

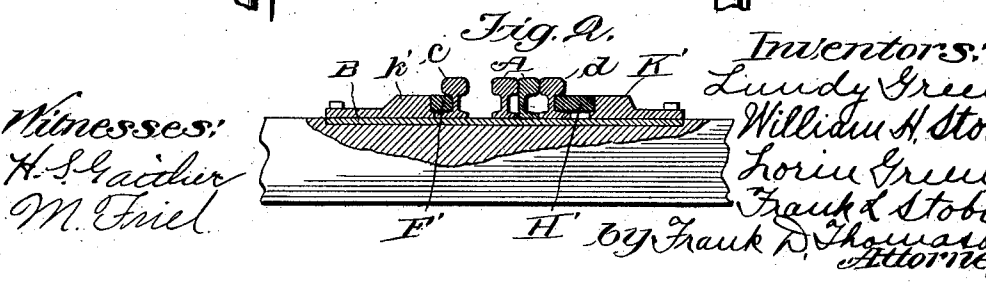
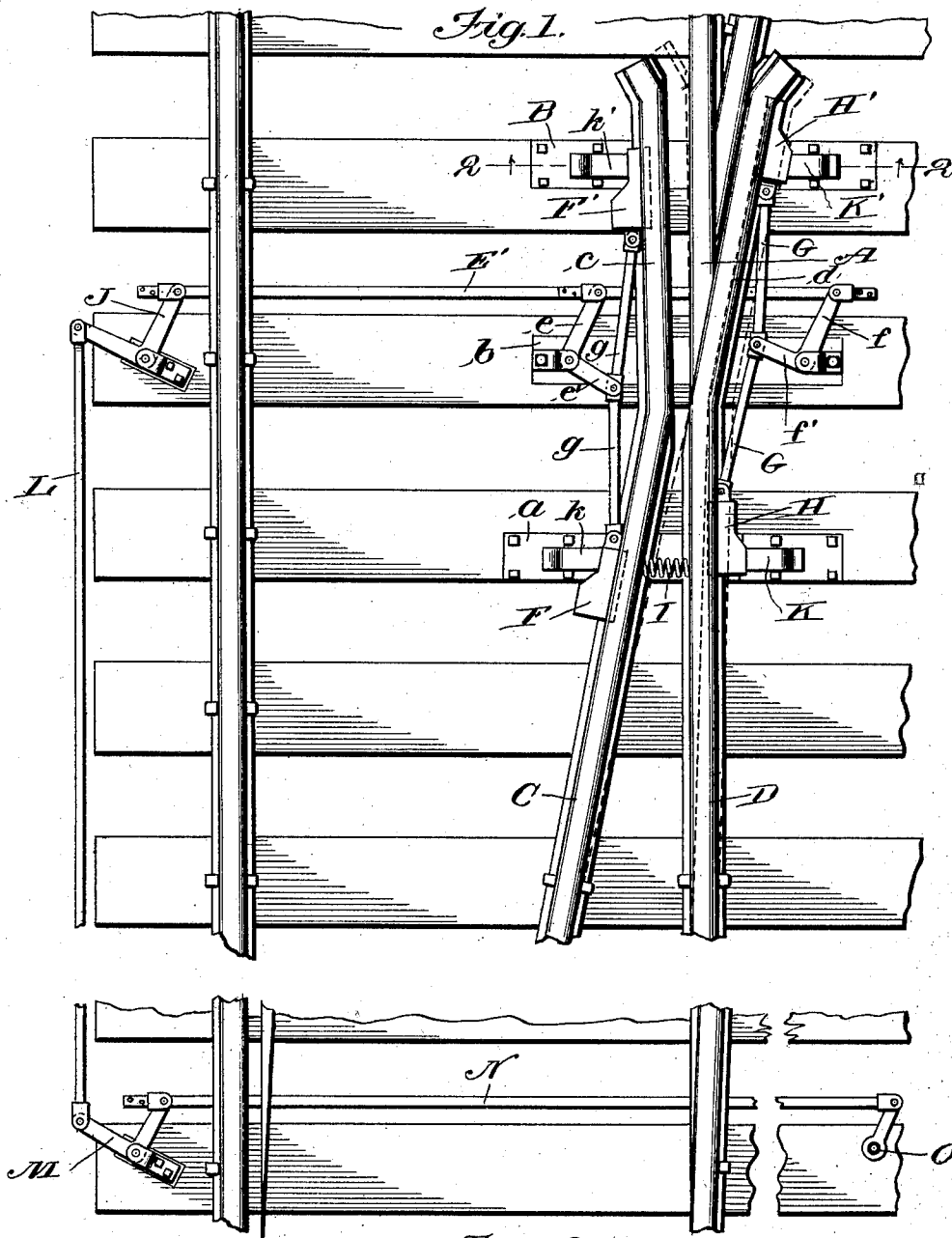
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LUNDY GREEN, WILLIAM H. STOBBS, LORIN GREEN & FRANK L. STOBBS.  
RAILROAD FROG AND SWITCH MECHANISM.

