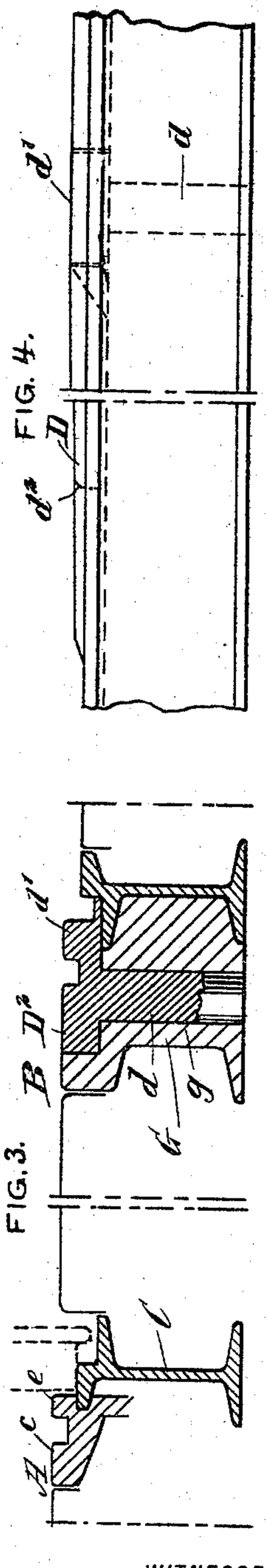
(No Model.)

D. F. CARVER.

RAILROAD SWITCH.

No. 578,966. Patented Mar. 16, 1897.



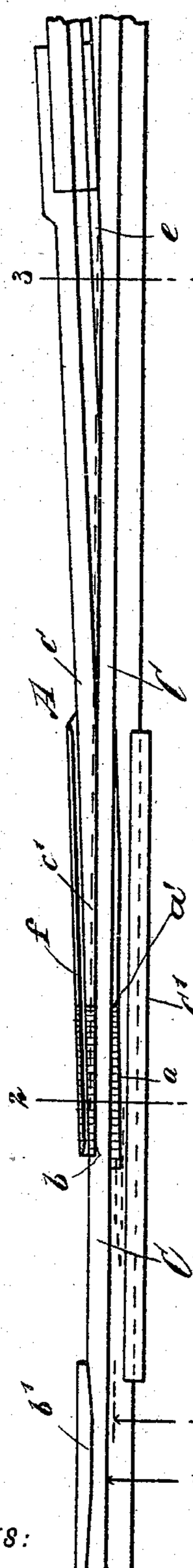


FIG. I.

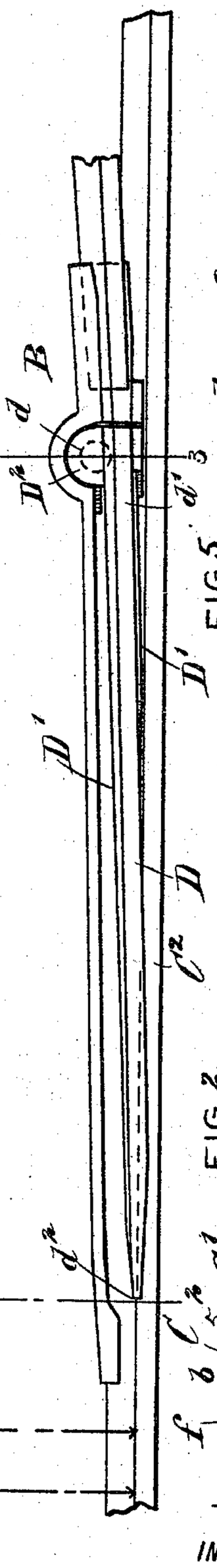


FIG. 5.

