

(No Model.)

2 Sheets—Sheet 1.

M. O'GRADY.
RAILWAY SWITCH LOCK.

No. 305,105.

Patented Sept. 16, 1884.

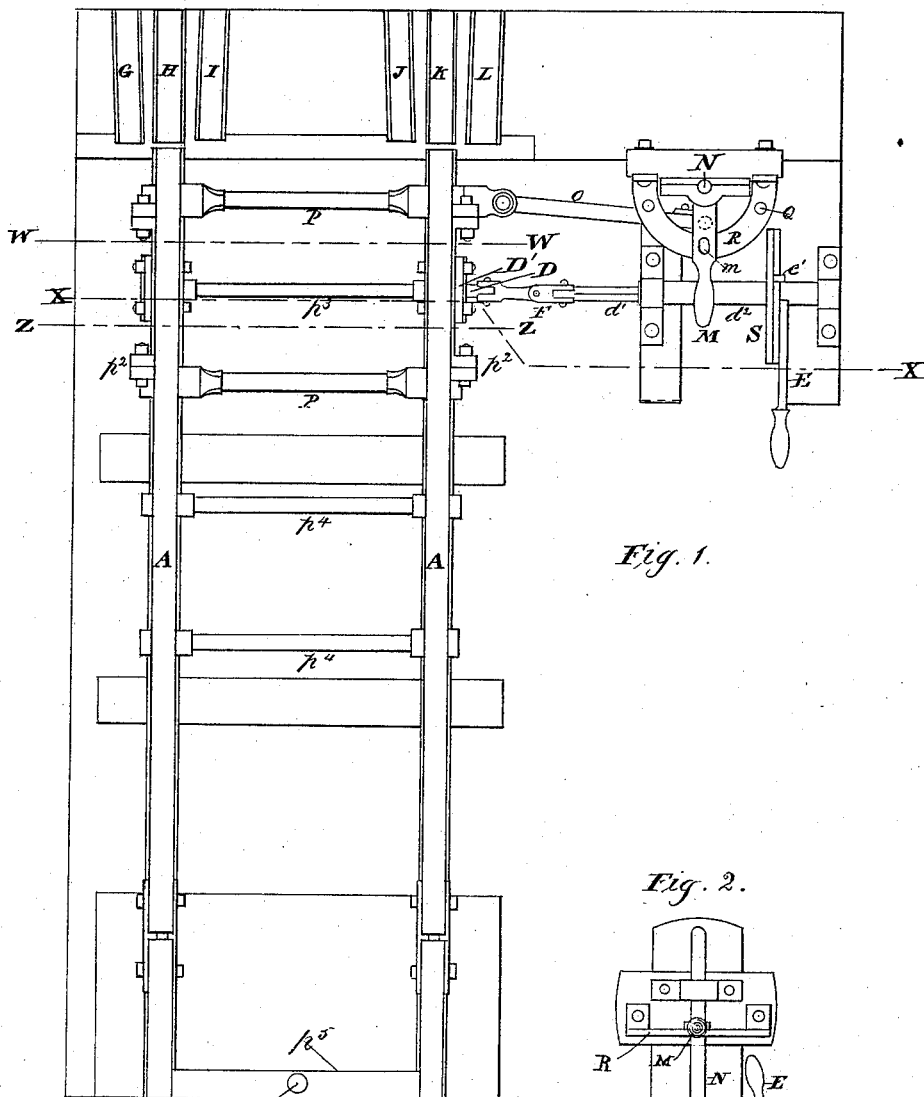


Fig. 1.

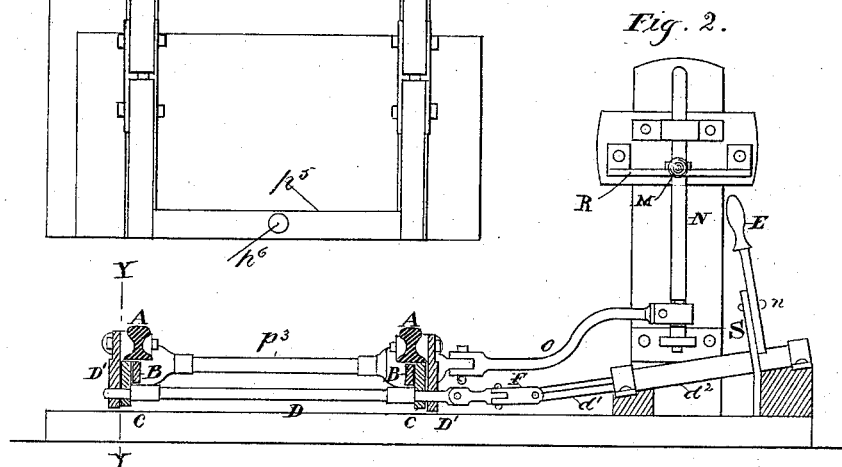


Fig. 2.

Witnesses.

