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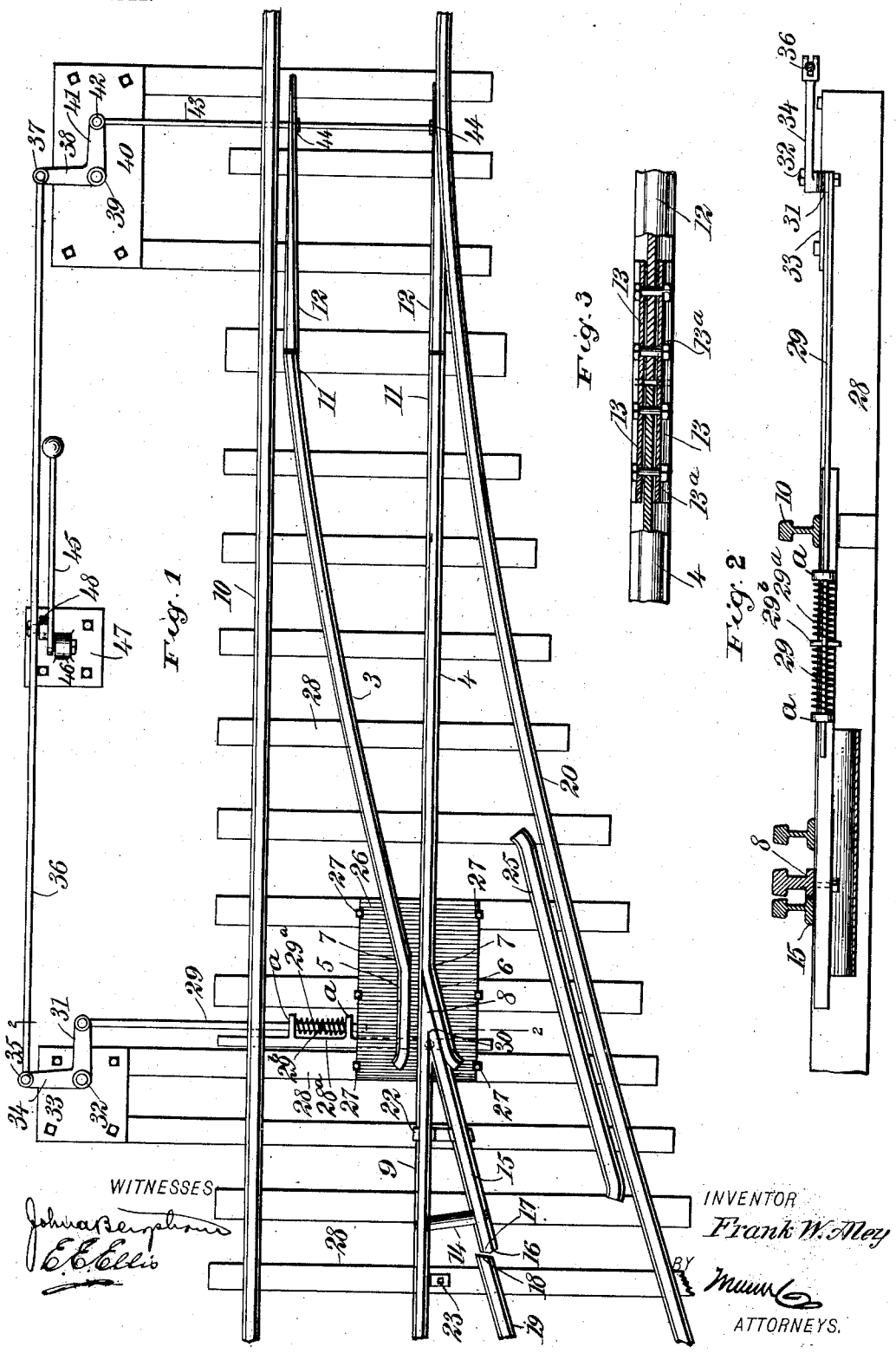
PATENTED AUG. 18, 1903.

F. W. ALEY.

RAILWAY SWITCH.

APPLICATION FILED APR. 8, 1903.

NO MODEL.



WITNESSES

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No. 736,911. Patented August 18, 1903.

UNITED STATES PATENT OFFICE.

