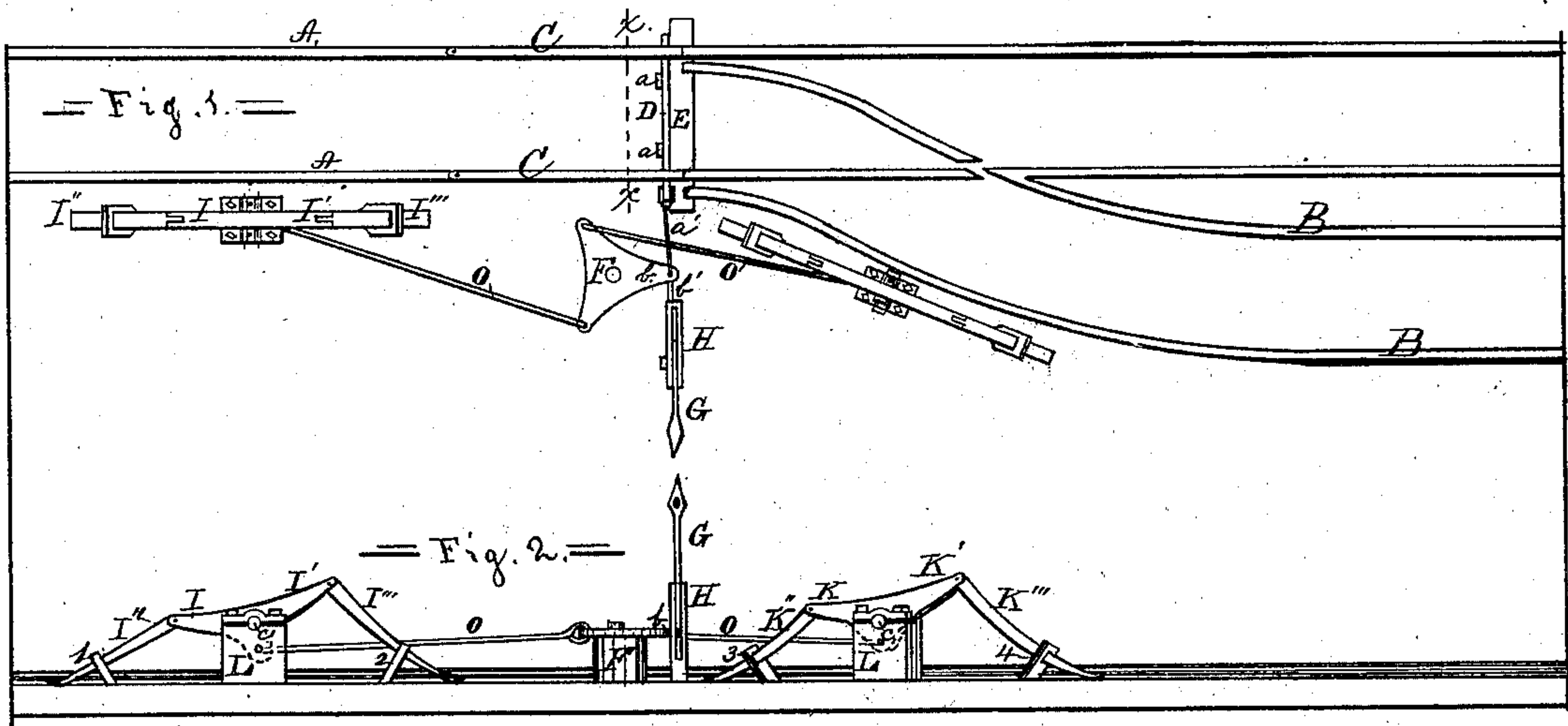


J. L. ARMS.
RAILROAD-SWITCH.

No. 169,610.

Patented Nov. 9, 1875.



Witnesses.

H. M. Jenkins
P. J. Roach

Inventor.

J. L. Arms

UNITED STATES PATENT OFFICE.

JOHN L. ARMS, OF NEW ORLEANS, LA., ASSIGNOR OF PART OF HIS RIGHT TO GRANVILLE R. OBER AND WILLIAM H. RENAUD, OF SAME PLACE.

