

No. 618,055.

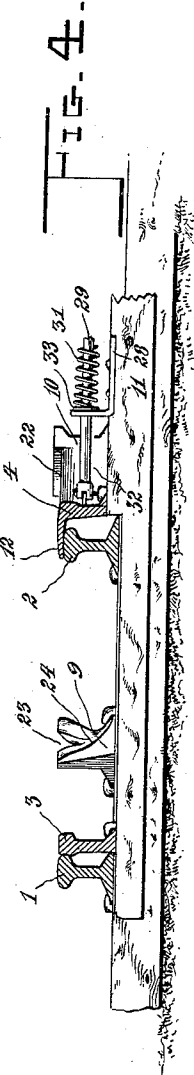
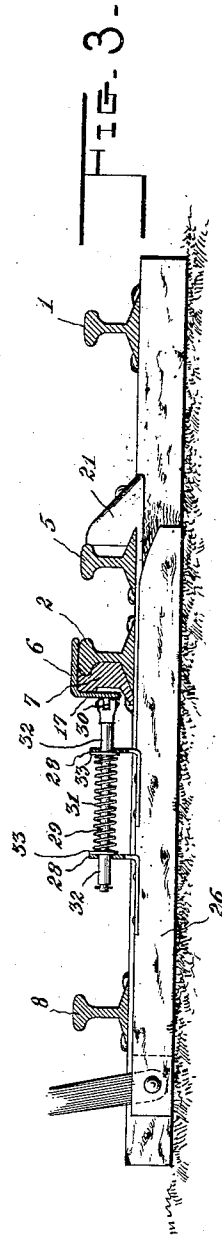
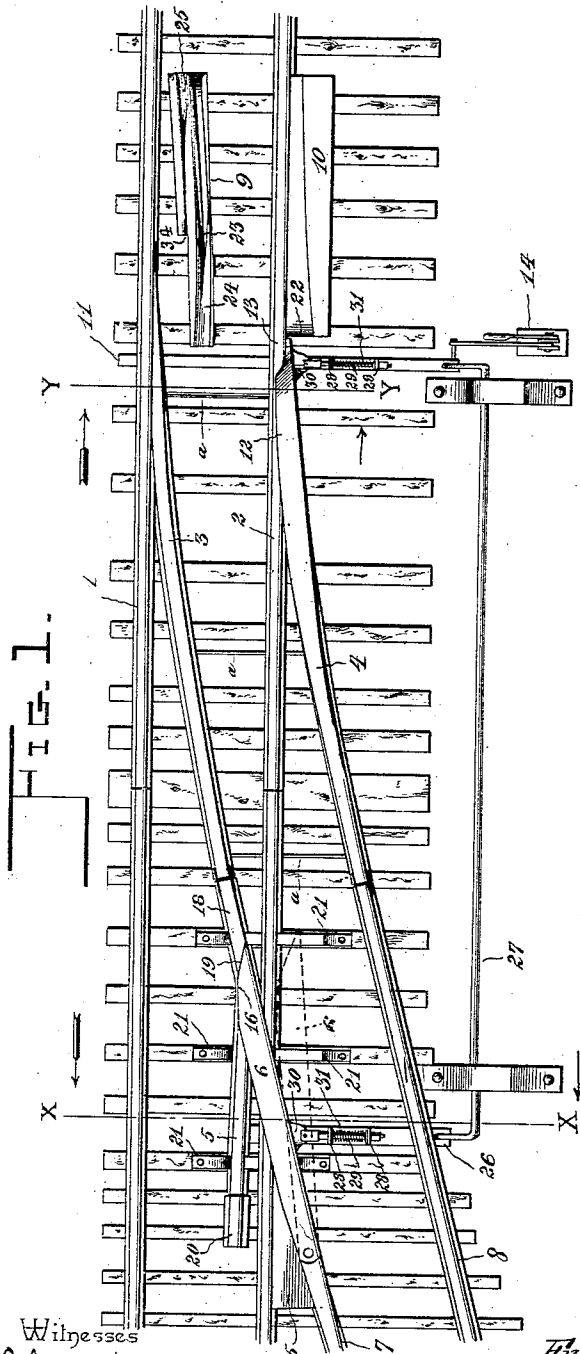
J. CLOUD & F. M. OSBORNE.
RAILROAD SWITCH.

Patented Jan. 24, 1899.

(Application filed May 26, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
John F. Deufferwiel
U. B. Hillyard.

Joseph Cloud,
Francis M. Osborne, Inventors
By their Attorneys,

Cañon & Co.

