequently returning said track-section to its normal position.

12. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, supported for oscillation between its ends and its inner branch being longer than its outer one, the latter having a stop for a car whereby when the car strikes said stop, said inner branch can be elevated by the weight in the car, automatically-operative mechanism thrown into action by the elevation of said inner branch for lowering the latter into coincidence with the lower track, and means for returning said track-section to its initial position.

13. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track and shiftable into working relation with the lower one, a latch for holding the track-section normally in its working position, and automatic mechanism for operating the latch to effect the release of the shiftable track-section.

14. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, supported for oscillation between its ends and its inner branch being longer than its outer one, and an operating device for moving the shiftable track-section into working relation with the lower track, connected to said track-section by means involving a loose joint.

15. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, supported for oscillation between its ends, a weighted lever constituting a device for shifting the track-section into working relation with the lower track, and a longitudinally-slotted link connecting the track-section and weighted lever.

16. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track supported for oscillation between its ends and its inner branch being longer than its outer one, a weighted lever operatively connected with the said longer branch by means involving a loose joint, and a latch for holding the track-section in its normal position, operatively connected with said weighted lever, said lever serving to throw the latch into its ineffective position.

17. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, supported for oscillation between its ends and its inner branch being longer than its outer one, a weighted lever operatively

connected with the said longer branch by means involving a loose joint, and a latch for holding the track-section in its normal position operatively connected with said weighted lever, said lever serving to throw the latch into its ineffective position, and means in position to be operated by a car upon the upper track for moving the latch into its effective position.

18. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, supported for oscillation between its ends and its inner branch being longer than its outer one, a latch for holding the track-section in its normal position, a weighted lever, a longitudinally-slotted link connected with the longer branch of the track-section and also with the weighted lever, a rocker operatively connected with the latch, and a longitudinally-slotted rod also connected with the rocker and operatively connected with said lever.

19. An apparatus of the class described including superposed tracks, the lower one of which has first a downward and then an upward inclination, and an oscillatory track-section shiftable into working relation with the respective tracks.

20. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, supported for oscillation between its ends and its inner branch being longer than its outer one, and independent means acting against the branches for moving said track-section in opposite directions.

21. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, supported for oscillation between its ends and its inner branch being longer than its outer one, a weight carried by the outer branch, and a counterweighted lever connected with the inner branch by means including a loose joint.

22. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, supported for oscillation between its ends, and its inner branch being longer than its outer one, a bracket supported below the free end of the upper track, having notches for the passage of the rails at the inner end of said track-section, and a latch supported by said bracket and adapted to normally engage under the inner free end of said track-section.

23. An apparatus of the class described including superposed tracks, a track-section normally in working relation with the upper track, supported for oscillation between its ends and its inner branch being longer than



its outer one, a counterweighted lever, a longitudinally-slotted link connecting the lever and inner branch of the track-section, a rocker, the upper arm of which has a branch disposed  
5 in proximity to the upper track, a rod connected with the lower branch of the rocker and operatively connected by means including a loose joint with said weighted lever, a latch normally engaging under the inner branch of

the track-section, and a connection between 10 the upper branch of said rocker and the latch.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LAVALETTE L. LOGAN.

Witnesses:

W. S. DE VORE,

MICHAEL DEMPSEY.