IMPROVEMENT IN RAILROAD-SWITCHES.

Specification forming part of Letters Patent No. **169,610**, dated November 9, 1875; application filed September 14, 1875.

To all whom it may concern:

Be it known that I, JOHN L. ARMS, a resident of the city of New Orleans and State of Louisiana, have invented a certain new and useful Improvement in Railroad-Switch; and I do hereby declare the following to be a full, clear, and correct description of the same, reference being had to the annexed drawings making a part of this specification.

My invention—as hereinafter described, and as illustrated by the annexed drawing, to which reference has already been made—is designed to be an improvement upon my railroad-switch for which Letters Patent of the United States were granted to me February 22, 1870, and is intended to be operated either from a railroad car or train, or by means of a lever or target-staff, in the ordinary manner.

My present improvement consists of an arrangement of mechanical parts, which will be much more clearly understood by referring to the drawing, on which—

Figure 1 represents a plan or top view of a railroad provided with my invention. Fig. 2 represents a side view of the same; Fig. 3, a cross-section through the line *xx*; and Fig. 4, a device by means of which the switch may be operated from a railroad-car.

Similar letters in each figure indicate corresponding parts.

A A' represent the rails of a straight or continuous road, and B B the rails of a road branching therefrom. C C show the switch-rails, by which the cars are turned from the main to the branch road. These rails are pivoted at their inner ends in the usual manner, while their outer or movable ends are connected by a switch-bar, D, the lower edge of which is provided with a couple of locking devices, to prevent the rails being misplaced by concussion of passing trains. The locks consist each of an **M**, or nearly so, shaped slot, the sides of which terminate at the lower edge of the bar D. The central point of the **M** is somewhat shortened and rounded, so as to permit it to ride freely over a small friction-roller operating on the pin *a*, that is secured to the side of the cross-tie or plate over which the ends of the switch-rails move.

From the peculiar shape of the slots just described it will be seen that in each movement of the switch-rails back and forth they are necessarily raised as the center portion of the slot passes over the pin *a*, and that as the rails are brought to their desired locations they are gradually lowered, until the pins, or, rather, their friction-wheels, rest in the upper corners of the slots, and the ends of the rails have a solid bearing upon the cross-tie or plate E. The inner end of the bar D is connected by a link, *a'*, to the end *b* of a bell-crank, F, and from the said end of bell-crank, by a second link, *b'*, to the lower end of the target-staff G, operating in the target-frame H. Upon each side of the said frame H, and at any desired distance therefrom, is erected, near the inner rail, the knee-levers I I' K K', the shafts *c c'* of which have a rocking motion in the journal-boxes L L'. The lower side of the knee-levers is provided with lugs, (shown in dotted lines,) to which are secured the rods O O, forming a connection between the said levers and the bell-crank F. To the ends of the knee-levers are pivoted, as shown, levers I'' I''', the lower ends of which slide in stirrup-supports 1 2 3 4. The object of these levers will be presently described.

In order that the switch-rails may be operated from a train of cars, the engine and rear car should each be provided with a sliding shaft, P, upon the end of which is secured a friction-wheel, *p*. This shaft is operated by a pivoted lever, so that, when not in use, it may be drawn in under the body of the car. On approaching a switch it is moved outward, so that its friction-wheel may be brought in contact with the nearest knee-lever, the inclined levers of which relieve it from any sudden jar or shock. As the car passes by the said knee-levers the friction-roller of the slide acts to depress them, and thereby moves the switch-rails through the interposition of the bell-crank F and its immediate connecting rods or links.

All points of friction should be provided with friction-wheels, in order to render the operation of the switch much more easy.

My improved arrangement for operating

railway-switches may be applied upon one or both sides of a railway, as may be desired, either being acted on at the discretion of the operator, who can cause a misplaced switch to be thrown into line, and thus prevent the trains from running off the track. The knee-levers above described are placed so that trains approaching the switch from either direction may readily operate the same.

Having described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

The arrangement of the knee-levers I I' K K', bell-crank F, connecting-rods O, and links a' b', with the switch-bar D, as described, and for the purpose specified.

J. L. ARMS.

Witnesses:

G. R. OBER,
H. N. JENKINS.