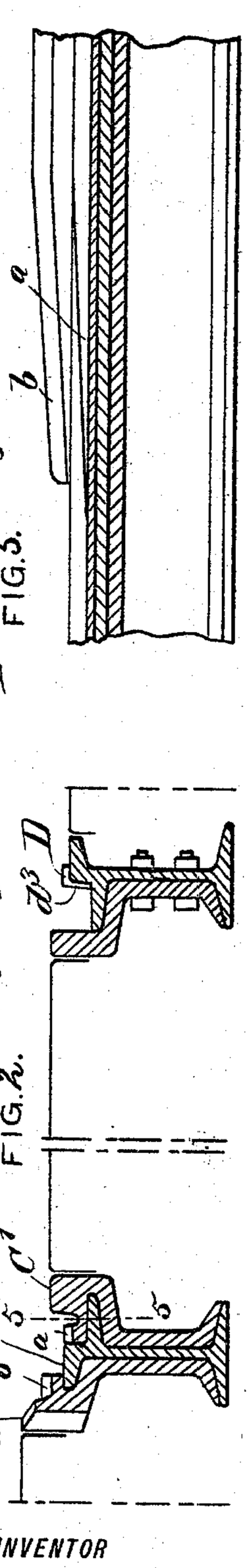


FIG. 2.

FIG. 3.

WITNESSES:

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RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 578,966, dated March 16, 1897.

Application filed July 8, 1896. Serial No. 598,403. (No model.)

To all whom it may concern:

Be it known that I, DAVID FREDERICK CARVER, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Railroad-Switch, of which the following is a full, clear, and exact description.

The invention is especially intended to improve what is known as "continuous main-rail" switches, that is, switches in which the main rails have an uninterrupted tread through the switch. With this class of switches as now generally constructed any considerable traffic to and from the side line quickly destroys the continuous rail at the inside of the curve, and the present invention prevents this wear; also, I am enabled to accomplish this without any movable part at the inside curve of the switch, the only necessary movable part of the switch being a tongue at the outside.

The invention in its complete embodiment comprises numerous distinguishing features, all of which will be accentuated in the following detail description and then defined in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of a switch embodying my invention. Fig. 2 is a cross-section taken on the line 2 2 of Fig. 1. Fig. 3 is a cross-section on the line 3 3 of Fig. 1. Fig. 4 is a broken side elevation at the tongue side or outside curve of the switch, and Fig. 5 is a detail longitudinal section taken on the line 5 5 of Fig. 2.

The inside curve of the switch is indicated by the letter A, and the outside by the letter B, and one of the advantages of my invention as an entirety consists in this: that I am enabled to provide a switch having all the parts stationary at the inside curve, where the continuous main rail C is crossed, and employ a tongue at the outside only. The gage of the railway is indicated by the broken transverse line *x*, while the broken line *y* indicates the distance between the treads of the main rails of the switch, and it will be seen that the switch is thus spread wide of the normal gage, a feature to be noted, and I place a riser *a* within the broadened main rails and preferably inclining upward to the height of the main-rail tread, thus providing a stationary guiding-surface at the inside curve of the switch, whereby the flange of the car-wheel will be guided upward.

C′ indicates an inside guard, which, however, is not part of the present improvements.

Further, I provide in connection with the riser *a* for the wheel-flange a second riser *b* for the wheel-tread, this second riser having its point or front end a short distance rearwardly of the end of the riser *a*. The riser *b* is shown as integral with and forming the end of the non-continuous siding-rail *c*, and the latter and the riser *b* are within the line of the treads of the continuous main rail C and overlap the same, this being conveniently provided for by reason of the spreading of the main rails beyond the normal track-gage. It will also be seen that I am enabled to make the riser *b* and the non-continuous rail stationary.

In front of the riser *b* an outside guard *b′* may be provided with advantage, said guard overlapping the tread of the main rail C. This serves as a precautionary device to deflect the wheel inward, so that when the switch is closed and the main line open the wheel-flange will take the main line and pass inside of the riser *a* and not subject the risers to unnecessary wear. I further form on the non-continuous rail *c* or arrange in connection therewith a guard rail or part *e*, which also overlaps the main rail C by reason of the widening of the main rails.

If, in widening the gage, I leave the guard *e* outside of the line of travel of the wheels passing over the main rail, as usual, the widening will result in leaving the wheel unguarded for a greater distance than in ordinary mates, and to avoid this I arrange the guard *e* to overlap or partly extend in line with the main-rail tread, as shown.

In connection with the non-continuous rail *c* and riser *b* I provide an outside guard-rail *f*, which extends above the head or tread of the said rail *c* and prevents the wheels running from the non-continuous rail to the continuous main rail from taking improper direction.

The tongue D shown has side flanges D′ D′ at the base, but these form no part of the present invention. The following details of the tongue are also preferred, but I do not lay claim thereto.