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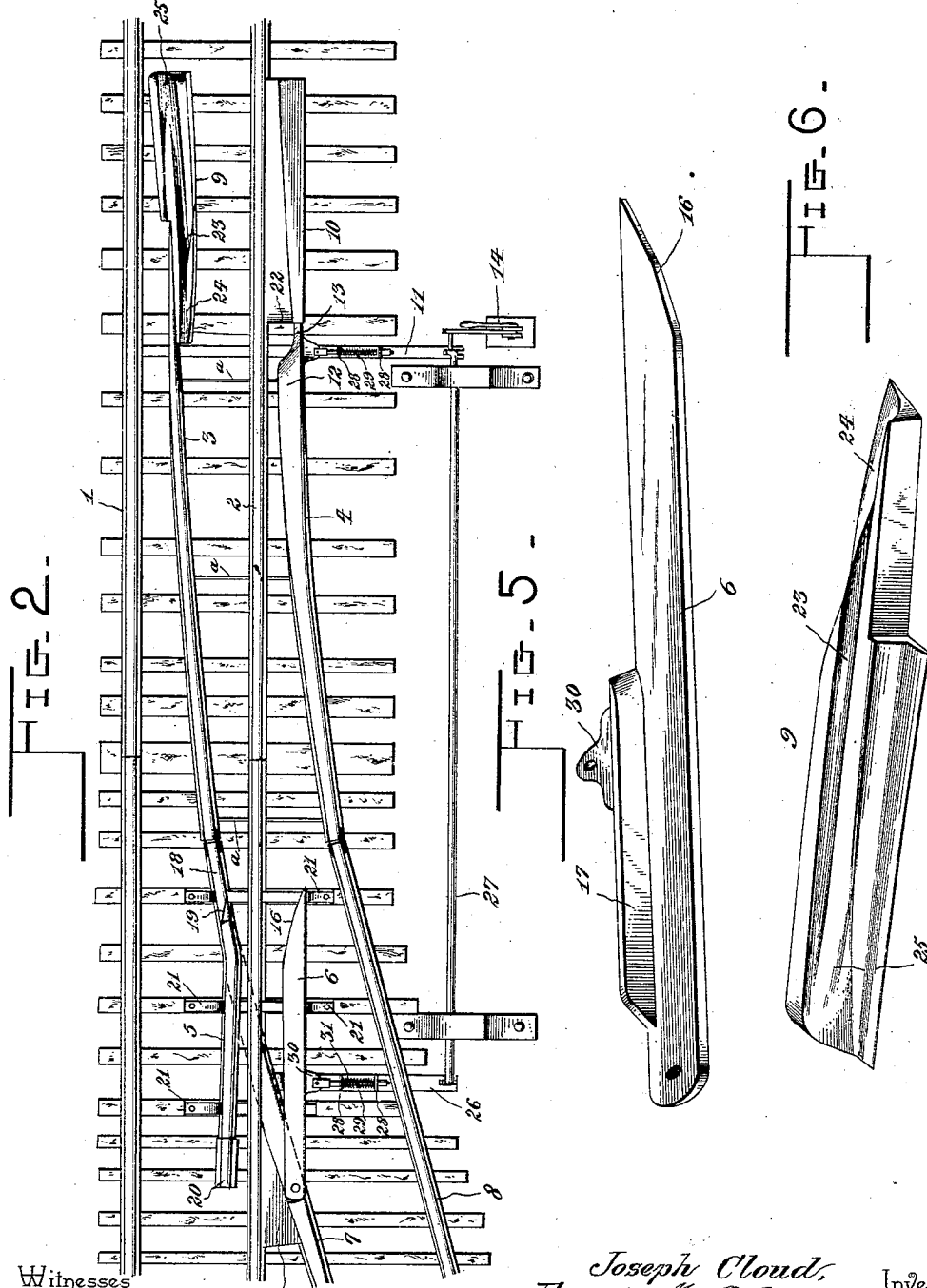
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UNITED STATES PATENT OFFICE.

JOSEPH CLOUD AND FRANCIS M. OSBORNE, OF BRANSFORD, TEXAS.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 618,055, dated January 24, 1899.

Application filed May 26, 1898. Serial No. 681,793. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH CLOUD and FRANCIS M. OSBORNE, citizens of the United States, residing at Bransford, in the county of Tarrant and State of Texas, have invented a new and useful Railroad-Switch, of which the following is a specification.

This invention has relation to railroad switches, and is designed to prevent derailment of cars when a train enters an open switch or when approaching the switch from the direction of the side tracks and the switch is closed.

A further purpose of the invention is to devise a switch which is capable of being easily operated and maintained in working-condition and which will be less liable to accident, as cars can pass from the side track or branch onto the main line whether the switch is open or closed.