Wm. Gill
David Davies

Inventor
Martin O Grady
by his atty William Gill

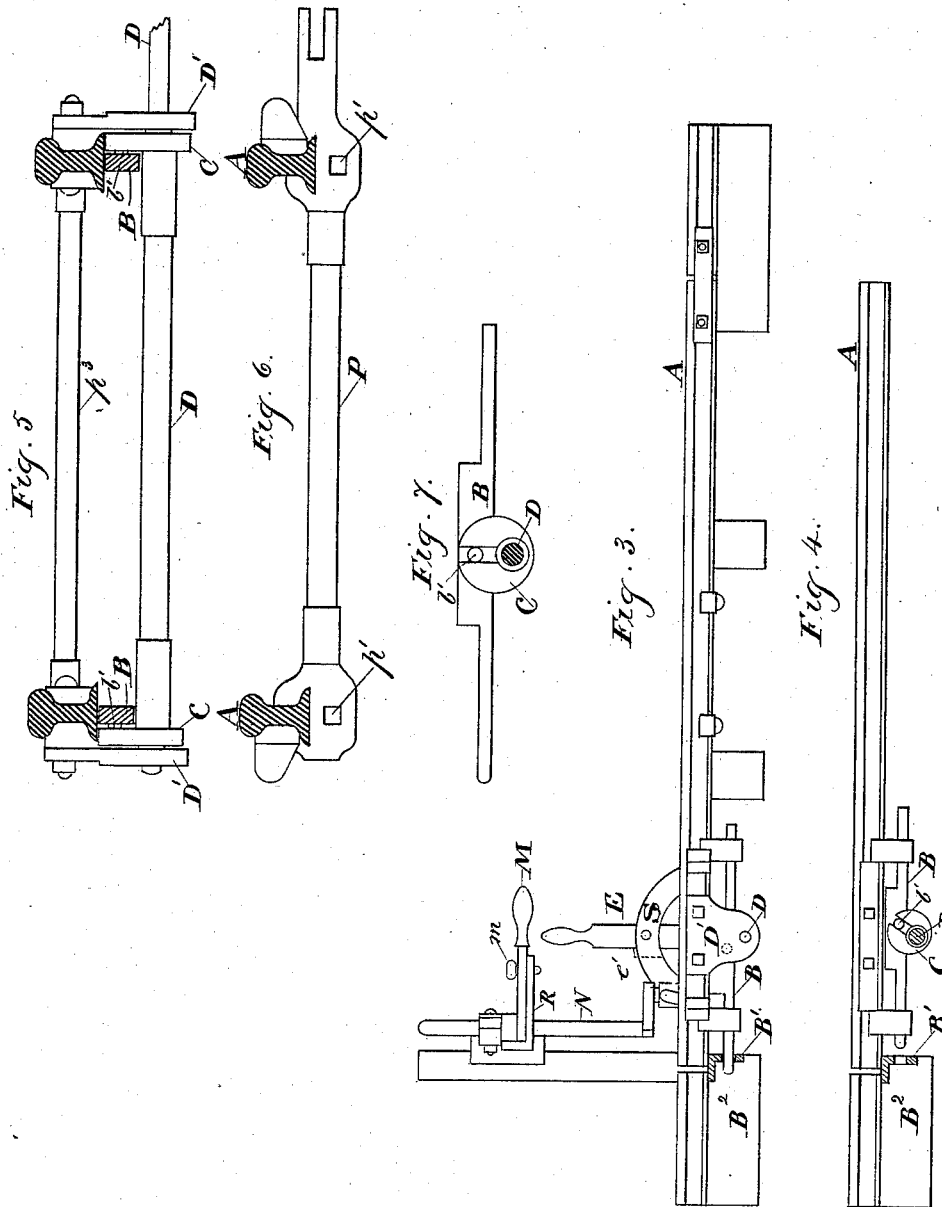
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UNITED STATES PATENT OFFICE.

MARTIN O'GRADY, TORONTO, ONTARIO, CANADA.

RAILWAY-SWITCH LOCK.

SPECIFICATION forming part of Letters Patent No. 305,105, dated September 16, 1884.

Application filed December 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, MARTIN O'GRADY, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in the Locking of Railway-Switches; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention has for its object the locking of the switch of a railway in a better and safer manner than it has been done heretofore, so that it will be safe for fast trains to run over the switch at the highest rate of speed allowable on the road, and that better time will be made and with as much safety as in passing over the switches as they are now locked at the usually reduced speed.

This invention does not do away with the present switch-lock nor any part thereof. It is an auxiliary device to the present switch-lock; and it consists of a sliding tongue or bar placed below each of the movable rails of the switch, and operated by certain mechanism specially constructed therefor, and so arranged that the usual switch-tender can operate the auxiliary lock immediately after having shifted the switch, so that it may be said to be one operation.

In the accompanying drawings the ordinary switch is also shown, in order that the relation of the auxiliary lock to the switch may be readily understood.

Sheet 1, Figure 1, is a plan view of a three-way switch having my auxiliary lock attached to the same and working in connection therewith. Fig. 2 is a transverse section intended to be through the line X X in Fig. 1. Sheet 2, Fig. 3, is a side elevation, partly in section, as looking from the side of the track opposite the lever-stands. Fig. 4 is a sectional view taken on the line Y Y of Fig. 2. Fig. 5 is a transverse section through the line Z Z in Fig. 1. Fig. 6 is a transverse section through the line W W in Fig. 1. Fig. 7 is a section with a side view of the eccentric and the sliding tongue or bar which locks the switch. Figs. 5, 6, and 7 are drawn to an enlarged scale.

