

(No Model.)

M. S. PITTMAN.
STATIONARY RAILWAY SWITCH.

No. 568,957.

Patented Oct. 6, 1896.

Fig. 1.

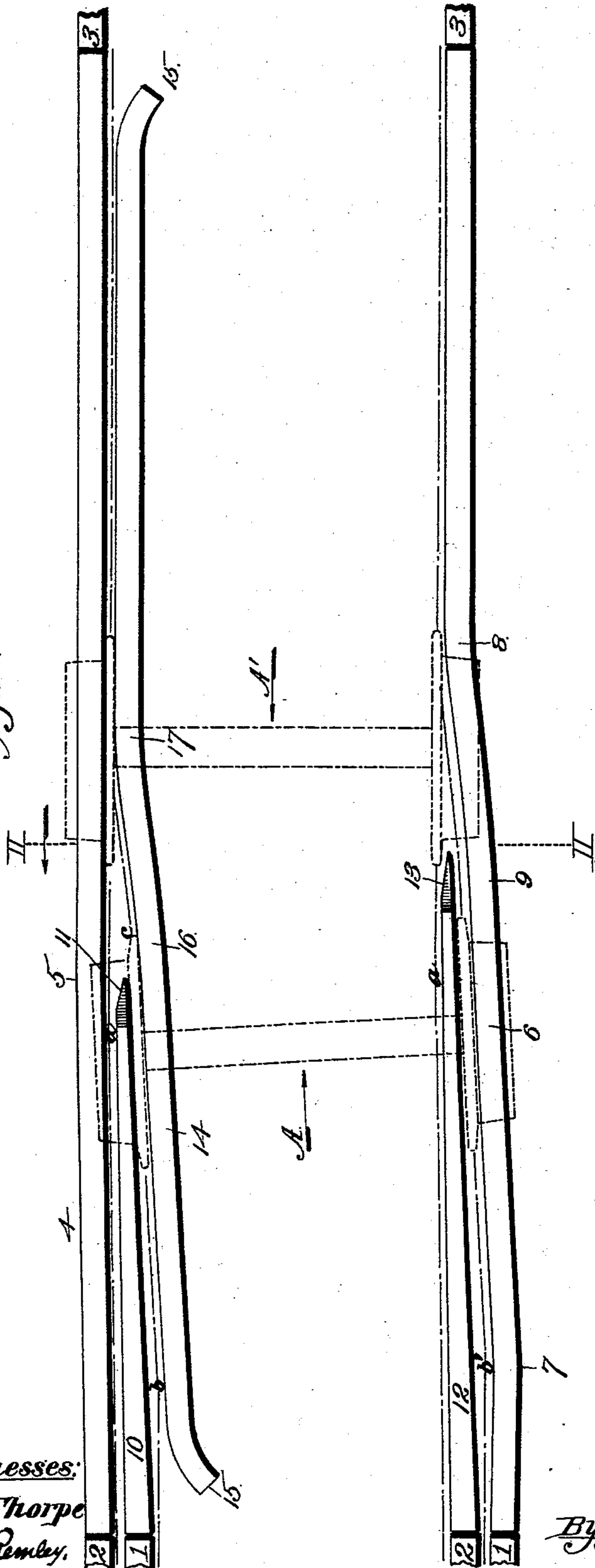


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

MOSES S. PITTMAN, OF INDEPENDENCE, MISSOURI, ASSIGNOR OF ONE-HALF
TO JOHN W. WOOD, OF SAME PLACE.

STATIONARY RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 568,957, dated October 6, 1896.

Application filed July 25, 1896. Serial No. 600,487. (No model.)

To all whom it may concern:

Be it known that I, MOSES S. PITTMAN, of Independence, Jackson county, Missouri, have invented certain new and useful Improvements in Stationary Railway-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to stationary railway-switches, and is designed particularly as an improvement on a switch embodied in my application for patent filed February 24, 1896, Serial No. 580,604, and which has been found objectionable in practice in that in passing onto the single track the lateral swerve or movement of the car is too great and is considered slightly dangerous for a train running at a very high rate of speed. That this difficulty has been overcome in great measure will be apparent from a careful consideration of the following specification, in connection with the drawings.