The invention also involves a substantial construction and a simple arrangement of the parts which are effective for the purpose designed.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a plan view of a railroad-switch as it will appear when set to admit of a train passing from the siding or branch onto the main track, the dotted lines indicating the position assumed by the switch-point or tongue when a train approaches the switch upon the main line from the same direction as the side track. Fig. 2 is a view similar to Fig. 1, showing the relation of the parts when the main line is open, the dotted lines indicating the position of the switch-point or tongue when a train passes from the side track onto the main stem. Fig. 3 is a transverse section on the line X X of Fig. 1, looking in the direction of the arrows. Fig. 4 is a cross-section on the line Y Y of Fig. 1, looking in the direction indicated by the arrows.

Fig. 5 is a detail view of the switch-point or tongue. Fig. 6 is a detail view of the inner mate.

Corresponding and like parts are referred to in the following description and indicated in the views of the drawings by the same reference characters.

The rails 1 and 2 of the main track are unobstructed throughout their length, and the switch-rails 3 and 4 form the terminals of the rails 7 and 8 of the side tracks or branch. These switch-rails 3 and 4 are braced in the usual manner by any required number of bridle bars A to secure the rails rigidly together in order that they may move simultaneously and preserve the same gage throughout their length. The inner switch-rail 3 has its free end tapering, so as to fit snugly against the inner side of the rail 1, and is slightly longer than the outer switch-rail 4, so as to receive the wheels of a car in advance of the switch-rail 4, thereby crowding the opposite wheels against the inner side of the rail 2, causing a projection of the tread of the wheels outside of rail 2, and thereby compel them to gradually mount and ride upon the rail 4, whereby the flanges of said wheels are carried over the rail 2 when the train is passing from the main line upon the siding. The outer switch-rail 4 has an inner flange 12, which overhangs the rail 2 when the switch is set, and the extremity of this flange inclines and tapers, so as to receive the tread of the wheels and lift the latter and cause their flanges to clear the rail 2 without necessitating the grooving of said rail or the provision of a frog. The outer switch-rail 4 has a portion in advance of the flange 12, as shown at 13, whose top surface inclines, so as to give an initial lift to the wheels of the car when the train is passing from the main line upon the branch. The switch-rails 3 and 4 are connected by the switch-operating rod 11, so as to have a simultaneous movement, and said rod is actuated by means of the switch-stand 14 in the usual manner.

The rail 7 tapers and is secured against the side of the rail 2, a block 15 being interposed in the angle formed between it and the rail 2, whereby the two rails 7 and 2 mutually strengthen and brace each other. The tongue or switch-point 6 has pivotal connection with

the end portion of the rail 7, and its free end portion is cut away, so as to extend over the rail 2 and carry the wheels of the train thereover. The free end of the tongue is inclined upon one side, as shown at 16, for a purpose presently to be described. A flange 17 is provided at one side of the tongue 6 to come against the inner side of the rail 7 and brace the tongue and hold it in place even though the pivotal connection between the tongue and rail 7 should become broken or get out of order. A fixed rail-section 5 is secured to the ties parallel with the rail 2, and its end portion adjacent to the inner switch-rail 3 is deflected away from the rail 2, as indicated at 18. The deflected end portion 18 of the rail-section 5 is in a higher plane than the rail 2, and an inclined shoulder 19 is formed at the inner end of the part 18 to match with the inclined end 16 of the tongue, thereby bracing the latter when the switch is set. A block 20 abuts against the outer end of the rail-section 5 and is rigidly secured to the ties and constitutes a brace or abutment to prevent outward endwise movement of the rail-section 5 from expansion or other cause. Brackets 21 are secured to the ties and bear against the rails 2 and 5, so as to hold them in place against lateral stress. The brackets abutting against the rail 2 form supports for the free end portion of the tongue 6 when the latter is moved from over the rail 2.

The outer mate 10 is placed against the outer side of the rail 2, and its inner upper portion is cut away to about the plane of the tread-surface of the rail 2 to receive the flange of the car-wheel when the train is passing from the siding onto the main track. The inner end of the cut-away portion is beveled, as shown at 22, to receive the flange of the car-wheel and elevate it to the plane of the rail 2 and cause it to pass thereover. The inner mate 9 has a diagonal groove 23 in its top surface and its opposite end portions beveled, as shown at 24 and 25, to facilitate the entrance of the car-wheels upon the inner mate and their leaving the same with the utmost ease when the train is leaving the switch or passing thereon.