I place the pin entirely clear of the tread of the tongue and am enabled thereby to get a complete and full bearing for the tongue on the bed-plate and yet maintain proper resistance to the pounding action on the tongue at the heel. This I accomplish by projecting the pin *d* from a lateral extension D^2, formed on the tongue, and form the hole *g* for such pin in the bed-plate G outside of the tread *d′* of the tongue. Thus a full amount of metal is provided in the bed-plate beneath the tread of the tongue.

The tongue overlaps at its front end the adjacent main rail C^2, and instead of bringing the tongue to a point and of leaving the tongue with only its reduced thickness of tread to resist curling I provide a blunt or wide point d^2, and also provide the tongue with a downward extension or flange d^3 at the inside, as best seen in Fig. 2, such flange merging into the body of the tongue toward the heel. Thus I resist destructive action on the tongue and get a solid bearing against the adjacent rail; also, the tongue shown projects but very slightly above the track and offers little obstruction to crossing vehicles.

In Fig. 3 I have indicated the car-wheel in dotted lines, and it will be seen that the distance between the guard *e* and the gage side of the continuous main rail C is less than the width of the tread of the car-wheel; and this is true also of the stationary non-continuous rail itself, where at its front end, as at *c′*, the said rail is less distance from the gage side of the main rail than the width of the wheel-tread. A switch having the stationary non-continuous rail having this relation to the main rail has not heretofore been provided. The stationary riser *b* has a similar relation to the gage side of the continuous main rail and the wheel-tread. The result of these three features so arranged is that the least amount of the head of the continuous main rail will be subject to the cutting action of the wheel-flange running diagonally across said rail when the risers become worn down.

In order that the merits of the invention may be understood, it is explained that in practical railroad construction when the tongue is placed on the outside it has been heretofore an unsolved problem how to effectively and surely get the flange of the wheel over the head of the continuous main rail adjacent to the inside of the curve. This has been effected in a measure by elaborate systems of moving parts with boxes below the street, which latter have to be cleaned frequently or there must be a special sewer connection when possible. Many of these systems also must have a special locking device to hold parts of the apparatus in place to prevent derailment of the cars when going around curves. My risers and the tongue D guide the wheels clear of the continuous rail C until the wheel-flanges enter the groove between the tread of the non-continuous rail *c* and the inside guard *e*, thereby preventing the wheel-flanges from cutting into the continuous main rail, so that an effective switch is provided in which destructive wearing is overcome and in which all the parts with the exception of the tongue may be and preferably are made stationary, as shown.

In the drawings I have shown the mate as an assemblage of separate pieces about a common girder-rail, but it will be understood that it is sometimes desirable in practice to cast the whole in a single piece with corresponding surfaces for guarding the wheels as well as directing the same upward and over the main-rail tread, as described; also, it is explained that the main rails may have the broadened gage beginning on a line about at the point of the tongue and extending to the point *h′*, where the riser *a* reaches the height of the main-rail tread C.

By broadening the gage I am enabled to place my inside riser *a* between the normal and broadened gage-lines, and also it enables me to provide the immovable riser or rising surface *b* at the outside of and extending into the tread-line of the main rail in position to receive part of the tread of the wheel before the latter starts to leave the line of the main rail, and, further, to give a similar relation between the non-continuous rail proper, *c*, and the main rail, whereby I prevent the wheel from crowding out or bending over the said non-continuous rail.

It will be further observed that the continuation of the riser *a* beyond the point *a′* is level with and alongside of the main-rail tread, and this level portion will receive that part of the wheel-tread which is between the flange of the wheel and the part of the tread which is on the main-rail tread.

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

1. A railway-switch having continuous main rails spread wider than the normal gage of the railway, a stationary riser between the tread of one of said rails and the normal path of the flanges of wheels running straight through the switch, and a second riser outside the first-named riser, said second riser leading to the siding and projecting into the line of the tread of the wheels passing over the adjacent continuous rail, substantially as described.

2. A railway-switch having continuous main rails spread wider than the normal gage of the railway, a stationary riser between the tread of one of such continuous rails and the normal path of the flanges of wheels passing straight through the switch, and a second riser outside of the first-named riser, said sec-

ond riser overlapping the tread of the adjacent main-line rail and leading to the tread of the siding-rail, substantially as described.

3. In a switch, main-line rails broadened wider than the normal gage of the railway, and a riser adjacent to one of said rails at the inside thereof extending on a line between the lines of the normal and broadened gages, substantially as described.

