

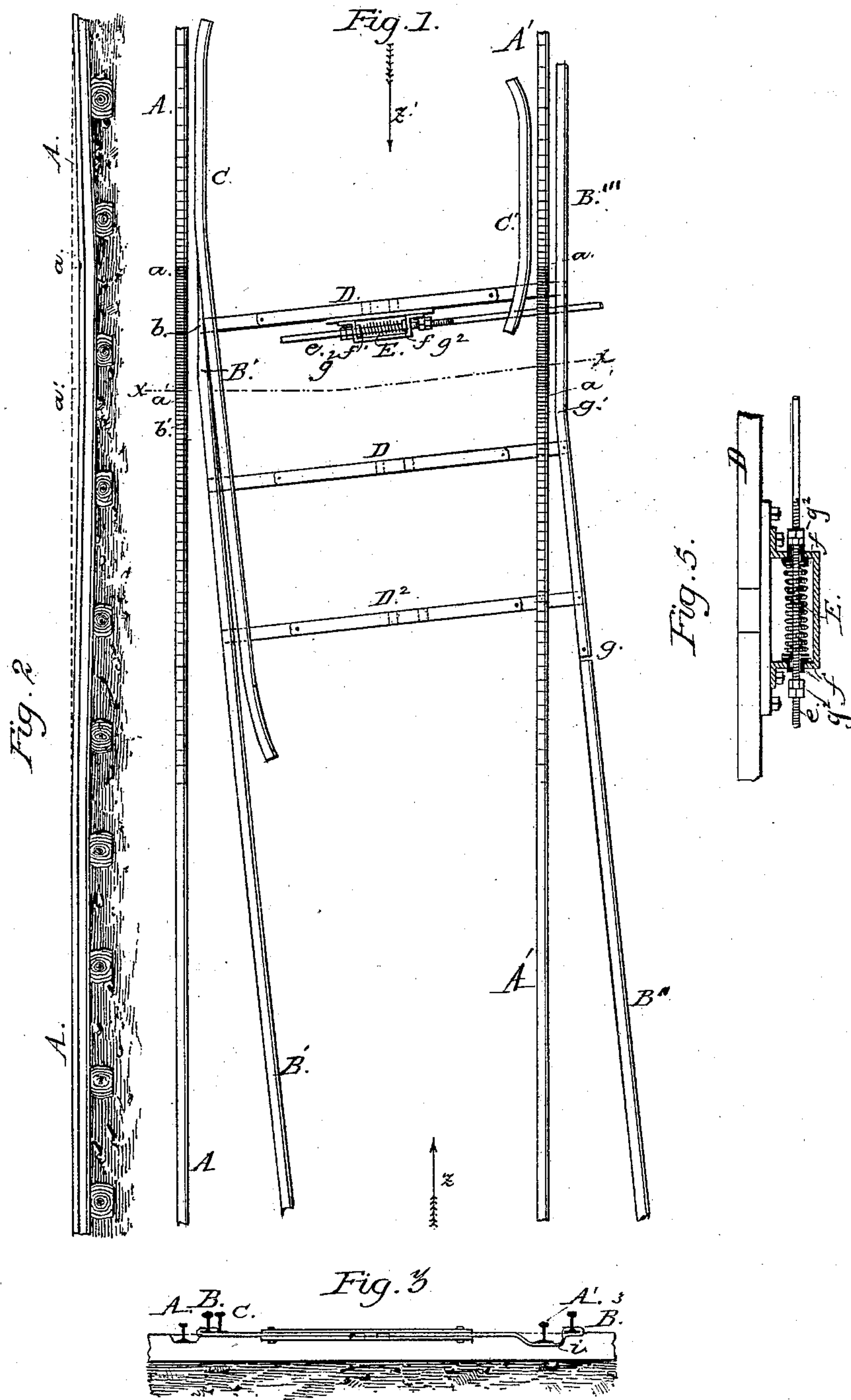
(No Model.)

2 Sheets—Sheet 1.

W. P. DODSON.
RAILROAD SWITCH.

No. 257,299.

Patented May 2, 1882.