FRANK W. ALEY, OF EL PASO, TEXAS.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 736,911, dated August 18, 1903.

Application filed April 8, 1903. Serial No. 151,572. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. ALEY, a citizen of the United States, and a resident of El Paso, in the county of El Paso and State of Texas, have invented new and useful Improvements in Railway-Switches of which the following is a full, clear, and exact description.

This invention relates to railway-switches; and it consists, substantially, in the construction, organization, and combination of parts hereinafter particularly described and claimed.

The invention has for its principal object to overcome the disadvantages and inconveniences common to many similar devices hitherto devised, and to provide a device of this kind which is not liable to get out of order and which is comparatively simple in the construction and organization of the parts thereof, besides possessing the capacity for long and repeated service.

A further object of the invention is to provide a thoroughly effective railway-switch and one also in which reliability and safety of operation are distinguishing characters or factors, substantially as will hereinafter more fully appear when taken in connection with the accompanying drawings, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view representing a railway-switch constructed and operating in accordance with my invention. Fig. 2 is a transverse sectional view on the line 2 2 of Fig. 1; and Fig. 3 is an enlarged detail view, partly in horizontal section, showing a form of connection which may be employed between an end of each of the switch-rails and wing-rails.

Preliminarily to a more detailed description it may be stated that in the embodiment of my improvements herein illustrated, I employ a movable frog-point having its play or range of action in opposite directions horizontally between adjacent sides of oppositely bent or curved members at one extremity of a pair of wing-rails, the latter at the other extremity thereof being practically in alinement with adjacent ends of the movable switch-rails, these latter rails and the frog-point being moved or operated simultaneously through the medium of a rod and connections between the same and the said switch-rails and frog-pint. The said frog-point is of special construction, as are others of the elements or parts employed herein, and while I have herein represented a certain preferred embodiment of my improvements it will be understood, of course, that I am not limited to the precise details thereof in practice, since immaterial changes therein may be resorted to coming within the scope of my invention.

Specific reference being had to the several parts of the drawings by the designating characters marked thereon, 3 and 4 represent wing-rails which are formed or provided at one extremity thereof with sections 5 and 6, which are practically bent or turned outwardly from each other, beginning substantially at the point 7 of each of said wing-rails, this construction providing a space between the sections in which the frog-point 8 has horizontal play and which play is limited in either direction laterally by said sections. The said frog-point 8 is secured to or integral with a rail 9, which constitutes a part of the main line of the railway, and the said wing-rail 4 is coincident or in line with said rail 9, (thereby also constituting a part of the main line,) as shown, the said main line being finally made up or completed by the straight or continuous outside rail 10. (See Fig. 1.) The space between the sections 5 and 6 of the wing-rails 3 and 4 not only permits of all necessary movement of the frog-point in the operation of the switch, but also enables the natural expansion and contraction thereof to take place without in any manner interfering with the proper working of the device, and the ends 11 of the said wing-rails are each in movable connection with the adjacent end of one of the switch-rails 12 by means of plates 13 on opposite sides of the web portions of each of the rails mentioned, said plates being secured by bolts 13^a, passing through the same and the webs of said rails and being also of strong material sufficiently elastic or resilient to operate substantially as a hinge whenever the said switch-rails are operated in conformity with the main or side line of the railway. Bolted or otherwise secured at 14 to the said rail 9 is a short rail-section 15, the free end of which is bev-

eled in opposite directions, as indicated at 16 and 17, the latter beveled surface being adapted to the correspondingly-beveled end 18 of one rail 19 of the side line of the railway, which side line is completed or made up by the continuous outer curved rail 20, as shown. The other end of said short rail-section 15 is either integral with or adapted to the side of the frog-point 8, by which both of these elements will be in compact relationship to move to one side or the other with the corresponding portion of rail 9, it being here mentioned that this portion of the said latter rail is not fastened to the ties, but is practically free to move laterally, as will hereinafter appear. If desired, the space between the rail 9 and rail-section 15 may be filled in with cast-iron or other material to add strength to the structure, and I sometimes employ a strengthening-clamp 22, constructed to connect the said parts, as shown. I also prefer to employ a brace or resistance 23 on the outer side of the said rail 9, which also gives strength and security.