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NO MODEL.



Witnesses:  
 H. S. Gardner  
 M. Friel

Inventors:  
 Lundy Green  
 William H. Stobbs  
 Lorin Green  
 Frank L. Stobbs  
 by Frank D. Shawson  
 Attorney.

# UNITED STATES PATENT OFFICE.

LUNDY GREEN, WILLIAM H. STOBBS, LORIN GREEN, AND FRANK L. STOBBS,  
OF HARVEY, ILLINOIS.

## RAILROAD FROG AND SWITCH MECHANISM.

SPECIFICATION forming part of Letters Patent No. 719,461, dated February 3, 1903.

Application filed February 3, 1902. Serial No. 92,351. (No model.)

*To all whom it may concern:*

Be it known that we, LUNDY GREEN, WILLIAM H. STOBBS, LORIN GREEN, and FRANK L. STOBBS, citizens of the United States of America, residing at the city of Harvey, in the county of Cook and State of Illinois, have invented a new and useful Railroad Frog and Switch Mechanism and Device, of which the following is a specification.

The object of our invention is to provide a simple, cheap, and effective mechanism for operating railroad-switches which will effectually open or close the switch and at the same time lock the switch-rails in their open or closed positions. This we accomplish by the means hereinafter fully described and as particularly pointed out in the claims.

In the drawings, Figure 1 is a plan view of a railroad-switch embodying our invention. Fig. 2 is a transverse section of the same, taken on dotted line 2 2, Fig. 1, looking in the direction indicated by the arrows.

In the drawings, A represents the point of a railroad-frog, comprising the end of a straight rail alining with the rail of the track and the branch track of the switch, although it is apparent this point could consist of a single casting, if desired. This point is stationary and is held in its fixed position, as shown, on the chair B by spikes or otherwise, and chair B is secured in like manner to a tie.

C represents the oblique pivoted switch-rail, fulcrumed in the usual manner at its center of length, and D the pivoted straight rail, fulcrumed in a similar manner. The ends of both of these rails C and D farthest from the frog-point are tapered or beveled; but the ends engaging said point are provided with extensions or wheel-guards, and extension *d* of the straight rail D being bent so as to parallel and engage the oblique side of the frog-point when the switch is closed and the extension *c* of the pivoted switch-rail C being bent so as to parallel and engage the straight side of said point when the switch is open. In this connection it will be observed that a portion of the flanges of these extensions next said point are cut away to permit the close contact of the balls or treads thereof with said point. At a suitable distance from the apex of said point the pivoted rails C and D are

supported and have a limited lateral movement on a chair *a*, consisting of a flat transverse plate, which is of rectangular shape and is suitably secured to a tie and passes under and supports the extremity of said point and extensions *c* and *d*.

The mechanism for operating a switch answering substantially to the foregoing description is as follows, to wit: A transversely placed longitudinally-reciprocal rod or bar E extends under the tracks and under the point A near and parallel to the plate or chair *b* and is operatively connected to bell-cranks *e* and *f*, which are fulcrumed, respectively, in any suitable manner at or near the ends of said chair *b*. These bell-cranks have the arms *e'* and *f'* thereof opposite those connected to the bar E extend from their angles toward the frog or in opposite directions, so that the movement of rod in either direction will cause said arms to move, one toward chair *a* and the other toward chair B, or vice versa, and pivotally connected to the extremities of these arms *a'* and *f'* are the links *g g* and *G G*. Each member of each pair of these links extends in a direction opposite to the other from the bell-cranks and has its end farthest from said bell-cranks pivotally connected to the wedges *F F'* and *H and H'*, respectively. These wedges consist of metal blocks, which are somewhat shoe-shaped, with the part corresponding to the toe always pointing in the line of travel toward said frog, with the side corresponding to the sole bearing against the rails, and with the oblique surface corresponding to the instep on the side opposite the rails. Now these wedges are placed between the side of the switch-rail and the side of the main-track rail opposite the frog and the blocks *k k'* and *K K'*, which are suitably secured to chairs *a* and B, as shown. The action of their actuating devices is such that when wedges *F F'*, which bear against the pivoted main-track rail, move in one direction the wedges *H H'*, which bear against the switch-rail, move in the opposite direction. When either of these pairs of wedges moves in the direction of the line of travel toward the frog, the inclined side thereof engages the blocks, between which and the rails they are placed, and forces the extension rail-guards of said