The novel features of the invention are set forth in appended claims.

Referring now to said drawings, Figure 1 represents a plan view of a stationary switch constructed in accordance with my invention. Fig. 2 is a vertical cross-section taken on the line II II of Fig. 1.

Similar reference-numerals designate corresponding parts.

11 designate the right-hand rails of a double section of track, and 22 designate the rails of the left-hand section of double track.

33 designate the single-track rails, and they are arranged in longitudinal alinement with the track-rails 2.

4 designates the rail which connects the left-hand rails 2 and 3, when viewed in the direction indicated by the arrow A. Said rail, in contradistinction to the corresponding rail in the aforesaid application for patent, is bent outwardly, so as to form a slight obtuse angle, the apex of which occupies a vertical plane outward of the longitudinal line of the track-rails 2 and 3, as shown at 5. This angle may be more clearly seen if the drawing is held near the plane of and with the rail in longitudinal alinement with the eye.

6 designates the rail which connects the right-hand track-rail 1 and the right-hand

track-rail 3, and owing to the fact that said rails are not in longitudinal alinement the rail 6 must be bent to properly connect them. To accomplish this, the said rail, a short distance from the end of the rail 1, is bent, as shown at 7, and at a suitable point is bent in the opposite direction, as shown at 8. It is also bent, as at 9, at a point about two-thirds of the distance between the bends 7 and 8, but this bend 9 is simply a more abrupt continuation of the bend 7. The rail is arranged so that the apex of the bend 7 occupies a plane slightly outward of the right-hand track-rail 1, while that portion between the bend 8 and the track-rail 3, with which said portion connects, extends parallel to that portion of the rail 4 between the reference-numeral 5 and the left-hand track-rail 3, and consequently the rail 6 at the point 8 is inward of the longitudinal line of the right-hand track-rails 2 and 3, as may be clearly seen by viewing it in the manner hereinbefore described with reference to the rail 4 or by placing a straight-edge or ruler upon it.

10 designates the short pointed rail. Said rail forms a continuation of the left-hand track-rail 1 and extends from said rail to a point opposite the apex 5 of the rail 4. It is beveled at both sides, and its inner margin extends approximately parallel to the inwardly-slanting portion of the rail 6 lying between the points 7 and 9, while its outer margin extends parallel to the outwardly-slanting portion of the rail 4 lying between the connecting-rail 2 and the apex of the bend 5. The general disposition of the rail 10 therefore is an outward angle from the connecting-rail 1. Said rail at its outer side is beveled to a point, as shown at 11, the inclination of said bevel being toward the single track and the opposite or right-hand track-rails, or, in other words, said bevel extends divergently from that portion of the rail 4 lying between the reference-numerals 2 and 5.

12 designates the long pointed rail, which forms a continuation of the right-hand track-rail 2. The general disposition of this rail is inward from said track-rail, so that its inner beveled margin extends approximately parallel with the inner margin of that portion of the track-rail 4 lying between the reference-

numerals 2 and 5, while its outer beveled margin extends approximately parallel with the inclined portion of the rail 6 lying between the reference-numerals 7 and 9. This pointed rail projects some distance beyond the end of the pointed rail 10, and at its inner side is beveled abruptly to a point, as shown at 13, such bevel extending approximately parallel with the beveled surface 11 of the rail 10, so that the extreme point of said rail 12 shall lie slightly outward of the plane of the apex of the bend 8 of the rail 6. The point of said rail may be also slightly rounded at its opposite side, and the same is true of the pointed end of the rail 10.