The beveled surface 16 of the end of the rail-section 15 tends to prevent derailment of a car or train passing over the railway in a right-hand direction in Fig. 1, and located at a suitable point within the said outer rail 20 is an ordinary guard-rail 25, which is for the purpose of preventing undue lateral strain being thrown or imposed upon the frog-point and other parts in the passing of trains over or upon the rails of the side line.

Located beneath the frog-point and the sections 5 and 6 of the wing-rails 3 and 4 is a bed-plate 26, which is secured at different points 27 to appropriate ones of the ties 28 and which furnishes an even working surface for the main portions of the principal movable parts of the structure, as is apparent.

Any suitable means may be resorted to for simultaneously operating the frog-point and switch-rails; but I preferably employ herein a rod 29, having thereon a slidable section 28^a, actuated by a spring 29^a, having bearings at the ends between ears *a a* and centrally in a pin 29^b in the rod 29, the inner end of which section is movably connected at 30 to the frog-point, while the outer end of the rod 29 is in similar connection with the arm 31 of a bell-crank lever pivoted at 32 on a suitable base 33 therefor, the arm 34 of said lever being also in movable connection at 35 with one end of a connecting-rod 36, the other end of which is movably connected at 37 to the arm 38 of a similarly-disposed bell-crank lever pivoted at 39 on a base 40 therefor and having its other arm 41 in movable connection at 42 with the outer end of a rod 43, the inner portion of which is connected at the points 44 to the said switch-rails 12. About centrally of the length of the connecting-rod 36 is located an operating hand-lever 45, movably mounted at 46 on a base 47, forming the bearing thereof, said hand-lever having movable connection with said connecting-rod at 48, as by means of a crank or wrist pin, for instance, and from the construction and organization of parts set forth it is apparent that by suitably manipulating said hand-lever 45 the frog-point and switch-rails will be actuated in the manner and for the purpose hereinbefore explained.

The slidable spring-actuated section 28^a on the rod 29 may be dispensed with in some instances, in which case the rod itself will be extended and movably connected to the frog-point; but by means of the embodiment shown an elastic or yielding action is derived in conformity with lateral strains imposed upon the connections in the passing of trains over the rails, and particularly when passing over the correspondingly-beveled ends of the section 15 and rail 19.

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

1. In a railway-switch, a pair of wing-rails constructed at one end with sections turned outwardly from each other, thereby forming a space between them, and a frog-point working in such space, and rigidly united both with a movable portion of one of the rails of the main line and an independent movable section forming part of one of the rails of the side line.

2. In a railway-switch, a pair of wing-rails constructed at one end with sections turned outwardly from each other, thereby forming a space between them, a frog-point working in such space, and rigid with a movable portion of one of the rails of the main line and an independent movable rail-section forming part of one of the rails of the side line, said latter section being reversely beveled at the free end thereof, as and for the purpose described.

3. In a railway-switch, a pair of wing-rails constructed at one end with sections turned outwardly or away from each other, thereby forming a space between them, a frog-point working in such space, and rigidly united with a movable portion of one of the rails of the main line, and an independent movable section forming part of one of the rails of the side line, and also rigid with the frog-point, and means for connecting this movable section with said movable portion of the main-line rail.

4. In a railway-switch, a pair of wing-rails constructed at one end with sections turned outwardly or away from each other, thereby forming a space between them, switch-rails, a frog-point working in such space, and rigidly united with a movable portion of one of the rails of the main line, and an independent movable section forming part of one of the rails of the side line, and also rigid with the frog-point, means for connecting this movable section with said movable portion of the main-line rail, and operating connections between the switch-rails and frog-point.

5. In a railway-switch, a pair of wing-rails

constructed at one end with sections turned outwardly or away from each other, thereby forming a space between them, switch-rails, a frog-point working in such space, and rigidly united with a movable portion of one of the rails of the main line, and an independent movable section forming part of one of the rails of the side line, and also rigid with the frog-point, means for connecting this movable section with said movable portion of the main-line rail, and operating connections between the switch-rails and frog-point, adjacent ends of the said wing-rails and switch-rails being united by a hinge-like connection.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK W. ALEY.

Witnesses:
WM. G. GEGGUS,
CORNELIUS E. VAN HOUTEN.