Similar letters of reference indicate the same parts in all the figures and in this specification.

A A represent the movable or switch rails; B B, the sliding tongues or bars underneath

the same; b' b', pins by which the same are moved by the eccentrics C C.

D is the shaft on which the eccentrics are secured, and which is provided with a universal-joint coupling, F, and a square portion, d', which fits a corresponding socket in the journal sleeve d'', which is operated by the handle E, which is attached to the same.

S is a segment of a ring fastened on the side of the outer journal-block with a projection, e', which stops the lever E when the locking is accomplished.

P P are the main cross-bars, which retain the movable rails A A in position by means of the flanged plates p² p², which are fitted closely between the head and flange of the rail, and the journal-plates D' placed outside of the same, the bolts passing through these parts, and also through the plate on the head of the cross-bar p³, converting the two rails thus connected into a rigid frame, so as not to get loosened from the operation of the switch.

D' D' are the journal-plates in which the shaft D turns when operating the tongues B B.

B' is an iron plate secured on the inner face of the main block B², which is the usual block on which the stationary rails are fastened, having apertures pierced therein corresponding to the short stationary rails on the upper face of the said block, into which apertures the tongues are pressed by the eccentrics C C, hereinbefore referred to, when locking the switch in position for either of the side tracks, G J or I L, or for the main line H K.

p⁴ p⁴ are the ordinary cross-bars of the switch. p⁵ is a cross-bar in which the switch is pivoted at the point p⁶.

To those skilled in the art it must be apparent that the locking of a railway-switch should be effected at a point as near as possible to the junction of the movable with the stationary rails, instead of at a distance, as in the system at present extensively used.

It will be observed that my auxiliary lock is placed close to the junction of the movable with the stationary rails, and fulfills this important condition in obtaining a perfect lock.

In operating my device, suppose the rails A A are to be shifted in line with the rails I and L. This is accomplished in the usual manner by the common switch-gear composed

of the lever M, upright crank-shaft N, the connecting-rod O, and the segment R. When this is done, the pin *m* is put through the lever M and the aperture Q in the segment R, which
 5 completes the locking of the switch in the ordinary manner. My device comes now into use. The lever E is lifted up to a vertical position until it comes in contact with the projection *e'* on the back of the segment S, in
 10 which position it is secured by means of the pin *n*, passing through the lever and the segment. By the described movement of the lever the shaft D, with the eccentrics C C, has pressed forward the tongues B B into the aper-
 15 tures in the plate B', which are directly underneath and corresponding with the rails I and L, when the switch is thoroughly locked, secured, and safe for high-speed trains.

The foregoing description of the operation
 20 of my device will apply to the other rails, G and J and H and K, of the switch, each track having its respective locking-aperture in the segment R.

In the auxiliary lock it will be observed
 25 that the movement of the lever E is the same for all the tracks. The sleeve *d*² may be either inclined or level.

I am aware that improvements on switches and crossings have been patented—viz., British patents, Williams, No. 556 of 1869, im-
 30 provements in crossings and switches; also, Williams, No. 1,568 of 1870, improvements in railway-switches and junction-points; Kelly, No. 2,421 of 1874, improvements in and ap-
 35 plicable to railway-points for changing the line of direction of trains from main line to branches, or from one line to another, or otherwise; Wilkinson and Crowther, No. 3,593 of 1873, improvements in the construction and
 40 arrangement of the points of railway, tramway, and other similar lines of rails, and also the United States Patent of Haskins, No.

42,944, May 31, 1864, railway-switches, automatic.

Having thus described my invention, I 45 claim—

1. In a railway-switch constructed with one or more shifts, the combination, with the stationary and movable rails, of an auxiliary safety switch-lock, composed of sliding tongues 50 which lock into apertures in an iron bar secured on the inner face of the main block and underneath the stationary rails of the switch, and operated by any suitable mechanism for this purpose. 55

2. In a railway-switch constructed with one or more shifts, the following elements: a main block, B², provided with an iron bar having apertures therein, and placed on its inner face, and corresponding with the stationary 60 rails G H I J K L, the tongues B B, having pins *b'*, by which they are pressed into the aforesaid apertures by the eccentrics C C, which operate the same, the cross-bars P P, provided with apertures *p'*, in which the 65 tongues slide, the aforesaid elements constructed and arranged and operating in combination, substantially as shown and described, and for the purposes set forth.

3. In a railway-switch constructed with one 70 or more shifts, the following elements: the shaft D, with journal-plates D', and a universal-joint coupling, F, and a square portion, *d'*, the journaled sleeve *d*², with lever E, either in an inclined or level position, the segment S, 75 with a projection, *e'*, these elements constructed and arranged and operating in combination, substantially as shown and described, and for the purposes set forth.

MARTIN O'GRADY.

Witnesses:

WILLIAM GILL,
 FRANCIS HYDE.