rails toward and in contact with the frog, and the other set of wedges simultaneously withdraw their thicker portions from between said blocks and the adjacent rail, and the latter moves out of engagement with the frog to an extent corresponding to the difference between the thicker and thinner portions of the wedges by reason of the spring I or other connection interposed between the pivoted rails in the vicinity of plate *a*, as shown. Now the links connecting the bell-cranks *e* and *f* to the wedges do not aline, but are arranged at an angle to each other, the reëntrant side of which is nearest the rail. The relative position of the bell-cranks to these links is such that when the pivoted rails reach the limit of their lateral movement in either direction the resistance offered to the further movement of the wedges and the continued pressure of the bell-cranks cause said links to move into or nearly into alinement and, like a toggle, when in the position of "dead-center" lock the wedge.

The end of the bar E farthest from the frog is connected by a bell-crank J to a connecting-rod L, paralleling the track, which may be extended in any suitable manner to a tower-house or other source of operation, or said connecting-rod L may lead to and connect at its opposite end to another bell-crank M, which may have another transverse bar N operatively connected therewith. In the latter event bar N extends under the tracks to the opposite side thereof and is connected to the crank on the lower end of the vertical shaft O, by turning which the whole train of devices employed in our invention are operated substantially as stated.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination with railroad frog and switch mechanism comprising a frog-point, a pivoted switch-rail, and a pivoted main-track rail, of a reciprocal bar, bell-cranks on opposite sides of said rails, longitudinally-reciprocal wedges engaging said rails, and means for operatively connecting said bell-cranks and wedges.

2. Frog and switch mechanism comprising a frog-point, the pivoted main-track rail having an extended rail-guard engaging the oblique edge of said point, and a pivoted switch-rail having an extended rail-guard engaging the opposite side of said frog, a transverse reciprocal bar, bell-cranks operatively connected to said bar at points on opposite sides of said pivoted switch-rail and main-track rail, longitudinally-reciprocal wedges operating between said rails and suitable blocks, said blocks and links connecting said wedges and bell-cranks.

3. The combination with railroad frog and switch mechanism comprising a frog-point, a pivoted switch-rail having a guard extension, and a pivoted main-track rail having a guard extension, of a reciprocal bar, oppositely-arranged bell-cranks respectively located on opposite sides of said rails, as shown, longitudinally-reciprocal wedges engaging said rails, and means for operatively connecting said bell-cranks and wedges.

4. The combination with railroad frog and switch mechanism comprising a frog-point, a pivoted switch-rail and a pivoted main-track rail, of a reciprocal bar, oppositely-arranged bell-cranks respectively located on opposite sides of said rails, as shown, longitudinally-reciprocal wedges engaging said rails and means for operatively connecting said bell-cranks and wedges.

5. The combination with railroad frog and switch mechanism comprising a frog-point, a pivoted switch-rail, and a pivoted main-track rail, of longitudinally-reciprocal wedges engaging opposite sides of said switch-rail and main-track rail respectively, as specified, and means for simultaneously moving said wedges in opposite directions.

6. The combination with railroad frog and switch mechanism comprising a frog-point, a pivoted switch-rail having a guard extension, and a pivoted main-track rail having a guard extension, of two pairs of longitudinally-reciprocal wedges, one pair of which engage the outer side of said main-track rail, and the other pair of which engage the opposite side of said switch-rail, and means for simultaneously moving said respective pairs of wedges in opposite directions.

7. The combination with railroad frog and switch mechanism comprising a frog-point, a pivoted switch-rail having a guard extension, and a pivoted main-track rail having a guard extension, of two pairs of longitudinally-reciprocal wedges, one pair of which engage the outer side of said main-track rail and its extension, and the other pair of which engage the opposite side of said switch-rail and its extension, as specified, a transverse reciprocal bar, two reversely-operating bell-cranks respectively pivoted next the sides of said rails engaged by said wedges at points mediate the same, actuated by said bar, and links connecting said bell-cranks with said wedges, as and for the purpose set forth.

LUNDY GREEN.

WILLIAM H. STOBBS.

LORIN GREEN.

FRANK L. STOBBS.

Witnesses:

EVELYN GREEN,

THOMAS C. STOBBS.