E. H. BRONSON.
Railway-Switch.

No. 204,711. Patented June 11, 1878.

Fig. 1.

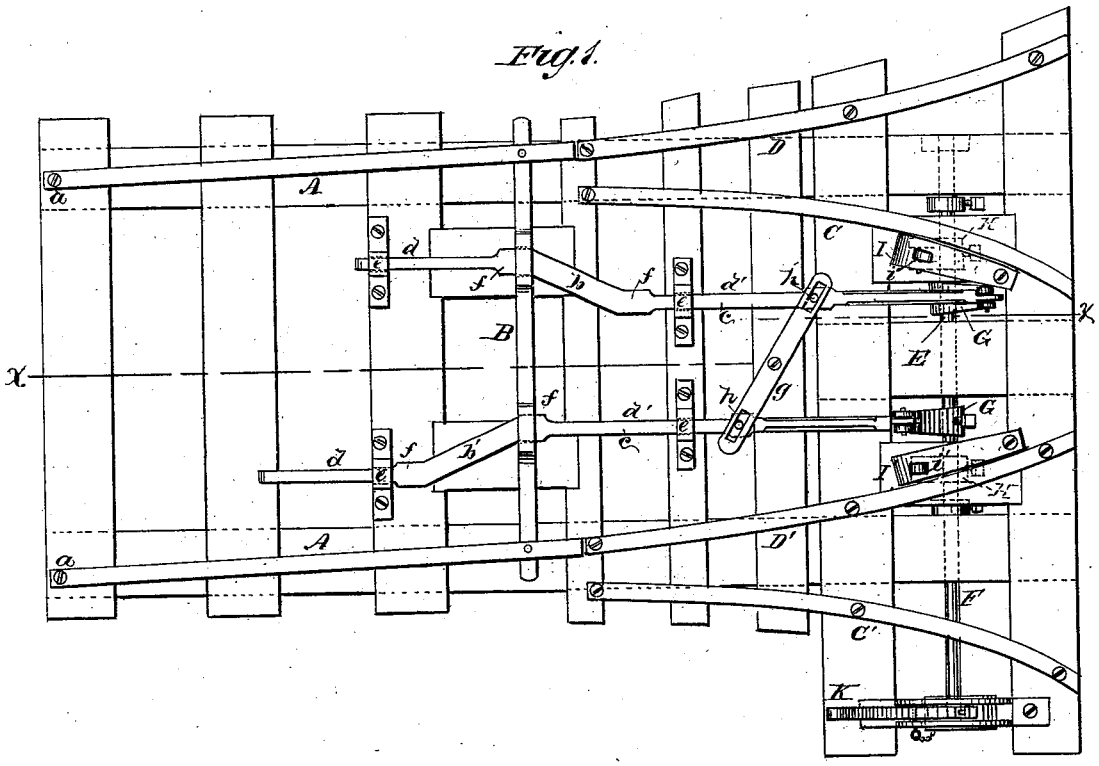


Fig. 2

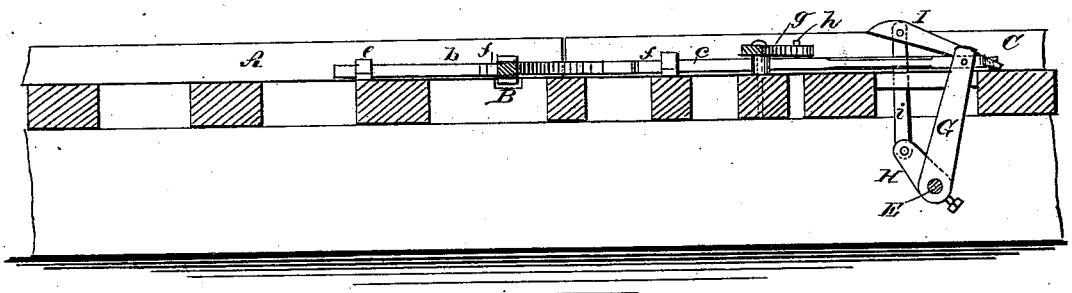
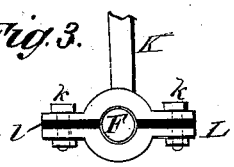


Fig. 3.



WITNESSES:
Francis McArdle.
C. Sedgwick.

INVENTOR:
E. H. Bronson
BY Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

ERSKINE H. BRONSON, OF OTTAWA, ONTARIO, CANADA.

IMPROVEMENT IN RAILWAY-SWITCHES.