Witnesses:
J. M. Kail
L. M. Babcock

Inventor:
William P. Dodson
per Edw. W. Down & Co.
Attorneys

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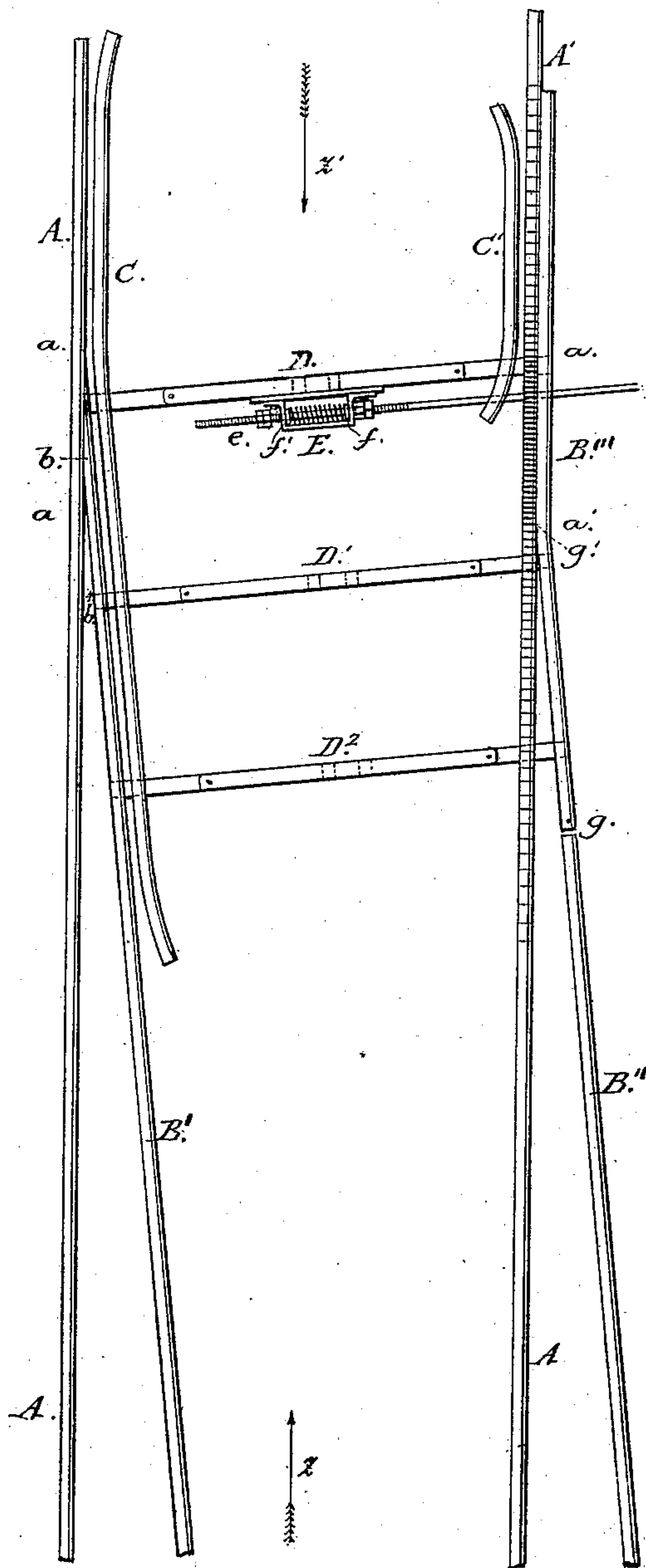
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Fig. 4.



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UNITED STATES PATENT OFFICE.

WILSON P. DODSON, OF PHILADELPHIA, ASSIGNOR OF ONE-HALF TO ALEXANDER H. EGE, OF MECHANICSBURG, PENNSYLVANIA.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 257,299, dated May 2, 1882.

Application filed February 23, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILSON P. DODSON, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Railroad-Switches; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

It consists in providing, in connection with a main track of a railroad having a depression on one or both rails, certain movable rails of a siding provided with suitable swivel-ties and guard-rails and a spring adapted to yield when required when the switch is locked to either side, by which a perfect safety-switch is produced to trains coming up or down on the main track and in and out from the siding, all of which will be fully set forth hereinafter.

