

**1,185,456.**

John Walton.  
Rlf. Edwards.

Llewellyn W. Williams,  
By: *[Signature]*  
att'y.

# UNITED STATES PATENT OFFICE.

LLEWELLYN WYNN WILLIAMS, OF DARLINGTON, ENGLAND.

## LEVER FOR RAILWAY-POINTS.

1,185,456.

Specification of Letters Patent.

Patented May 30, 1916.

Application filed March 15, 1916. Serial No. 84,485.

*To all whom it may concern:*

Be it known that I, LLEWELLYN WYNN WILLIAMS, a subject of the King of England, residing at Darlington, in the county of Durham, in the Kingdom of England, have invented new and useful Improvements in Levers for Railway-Points, of which the following is a specification.

This invention relates to improvements in railway switch levers which are fixed to the ground near the points and especially to that type of hand-operated lever known as self-reversing, which enables the points to be reversed and to remain in the reversed position by the passage of the flange of a wheel of a vehicle trailing way between the point rail and the stock rail when these two rails are closed.

It is the object of the present invention to prevent accidents and delays through errors in the handling of the starting lever by so arranging mechanism in connection with a hand-operated reversing lever as to enable a single direction of motion of the handlever to shift the point rails into either position through the intervention of a mechanical selector loosely interposed between the handlever and the reversing member.

The invention is shown in the accompanying drawings, in which:

Figure 1 is a side view of the complete apparatus; Fig. 2 is a plan of the same; Fig. 3 shows two views taken at right angles to one another of a fulcrum block; Fig. 4 is a face view of the forked end of a ram-rod moving in the fulcrum block; Fig. 5 shows two views of a reversing bolt; Fig. 6 shows two views of a toggle-lever.

In carrying the invention into practice I provide a metal box or housing *a* in which I use a toggle mechanism which is placed parallel to the track. The toggle mechanism consists of a lever *b* fulcrumed at its outer end to either a fixed vertical pin *c*, or to a semi-cylindrical recess in the housing, and jointed at its inner end by means of a vertical pin *d* to the inner end of a ram rod *e* which passes through a helical spring *f*. The outer end of the ram rod *e* passes through a port *g* in a block *h* which is suitably fulcrumed on the housing *a* and which is free to oscillate horizontally. The helical spring *f*, mounted on the ram rod, rests on and presses against the oscillating block *h* and its other end rests on and presses against

a nut *i* which is mounted on a screwed portion *j* of the ram rod *e*.

The lever *b* of the toggle mechanism is drilled to accommodate a joint pin *k* by which the mechanism is attached, by means of an ordinary connecting rod *l*, to the point rails (not shown).

The lever *m* for the reversal of the points by hand is fulcrumed on a pin *n* secured to the housing. It rests normally in one inclined position from which it is moved along a single slot for either of the two ways of shifting the points. There is thus only one way for the operator to pull the handle and consequently no wrong way. The upper end of the lever *m* is formed into a handle for the operator, while the lower one engages with a mechanical selector in the form of a bolt *o* slidably mounted on a horizontal supporting arm *a\** of the fixed housing *a*.

When the handlever is pulled, the sliding bolt *o* moves horizontally along the longitudinal center line of the toggle mechanism *b*, *c*. It firstly travels across a clearance space and then its point, striking one inclined face of a V-shaped block *p* mounted upon and fixed to the lever *b* of the toggle-joint mechanism, is deflected to the right or left side of the longitudinal center line according to which face of the V-shaped block *p* is presented. The V-shaped block is superimposed centrally on the said lever *b* so that the apex of the V rests on the longitudinal center line when the toggle-joint members are retained on the dead center, *i. e.* in a straight line. After being deflected laterally the bolt *o* engages with and presses against one of the arms *p\** which project from the face of the V-block. The pressure is transmitted from the handlever *m* through the bolt *o* and V-block to the lever *b* which is turned radially until the toggle-joint mechanism is reversed. The completion of this reversing movement is accomplished before the handlever *m* reaches the vertical position and the arms *p\** of the V-block may be made to serve as stops for preventing the lever *m* from passing beyond the vertical position. The purpose of this arrangement is that the handlever *m* may by gravity fall automatically to the lower position at the same time withdrawing the bolt *o* from the advanced position across the clearance space or gap in front of the block *p* so that, when

the points are reversed by a passing vehicle, no movement is given to the handlever *m* or the bolt *o*. In the reversal of the points, the toggle-joint is reversed and the other  
 5 face of the V-piece is presented on the longitudinal center line. Projections *q* on the housing *a* may be provided to act as guides which insure the bolt *o* returning to the central position when lying out of action. Or  
 10 the bolt *o* may have a squared rear-end which sets itself against the rear wall of the housing *a* and so causes the point of the bolt to take up a median position.

I claim:

- 15 1. The combination with a supporting stand, of a hand lever mounted thereupon, a selecting member movable in said stand and deriving its movement from said hand lever, and a switch point operating member actuated by said selecting member, the actuating movement of the operating handle being  
 20 always in the same direction and serving to move the switch point actuating member in either of two directions.
- 25 2. The combination with a switch stand, of an oscillatory switch point actuating member mounted therein, spring means acting to throw said oscillatory member in opposite directions upon each side of a dead  
 30 center, a hand lever pivoted upon said stand and a selecting member mounted to be reciprocated by said hand lever, the actuating movement of the hand lever being always in the same direction and serving to

actuate the oscillatory member in opposite 35 directions.

3. A device of the character described, comprising a supporting stand, a hand lever pivoted thereon, a slidably mounted selecting element with which said hand  
 40 lever engages, and which receives its movement from said hand lever and an oscillatory switch point actuating member comprising a wedge-shaped block and lateral arms upon opposite sides thereof, said selecting member acting upon said block and  
 45 said arms to shift the switch point operating member to opposite sides of a dead center.

4. A device of the character described, 50 comprising a supporting stand, a hand lever pivoted thereon, a slidably mounted selecting element with which said hand lever engages, and which receives its movement from said hand lever and an oscillatory switch point actuating member comprising a wedge-shaped block and lateral  
 55 arms upon opposite sides thereof, said selecting member acting upon said block and said arms to shift the switch point operating member to opposite sides of a dead center and spring means acting upon the switch point operating member in each  
 60 of its directions of movement.

LLEWELLYN WYNN WILLIAMS.

Witnesses:

JANE ANNE GOWLAND,  
 JAMES CHAPMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."