14 designates the guard-rail, which is arranged inward of the rails 4 and 10 and extends, preferably, from a point adjacent to the track-rail 1 to the track-rail 3 and at its opposite ends is bent or curved outwardly in the customary manner, as shown at 15. Said rail extends approximately parallel with the portion of the rail 6 lying between the numerals 7 and 9, and just beyond the end of the short pointed rail 10 is bent, as at 16, to increase the abruptness of the slant, and said portion 16 is also made slightly more abrupt than the portion of the rail 6 lying between the reference-numerals 8 and 9, for a purpose which is hereinafter explained. Adjacent to the rail 4 said rail 14 is bent in the opposite direction, as shown at 17, and from the numeral 17 extends parallel to that portion of the rail 4 lying between the reference-numerals 3 and 5. It will be observed in this connection that the bend 17 is forward of the point of the long rail 12, but that when a truck is traveling in the direction indicated by the arrow A' the flange of the left-hand wheel overlaps the beveled end 13 of said pointed rail before the flange of the companion wheel escapes from the controlling influence of the guard-rail 14 forward of the bend 17. In other words, the right-hand wheels of the truck, when traveling in the direction indicated by the arrow A', are caused to move parallel with that portion of the guard-rail between the bend 17 and its front end, and this motion is continued positively and reliably in the same direction until the flange of the left-hand wheel of the same axle overlaps the inner side of the pointed rail 12, so that it is absolutely impossible as long as the rails maintain their relative positions for a train moving in the direction indicated to take the left-hand track. It will be noted in this connection that the distance between the bend 17 and the point of the rail 12 may be varied considerably, provided it never be so great as to permit the right-hand wheel to pass entirely beyond the controlling influence of the guard-rail before the corresponding left-hand wheel overlaps the beveled end 13 of said pointed rail.

It is to be understood that by "controlling influence" I do not mean that the flanges of said wheels shall synchronously contact with

or overlap the points mentioned of said rails, but that such points must be sufficiently near together to insure that no swerve of the wheels can possibly take place before the left-hand wheel would actually overlap the pointed rail 12. In other words, I mean that at whatever speed the train or car be moving it will be too great for a swerve of the wheels to take place after leaving the guard-rail and before reaching the pointed rail.

Immediately the left-hand flange has overlapped the beveled end of the long pointed rail said pointed rail becomes the controlling influence which determines the direction of the movement of the train and guides the train until the right-hand wheel has passed or overlapped the beveled end of the short pointed rail 10 and has come into frictional contact with the inner side of the rail 4 at a point between the track-rail 2 and the apex 5. Immediately this contact takes place said portion of the rail becomes the controlling influence in turn and causes the train to imperceptibly swerve and follow the inclination of the rails 4 and 12 until it has cleared the switch and passed upon the right-hand track-rails 2, as will be readily understood. By this arrangement it will be seen that a train passing in the direction indicated by the arrow A' swerves imperceptibly outward upon the rails 4 and 6 until it has cleared the ends of the pointed rails and then reverses such movement until it passes upon the track-rails 2, and it will also be noted that by having that portion of the guard-rail between the numeral 17 and its front curved end of greater length than the distance between the front and rear wheels of the truck the latter is positively and reliably aligned or lined up, so that it will without fail pass the points of the rails 12 and 10 successively at their inner and outer sides, respectively, this movement being made still more positive and reliable by reason of the fact that the left-hand wheel overlaps the point of the rail 12 before the right-hand corresponding wheel can change its position, as hereinbefore pointed out. The movement or direction of the truck when passing said point is indicated clearly by dotted lines a.