A rod 26 has loose connection at its outer end with the crank-arm of a rock-shaft 27 and is provided with vertical extensions 28. A rod 29 is slidably mounted in the vertical extensions 28 and is made fast to a lateral extension 30 of the tongue 6. A coiled spring 31 is mounted upon the rod 29 and is confined between the vertical extensions 28. Sleeves 32 are mounted upon the end portions of the rod 29, and washers 33 are slipped upon said rod and bear against the inner ends of said sleeves and have the extremities of the spring 31 bearing against their inner sides. The sleeves 32 are slidable through the vertical extensions 28 and bear against the washers 33, so as to move them and cause a compression of spring 31 according to the di-

rection of movement of the rod 29. This rod 29 has a relative movement in either direction, and such movement is effected against the tension of the spring 31, which result is highly important in order to attain the vital feature of the invention. A similarly-constructed tension is provided for the free end of switch-rail 4, mounted upon the rod 11, arranged outside of the rail and between it and the switch-stand.

When the switch is set, as indicated in Fig. 1, the spring 31 is compressed to a slight degree and serves to hold the tongue or switch-point 6 in proper position and with its inclined end 16 in close contact with the inclined shoulder 19 of the rail 5, thereby taking up and allowing for looseness or play of the joints and guarding against possible accident occurring from an improperly-set switch, due to play between joints after the switch has been in operation for some time. When the switch is set, should a train approach the switch upon the main line from the direction of the side track the wheels of the cars coming in contact with the tongue or switch-point 6 will push the latter aside and compress the spring 31, thereby avoiding derailment of the train or injury to the switch. After the train has passed the spring 31, regaining itself, will throw the tongue into the position indicated by the full lines in Fig. 1. The dotted lines indicate the position of the tongue or switch-point when moved aside by the train. When a train approaches the switch upon the main line from an opposite direction to the side track, the wheels will first enter upon the inner switch-rail 3 and be crowded toward the rails 2 and 4 and ride upon the latter over the rail 2 when the train enters the switch preparatory to passing upon the siding.

When the main track is open, as indicated in Fig. 2, a train can pass thereon in either direction; but should a train approach the switch from the side track the tongue or switch-point 6 will be forced over the main rail 2, as indicated by the dotted lines in Fig. 2, and after leaving the switch-rails 3 and 4 will pass upon the mates 9 and 10 and be guided by them onto the rails of the main track. The side of the mate 9 at its inner end is cut away, as shown at 34, to receive the tapering end of the switch-rail 3, so as to secure a close joint between the parts 3 and 9, which is essential to insure an uninterrupted tread-surface between the parts 3 and 9 for the passage of the wheels from the switch-rail 3 onto the mate 9. The spring 31 permits the tongue or switch-point 6 to move laterally from either of its extreme adjustments, so as to prevent derailment of a train in the manner set forth.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a railroad-switch, the combination

with the rails of the main and side tracks, and the switch-rails, of a tongue or switch-point having pivotal connection with the end portion of the inner rail of the side track and
5 having its free end portion adapted to overlap the inner rail of the main track, and having a flange at one side to bear against the inner side of the rail to which it is pivotally connected, and actuating mechanism for the
10 switch-rails and tongue, substantially as set forth.

2. In a railroad-switch, the combination with the rails of the main and side tracks, the switch-rails, and actuating mechanism
15 therefor, of mates, the inner mate having a diagonally-disposed groove across its tread-surface, and having its end portions beveled or inclined at diagonally opposite points, substantially as and for the purpose set forth.

3. In a railroad-switch, the combination with the rails of the main and side tracks, and inner and outer mates, of inner and outer
20 switch-rails, the inner switch-rail having its free end portion tapering and projecting beyond the terminal of the outer switch-rail, and the latter having an inner flange to overlap the adjacent rail of the main track and
25 having the terminal portion of said flange inclined and beveled, and actuating mechanism

for the switch-rails, substantially as set forth.

4. In a railroad-switch, the combination with the rails of the main and side tracks, of inner and outer mates, the inner mate having a diagonal groove across its tread-surface
35 and having its diagonally opposite end portions beveled or inclined, and having the sides at its inner end cut away, and the outer mate having the inner portion of its tread-surface cut away and its inner end beveled,
40 of switch-rails, the inner switch-rail having its free end portion tapering and adapted to enter the cut-away portion of the inner mate, and the outer switch-rail having an inner flange to overlap the adjacent rail of the main
45 track, and having a projecting end portion beyond the inner flange, and actuating mechanism for the switch-rail, substantially as set forth.

In testimony that we claim the foregoing
50 as our own we have hereto affixed our signatures in the presence of two witnesses.

JOSEPH CLOUD.
F. M. OSBORNE.

Witnesses:

LEE SMITH,
W. H. THROOP.