In my drawings, Figure 1 is a plan showing a portion of the main track and the siding in normal position to allow a free and unobstructed passage on the main track from either direction. Fig. 2 is a side elevation of the main track. Fig. 3 is a transverse section of the same on line $x x$ of Fig. 1. Fig. 4 is a plan of track, showing but one rail of the main track depressed. Fig. 5 is a plan to an enlarged scale, showing the spring device.

Similar reference-letters indicate like parts in all of the figures.

Referring to the drawings, $A A'$ are rails of the main track, which are permanently fixed to sleepers in the usual manner.

$B' B''$ are the rails forming the switch.

$C C'$ are guard-rails located at suitable points, as shown, and permanently fixed to the road-bed to serve as guides to prevent undue lateral movement of the cars as they are being shunted onto the siding from the main track and onto the latter from the former.

$D D' D^2$ are connecting-bars provided to unite the switch-rails and keep them relatively together.

E is a spring of spiral or other form placed over the switch-rod, to which the operating-lever is attached, which is limited in its ex-

pansion by flanged collars f , which in turn are limited by a yoke permanently fixed to the connecting-bar D . The said connecting-bar being fixed to the parts of the siding $B' B''$, said parts are carried with it to one side or the other by opposite movements of the switch-lever. Nuts g^2 are adjusted on the rod e to admit of play to the yoke on the said rod when by force from the wheels of an approaching train a lateral movement is given to switch-rails $B' B''$. The function of the spring E is to restore the rail B' or B'' to a locked position after yielding by the force of the wheels of a passing train.

The rail B' of the siding, being pointed at the end b , as shown, is adapted to fit snugly against the rail A when the switch is shifted to shunt a train from the main track onto the siding. The rail B is of ordinary form, but the section B'' is deflected from said point g' to form an elbow at said point, which is practically opposite to the point b of the rail B' . This rail B'' is pivoted at g for a purpose hereinafter to be mentioned. The guard-rail C is made of a greater or less length, as may in practice be found necessary for the performance of the well-known function of such appliances.

In Fig. 1 the rails $A A'$ of the main track are depressed between the points $a a'$ to a depth equal to or a little in excess of the depth of the flanges of the wheels of the cars, for a purpose hereinafter set forth. In Fig. 4, however, but one of the permanent rails A' of the main track is shown depressed, and in all probability this variation only would be required in practice to give a satisfactory result.

The operation of my switch I will explain as follows: We will suppose the train to be approaching in the direction of the arrow z , which may be called up. The switch being in its normal position—i. e., closed for the siding—there will be nothing to prevent the movement of the train upon the main track in either direction. I now open the switch by means of the lever and cause the point b to fit snugly to the rail A , while at the same time the opposite rail, B'' , fits snugly to the rail A' , also of the main track, being drawn over by the connecting-bars $D D' D^2$. The switch being now open for the siding, we will suppose a

train approaching which we desire to shunt from the main track. When the forward wheels of the engine or car reach the point *b* the tread of said wheels will be immediately over the lowest points of the depression at *a* 5 *a'*, while the flange of said wheels will at the same time impinge against the inner side of the pointed rail *B'* at or near said point *b*, by means of which said wheels will be deflected 10 upon the tread of said rail *B'*. The tread of the wheels upon the opposite side having meanwhile passed upon the horizontal surface of the elbow-section *B'''* at the commencement of the depression of the rail *A'* of the main 15 track are thereby supported, and upon arriving at the elbow *g'* are deflected also upon the siding-rail in consequence of the flanges of said wheels having reached the point of greatest depression, so that the latter are thereby 20 enabled to pass obliquely over the tread of said depressed rail *A'* to engage with the tread of said siding-rail.