4. In a switch, continuous main-line rails broadened wider than the normal gage of the railway, and a riser adjacent to one of said rails, at the inside thereof, and rising to the top of said main rail, substantially as described.

5. A switch, having main rails wider than the normal gage of the railway, and a stationary riser adjacent to one of said rails at the inside thereof extending on a line between the lines of the normal and broadened gages, substantially as described.

6. A switch, having continuous main rails, siding-rails and an immovable stationary riser adjacent to the main rail at the inside of the curve, substantially as described.

7. A switch, having continuous main-line rails, spread wider than the normal gage of the railway, and a stationary riser outside of the main rail at the inside of the curve, said riser projecting into the path of wheels taking the siding, substantially as described.

8. In a switch, main-line rails, siding-rails, a riser for the flange of the wheels, and a second riser outside of and rising above the first riser, said second riser receiving the tread of the wheels and leading to the siding, substantially as described.

9. In a switch, continuous main-line rails, a riser for the wheel-flanges, adjacent to the main rail at the inside curve of the switch, a second riser outside the said main rail for receiving the treads of the wheels, and a guide-rail ouside the second riser, substantially as described.

10. A switch having a guard outside of the non-continuous or siding rail, at the inside curve of the switch, said guard extending above the tread of such non-continuous rail and serving to prevent wheels running from such non-continuous rail from taking an improper direction, substantially as described.

11. A switch having main rails spread wider than the normal gage of the railway, and a non-continuous siding-rail at the inside of the switch, overlapping the tread of the adjacent continuous rail, substantially as described.

12. A switch in which the main-line rails are continuous, and in which the continuous rail at the inside curve of the switch is partly covered by a stationary riser, substantially as described.

13. A switch having continuous main rails, and an outside guard in front of the switch devices and overlapping the head or tread of the adjacent main rail, substantially as described.

14. A switch having the non-continuous siding-rail at the inside curve of the switch permanently extending laterally into the line of the tread of the adjacent main-line rail, substantially as described.

15. A switch having a guard between the siding and main rails, at the point of divergence, the said guard extending laterally within the tread-line of the said main rail, substantially as described.

16. A switch having a continuous main rail and adjacent non-continuous stationary siding-rail, the distance between the said non-continous rail and the gage side of the continuous main rail being less than the width of the tread of the car-wheel, substantially as described.

17. A switch having a continuous main rail and an adjacent non-continuous, stationary rail, the latter having an inside guard at its point of divergence from the main rail, the distance between the said guard and the gage side of the continuous main rail being less than the width of the car-wheel tread, substantially as described.

18. A switch having a continuous main rail, and a stationary riser at the outside thereof, the distance from the gage side of the continuous main rail to the said stationary riser being less than the width of the car-wheel tread, substantially as described.

19. A switch having a tongue at one side and having at the opposite side a continuous main rail and fixed and immovable guiding devices which coact with the tongue and serve when the tongue is thrown to direct the wheels over and across the said continuous main rail.

20. A switch having a movable tongue and having, at the side opposite the tongue the following: a continuous main-line-rail tread, a non-continuous or terminating rail tread adjacent to said continuous tread and guiding devices non-reciprocating and otherwise immovable, said devices coacting with the tongue, and serving to transfer the wheels of a car across the said continuous-tread surface.

21. In a switch having a movable tongue and a continuous main rail at the opposite side to the tongue; a permanent immovable riser at said opposite side in the path of flanges taking the branch-line lead, but out of the path of flanges taking the main-line lead, said riser serving to transfer wheels from the branch-line lead, over and across said continuous main-line lead.

22. A switch having a continuous main-rail tread, a riser at the inside of the main rail and a surface in line with and beyond the riser, said surface being level with the said rail-tread for partly receiving the tread of wheels passing over the main rail when said wheels have passed the riser substantially as described.

23. In a switch having a continuous main-line tread, a riser at the inside of the continuous tread, said riser having a continua-

tion level with the said tread at the inside and serving to receive the part of the tread of passing wheels which is between the flange of the wheels and the portion traveling the said main-rail tread, substantially as described.

24. A switch having a movable tongue at one side, a continuous main-rail tread at the opposite side, and switch devices arranged at said opposite side in connection with the continuous main tread, said devices having no moving parts, substantially as described.

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Witnesses:
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