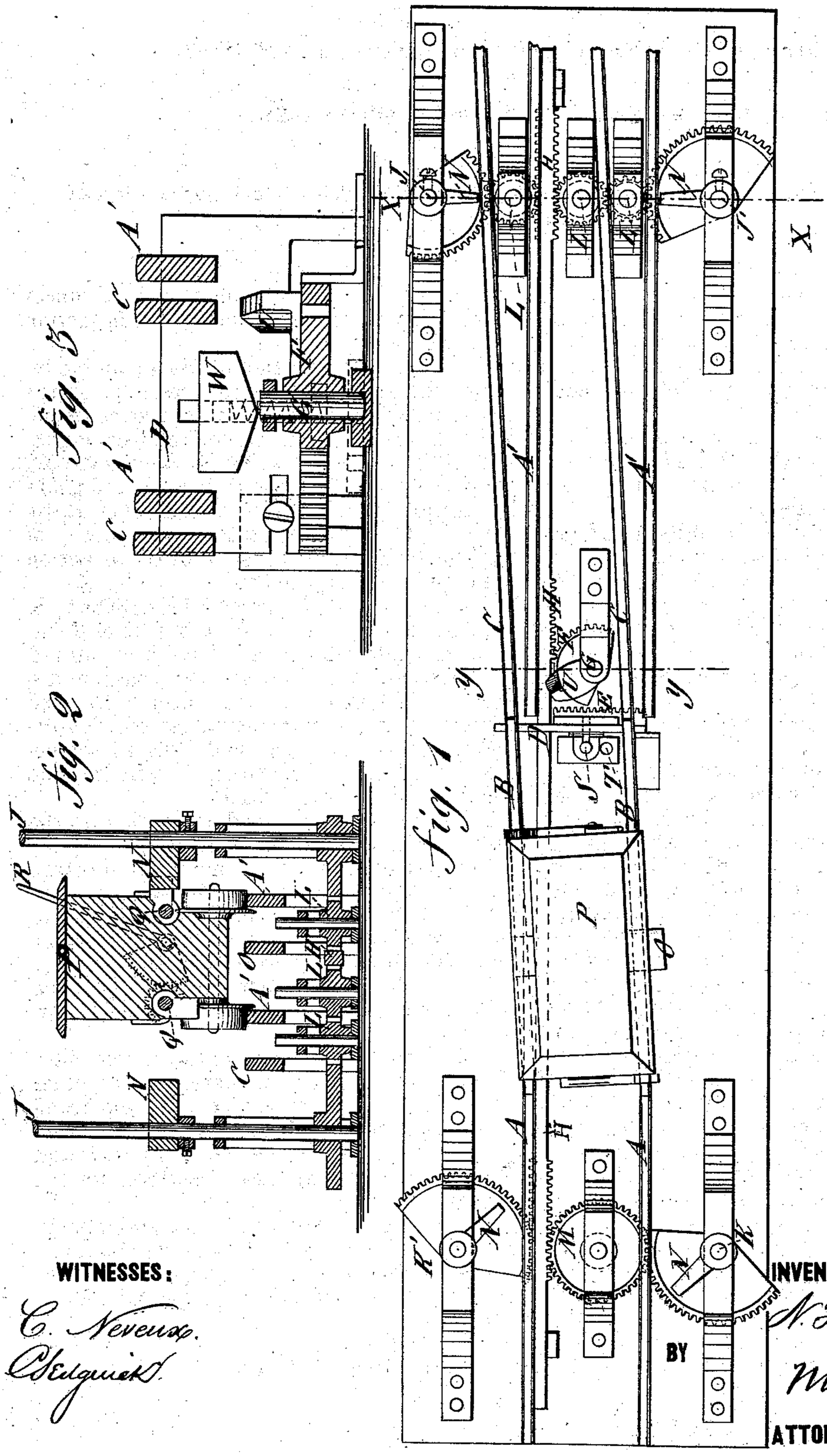
N. F. CARTER.

Railway Switches.

No. 155,637. Patented Oct. 6, 1874.



WITNESSES:

C. Neveux.

C. Belgnick.

INVENTOR:

N. F. Carter

BY

Munn & Co

ATTORNEYS.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

NATHAN F. CARTER, OF ORFORD, NEW HAMPSHIRE.

IMPROVEMENT IN RAILWAY-SWITCHES.

Specification forming part of Letters Patent No. **155,637**, dated October 6, 1874; application filed July 18, 1874.

To all whom it may concern:

Be it known that I, NATHAN F. CARTER, of Orford, in the county of Grafton and State of New Hampshire, have invented a new and Improved Automatic Switch, of which the following is a specification:

The object of the invention is to cause the switch to be automatically shifted in advance of the engine by a device on the engine under the control of the engineer.

The invention will first be fully described, and then pointed out in the claims.

Figure 1 is a plan view of a section of railway-track and a switch, showing my improved automatic shifting apparatus. Fig. 2 is a transverse section taken on the line *x x* of Fig. 1, and Fig. 3 is a transverse section taken on the line *y y*.

Similar letters of reference indicate corresponding parts.

A and A′ represent the two parts of the main line; B, the switch-rails, and C the branch rails. The switch-rails B are connected to the switch-bar D, to which is applied a toothed rack, E, with which a segmental wheel, F, pivoted at G, gears to shift the switch-rails forward and backward, the said wheel being geared with the toothed bar H for being turned by it. This bar extends along the track each way from the switch a suitable distance for being worked by the locomotive to shift the switch in advance of the locomotive, and it gears at each end with upright shafts J J′ and K K′ by means of toothed wheels L and M. At one end it gears directly with the wheel of one of the uprights, and with the other upright by a single intermediate wheel, and at the other end one intermediate wheel is used on one side and two on the other. These arrangements are required by the necessity of the wheels of the uprights being all the same size, and the shafts the same distance from the rails, and by reason of the gears having to work reversely to each other at the opposite ends. Each upright has an arm, N, with one of which a cam, O, on the car P is to come in contact as it advances toward the switch to set the bar H in motion for shifting the switch.

The cam will, in practice, be a double inclined projection for acting gradually on the arms, but it may be of any approved form. There is one on each side of the locomotive, and they are arranged on a rock-shaft, Q, which extends to the end of the car, and gears by toothed segments with a hand-lever, R, by which to be thrown down out of the way of the arms when not to be allowed to act on them and raised up to act.

The switch-bar D carries a locking-bolt, S, which is to drop into one of the holes T immediately after the rails B have been shifted to hold them fast while the cars pass, and a cam, U, is applied to the wheel F in such manner that, by swinging under the double-inclined head W of the said bolt at the beginning of each movement, it will lift the bolt out and free the switch.

The arms N will be fixed adjustably on the shafts, so that they can be shifted to any required position for being in the path of the cams on the locomotive. The arrangement will be such that the cam on the locomotive for causing the switch to shift will be on the same side the train is to turn by the switch.

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

1. The long bar H, having rack on both sides of each end and intermediately on the inner side, in combination with mechanism operated at each end from the car, and mechanism in the middle operating the bar D by rack and pinion E F, as shown and described, for the purpose specified.

2. The automatic locking-bolt S and unlocking-cam U, combined with the switch-bar D, substantially as and for the purpose specified.

NATHAN F. CARTER.

Witnesses:

ROYAL BEAL,

JOSEPHINE J. BEAL.