When the train travels in the direction indicated by the arrow A, the flange of the left-hand wheel after the truck leaves the rail 1 comes first in contact with the guard-rail 14, as at b, and changes its movement slightly to correspond approximately to the inclination of said guard-rail. This slight shift or pivotal movement is accommodated at the opposite side by reason of the fact that the rail 6 is bent outwardly, as shown at 7, which increases slightly the distance between said rail and the pointed rail 12 at the point b', this increased space being desirable to permit the right-hand wheel to swing slightly in the line of its new direction of travel. The truck then continues until the flange of the left-hand wheel clears the point of the short

rail and comes in contact with the bend 16 of the guard-rail, which of course again slightly changes the direction of movement of the truck. At the same time, however, that this change in movement takes place the weight of the car is shifted from the narrow or pointed end of the rail 10 to the undiminished rail 4, as indicated clearly in dotted lines. The truck of course follows this new direction until the flange of the left-hand wheel comes in contact with the rail 4, when its movement is again slightly changed and it follows the direction indicated by the broken lines *a* until it passes upon the single-track rails 3.

By bending or disposing the left-hand rails outward, that is, rails 4 and 10, and the right-hand rails inward, viz., rails 12 and 6, from their points of connection with the rails 1 and 2, respectively, it will be apparent that the train, in a length of five feet, more or less, gains or creeps about an inch to the left without any perceptible jar or jolt or swerve, which is just half the swerve or lateral movement that must take place when the train shifts from the right-hand double to the single track, and the remaining portion or other half of the necessary lateral movement or swerve of the train takes place between points represented by the letter *c* and the bend 17 of the guard-rail, a distance of about two or three feet.

As arranged in my aforesaid application, and in practice, nearly all of this swerve or lateral movement takes place in a length of about three feet, and it is practically impossible to increase such distance without using the bent rail 4 in place of the corresponding straight rail 1 of said application and of course making the remaining rails correspond to the inclination of said bent rail. In a complete working device the swerve to the left has been diminished fully one-half and would hardly be noticed in actual practice.

It will furthermore be noted that the extreme point of the rail 10, by reason of beveling it, as shown at 11, is inward of the vertical plane represented by the outer margin of the inclined portion of the rail 14, extending from the numeral 17 forward, so that irrespective of the beveled end of the rail 12 the tendency of said pointed rail 10 will be to deflect the car to the right when traveling in the direction indicated by the arrow *A'*. If said rail were not so beveled, it would be possible, though not probable, for the flange of the right-hand wheel traveling in the direction named to strike the point of said rail and possibly wreck both the switch and the train.

From the above description it will be apparent that by inclining or bending the rails 4, 10, 12, and 6 to the left when looking toward rails 3 from a point adjacent to rails 1 and 2 and by inclining or bending said rails 4 and 6 to the right when viewing them from their opposite ends and of course in the opposite direction, the train is caused to pass

the switch with but little lateral movement or swerve. In other words, by bending the rails 4 and 6 as shown and by disposing the remaining rails at the angles shown the train is caused to swerve slightly in traveling in either direction upon the switch, but so slightly, particularly when traveling in the direction indicated by the arrow *A'*, as to be almost imperceptible to the occupants thereof. In my other switch the entire swerve is made when passing from the double track to the single track. In this, when passing from the double to the single tracks the swerve is hardly noticeable, but when passing from the single to the double track there is also a slight deflection from the true course which does not take place in my other construction, but which, being so very gradual, is not perceptible to the occupants of the train.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A stationary railway-switch, comprising a pair of double-track rails, single-track rails in alinement with the double-track rails, a bent rail connecting one of the double-track rails with one of the single-track rails, and having the bent portion or apex thereof disposed outwardly of the longitudinal line of said connected rails, a pointed rail 12, forming a continuation of the companion double-track rail and inclining inwardly thereof, and a rail connecting with the other single-track rail and inclining inwardly toward the free end of the pointed rail, substantially as described.

2. A stationary railway-switch, comprising a pair of double-track rails, single-track rails in alinement with the double-track rails, a bent rail connecting one of the double-track rails with one of the single-track rails, and having the bent portion or apex thereof disposed outwardly of the longitudinal line of said connected rails, a rail connecting with the other single-track rail and inclining inwardly to a point inward of the longitudinal line of said single and the alined double track rail, and a pointed rail 12, forming a continuation of said alined double-track rail, and inclining inwardly thereof, and having its inner side and end beveled outwardly so as to dispose the extreme point of said rail outward of the vertical plane represented by the inner margin of the rail which inclines inwardly from the last-named single-track rail, substantially as described.