Specification forming part of Letters Patent No. **204,711**, dated June 11, 1878; application filed December 24, 1877.

To all whom it may concern:

Be it known that I, ERSKINE H. BRONSON, of Ottawa, Province of Ontario and Dominion of Canada, have invented a new and Improved Automatic Railway-Switch, of which the following is a specification:

Figure 1 is a plan view of my improved switch. Fig. 2 is a longitudinal section taken on line *x x* in Fig. 1. Fig. 3 is a detail view of the friction connection between the switch-operating lever and the rock-shaft.

Similar letters of reference indicate corresponding parts.

My invention relates to automatic switches for railways; and consists in an arrangement of sliding cams for moving the switch-rails, and in treadles to be operated by the pilot-wheels of the locomotive, and in intermediate mechanism for connecting the treadles with the switch-operating cams, the object being to provide a switch which will be operated by the pilot-wheels of the locomotive as it approaches the movable switch-rails.

Referring to the drawing, A A are the movable switch-rails, pivoted at *a*, and connected together by the bar B, which is mortised to receive two oppositely-arranged sliding cams, *b b'*, formed on the bars *c*. These bars have straight portions *d d'*, which are placed in guides *e*, secured to the cross-ties which support the track-rails. The bars *c* are offset or angled to form the cams *b b'*, and at each end of each cam there is a straight portion, *f*, which fills the mortise in the bar B. The bars *c* are made to move simultaneously in opposite directions by means of the equal-armed lever *g*, which is pivoted between the two bars, and is slotted at its ends to receive studs *h* that project from the bars *c*.

C C' are the fixed main-track rails, and D D' are the rails of the branch or siding. Below these rails two rock-shafts, E F, are journaled in suitable boxes suspended from timbers attached to the cross-ties. The shafts E F are axially in line, and are arranged parallel with the cross-ties. These shafts abut at the center of the track, and near their adjacent ends arms G are secured, one to each shaft, and are each jointed to one of the bars *c*. The shafts E F are also each provided with an arm, H, that is arranged at about right angles with the arm G.

A treadle, I, which consists of a bar of iron having a longitudinally-convex surface, is pivoted to one of the cross-ties at the inner side of and adjacent to the main-track rail C, and connected with the arm H of the shaft E by means of a connecting-rod, *i*. In a similar way a treadle, I', is pivoted inside of and near to the branch-track rail D', and is connected with the arm H of the shaft F by a connecting-rod, *i*.

The shaft F is extended beyond the track-rails, and is provided with a shifting-lever, K, which is secured to the shaft by a friction-connection, consisting of the clamp L, made in two parts, one of which is secured to the lower end of the lever, and the other is drawn against the shaft by bolts *k*. A packing, *l*, of rubber or other elastic material is placed between the two parts of the clamp, to render the clamp more easily adjustable. The friction between the clamp and shaft is sufficient to admit of shifting the switch by means of the lever; but it is not so great as to prevent the automatic operation of the switch even when the lever is locked.

The operation of my improved switch is as follows: The switch-rails A being opposite the branch rails D D', and a train being on the main track and approaching the switch, the pilot-wheels of the locomotive that run upon the rail C engage the treadle I and force it downward, rocking the shaft E and moving forward the cam *b*, and, by virtue of the connection between the bars *c*, moving the cam *b'* in the opposite direction. These cams, by their engagement with the mortised bar B, move the switch-rails and render the main track continuous.

When the train approaches the switch on the branch and the switch-rails are opposite the main-track rails, the treadle I' is engaged by the pilot-wheels and the cams are moved in the opposite direction, shifting the switch-rails from the main track to the branch.

When the switch-rails are shifted the straight portions *f* at the ends of the cams fill the mor-

tises in the bar B, and prevent the lateral movement of the switch-rails by the wheels of the train.

By placing a drum on the rock-shaft and connecting it by means of a chain or wire rope to a similar drum on a rock-shaft placed at a distance from the switch, and providing the last-mentioned rock-shaft with treadles to be operated by the engine or car wheels, the switch may be operated from a long distance.

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

1. The combination of two oppositely-arranged cams, *b b'*, the lever *g*, levers G H, and treadles I I', for operating the movable switch-rails, as herein specified.

2. The lever K, having friction-clamp L, in combination with the shaft F of the switch-operating mechanism, substantially as shown and described.

ERSKINE H. BRONSON.

Witnesses:
C. SEDGWICK,
GEO. M. HOPKINS.