It is of course to be understood that the siding and its connections have a plane in common with the common plane of the main-track rails, and that the plane of depression of said main-track rail or rails is consequently below that of the siding. If we now suppose the switch to have been left open to the siding, 30 either through neglect or otherwise, nevertheless a train running down the main track in the direction of the arrow *z* will not be prevented from passing over the main track through liability to derailment, for as soon as 35 the flanges of the forward wheels on the left reach the angle *b'* they will enter said angle, wedge like, and force said pointed rail laterally toward the right, and by means of the connecting-bars *D D' D²* the elbow-rail on the 40 opposite side will be moved from its closely-fitting position to allow of the safe passage of the train, after which the expansive force of the spring *E* returns said pointed rail *B'* and rail *B'''* to the locked position, leaving the 45 siding open as before the passage of the train. If we now close switch to the siding, with the pointed rail snug to the fixed guard-rail *C*, the main track being open, a train coming out of the siding will not be prevented from running 50 freely onto the main track, for the reason that as said train moves in the direction of the arrow *z* the flanges of the forward wheels on the left will wedge themselves between the guard-rail *C* and the pointed rail *B'* and force 55 said pointed rail *B'* against the main-track rail *A*, and thus open a way on the left, and at the same time draw, by means of the ties, the elbow-rail within reach of the main track to give a safe passage onward. After said 60 train from the siding has passed on, the force of the controlling-spring *E* will return the said pointed and elbow rails to again close the siding.

The permanent track-rails *A A'*, or either of 65 them, are intended to be so inclined or depressed from some convenient point or points,

reaching a vertical depth of deepest depression at the point *b*, or at a point about opposite said point, at the same time, so that the wheels of the train in passing up and down the main 70 track will descend into the depression between the limits of the same and pass out of the same so gradually that the change of plane will scarcely be perceived by the passengers on the train. 75

In placing the depressed rail or rails it will be necessary either to lower the road-bed or else groove or cut away the ties to receive said rails, the latter means, however, being preferred for economical or other reasons evident. 80 As I have stated, the rails of the main track may be depressed by as gentle an inclination as may in practice be deemed best; but by increasing or diminishing the length of the inclined plane it will be necessary also to increase 85 or diminish the length of the elbowed rail *B'''* of the siding to a corresponding extent, so that when the train is coming in the direction of the arrow *z'* the tread of the wheels of the train will take onto said rail as soon as the 90 beginning of the said depression is reached.

The connecting-bars *D D' D²* are to be secured in the usual manner to the switch-rail, and they may be constructed with some compensating arrangement, so as to adjust themselves without distortion to the changes necessitated by the movement of the switch laterally. 95 In the application of these bars to fit under the main-track rails it will be necessary to bend them, as shown at *i*, Fig. 3, in order to have 100 them move freely under the depressed portion of one or both main-track rails.

While in the construction of the different appliances of my switch I prefer to depress but the one rail of the main track, and that upon 105 the side next to the siding, upon the score of economy and simplicity, in conjunction with absolute safety, yet I do not by any means confine myself to this construction, for the reason that it may be found best in practice to depress 110 both rails of the main track for the convenience of the most rapidly-moving trains in order to secure a more perfect stability of equilibrium of motion, thus preventing that swaying or lurching of the cars to one side, as is 115 shown in the case of trains when passing rapidly around a sharp curve to the discomfort of travelers, as well as to the detriment of the running-gear of the trucks and the tracks from the unequal strain consequent upon the movement of 120 the train in a plane laterally inclined.

I am aware that compensating-springs have been used before in connection with automatic switches, and I am also aware that swivel connecting-bars have been used. I do not claim 125 anything broadly for either of these.

I am also aware of a patent granted to one Wharton, in which was used an elevating switch-rail on one side of a siding in connection with a level main line, and to such I make 130 no claim.

I am also aware that switches are in use pro-

vided with grooved rails elevated above the main track to carry the wheels of a train above the same, and certain weighted levers connected with the switch-rails to produce an automatic safety arrangement, and to such I make
5 no claim. I further disclaim anything broadly for the returning-spring or the compensating-ties secured to the movable switch-rails, as I am aware such are old and in use.
10 In an application filed October 7, 1881, and now pending, (an improvement in railroad-switches,) I have shown an arrangement which embodies the depressed track in connection with a siding. I therefore make this reference
15 in order that I may not be debarred from any rights that may be my due in any proceeding touching this second application.

What I claim, and desire to secure by Letters Patent, is—

The combination, with the depressed main track, of the switch composed of rails B' B'', connected by suitable bars, D D' D², switch-bar e, spring E, and guard-rails C C' to form a safety-switch, substantially as and for the purpose set forth. 20

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses. 25

WILSON P. DODSON.

Witnesses:

EDMUND G. HAMERSLY,
GEORGE HOUSE.