3. A stationary railway-switch, comprising a pair of double-track rails, single-track rails in alinement with the double-track rails, a bent rail connecting one of the double-track rails with one of the single-track rails, and having the bent portion or apex thereof disposed outwardly of the longitudinal line of said connected rails, a rail connecting with the other single-track rail and inclining inwardly to a point inward of the longitudinal line of the other single and double track rails,

a pointed rail 12, forming a continuation of said other double-track rail, and inclining inwardly thereof, and having its inner side and end beveled outwardly so as to dispose the extreme point of said rail outward of the vertical plane represented by the inner margin of the rail which inclines inwardly from the last-named single-track rail, and a guard-rail arranged at the inner side of and parallel with that portion of the bent rail connected to the first-named single-track rail, and of such length that the flange of one wheel will overlap the beveled end of the pointed rail 12 before the flange of the companion wheel passes from the controlling influence of said guard-rail, substantially as shown and described.

4. A stationary railway-switch, comprising a pair of double-track rails, single-track rails in alinement with the double-track rails, a bent rail connecting one of the double-track rails with one of the single-track rails, and having the bent portion or apex thereof disposed outwardly of the longitudinal line of said connected rails, a rail connecting with the other single-track rail and inclining inwardly to a point inward of the longitudinal line of the other single and double track rails, a pointed rail 12, forming a continuation of said other double-track rail, and inclining inwardly thereof, and having its inner side and end beveled outwardly so as to dispose the extreme point of said rail outward of the vertical plane represented by the inner margin of the inclined rail connected to said other single-track rail, a guard-rail arranged at the inner side and parallel with that portion of the bent rail connected to the first-named single-track rail and of such length that the flange of one wheel will overlap the beveled end of the pointed rail 12 before the flange of the companion wheel passes from the controlling influence of said guard-rail, and a short pointed rail arranged at the inner side of and parallel with the oppositely bent portion of said bent rail, and beveled at its outer side as at 11, so as to dispose its extreme point inward of the vertical plane of the outer margin of said guard-rail, substantially as described.

5. A stationary railway-switch, comprising

double-track rails, single-track rails in longitudinal alinement with one set of double-track rails, a bent rail connecting one of the single-track rails with the longitudinally-alined double-track rail, and having the bent portion or apex thereof disposed outwardly of the longitudinal line of said connected rails, a short pointed rail forming a continuation of one of the other set of double-track rails and arranged parallel with and at the inner side of said bent rail, but extending only about to the apex of said bent rail, and beveled divergently away from said bent rail at its outer side, as at 11, a second pointed rail 12, of greater length than the first, and forming a continuation of the double-track rail which is companion to the first-named double-track rail, and extending inwardly of the longitudinal line represented by said double-track rail and the other single-track rail, and beveled forwardly and outwardly at its inner margin, as shown at 13, a rail connecting said last-named single-track with the remaining double-track rail, and bent as at 7 to provide an outwardly-extending portion which connects directly with said last-named double-track rail, and an inwardly-extending portion which extends approximately parallel with the short pointed rails, and bent also as at 8 to provide a portion which connects directly with the last-named single-track rail, and extends inwardly therefrom to a point inward of the pointed end of the pointed rail 12, and to provide the oppositely-extending portion 9, which connects the two inwardly-extending portions and a guard-rail, which is bent inwardly at its opposite ends and to extend approximately parallel with the short pointed rail 10 and that portion of the first-named bent rail leading directly to the first-named single-track rail, and to produce a more abruptly-inclined connecting portion 16, substantially as shown, and for the purpose described.

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

MOSES S. PITTMAN.

Witnesses:

G. Y. THORPE,
M. R. REMLEY.