

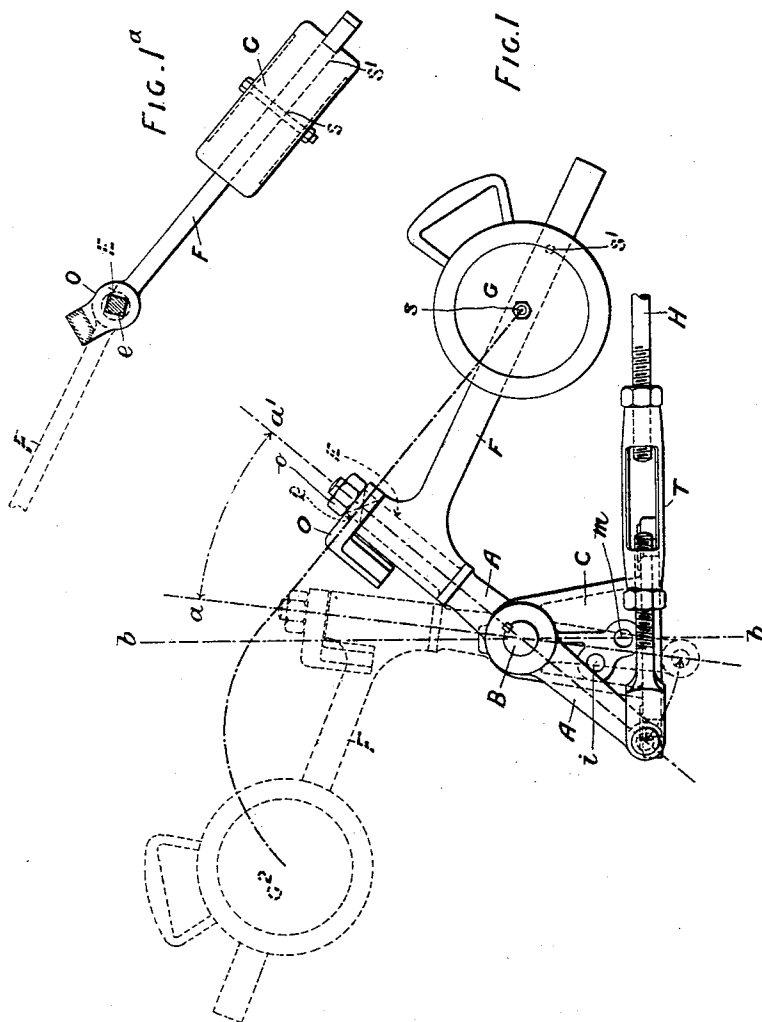
(No Model.)

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G. J. M. VANNESTE.
RAILWAY SWITCH LEVER.

No. 580,240.

Patented Apr. 6, 1897.



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INVENTOR:

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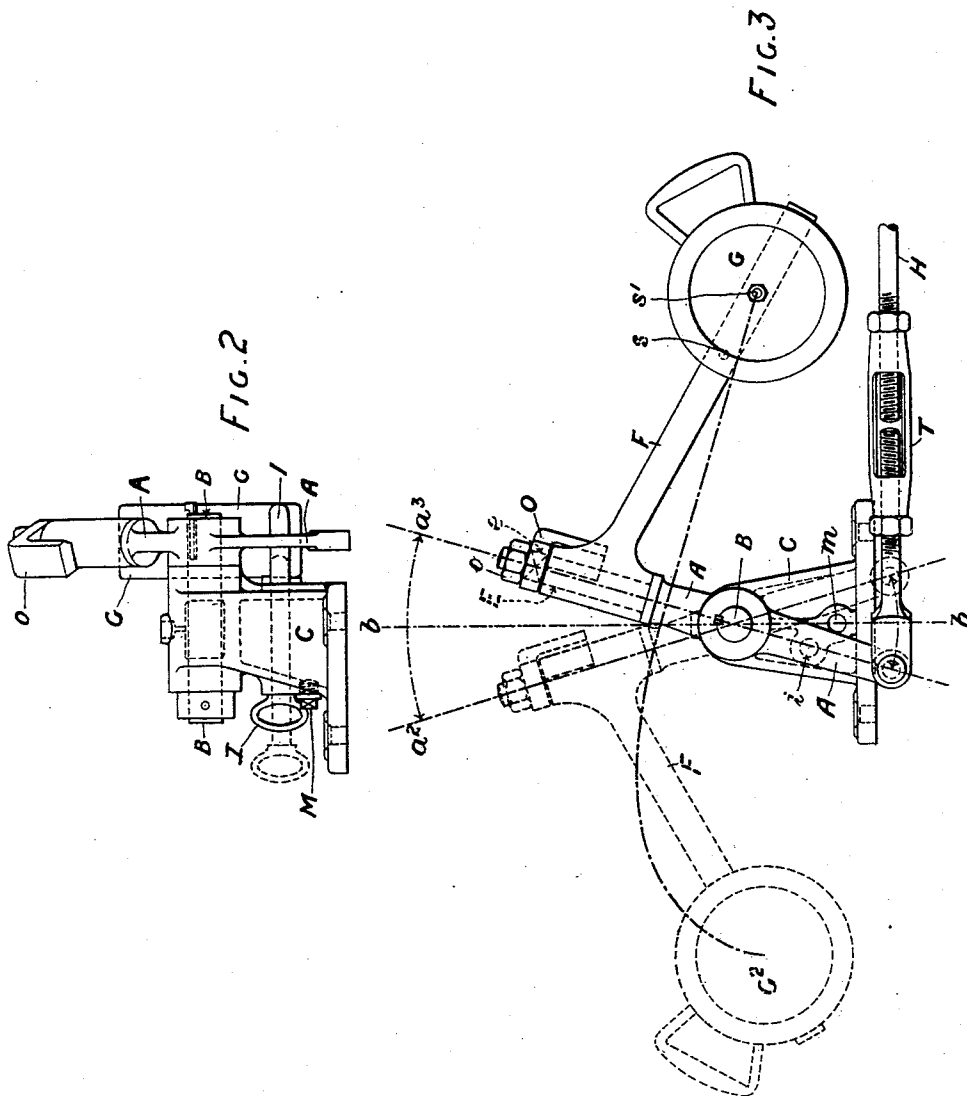
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UNITED STATES PATENT OFFICE.

GUSTAVE JEAN MARIE VANNESTE, OF BRUSSELS, BELGIUM.

RAILWAY-SWITCH LEVER.

SPECIFICATION forming part of Letters Patent No. 580,240, dated April 6, 1897.

Application filed January 7, 1897. Serial No. 618,243. (No model.) Patented in Belgium November 16, 1896, No. 124,336.

To all whom it may concern:

Be it known that I, GUSTAVE JEAN MARIE VANNESTE, engineer, of 59 Rue Verboeckhaven, Brussels, in the Kingdom of Belgium, have
5 invented new and useful Improvements in Railway-Switch Levers, (for which I have obtained Letters Patent in Belgium, dated November 16, 1896, No. 124,336,) of which the following is a full, clear, and exact description.
10 This invention relates to an improvement in the switch-operating lever of the kind described in the specification of a previous application for Letters Patent of the United States of America, filed the 9th day of September, 1896, Serial No. 605,282, and has for
15 its objects to simplify the construction of the lever and of the pivotal mounting of the swinging weight-arm thereon and to enable the apparatus to be more readily rendered
20 automatic or non-automatic in action as regards the return of the switch to a normal position, as may be required. The automatic return of the switch-lever and switch to normal position is obtained, as in my previous
25 application for Letters Patent, by pivoting the weighted arm about an axis so inclined that throughout the oscillation of the switch-lever said inclined axis will make on the same side of it an acute angle with the horizontal,
30 so that when the weighted arm is swung over from its normal position to the opposite side of the lever the weighted arm will occupy an unstable position higher than its normal position, to which it will therefore always tend
35 to return by gravity.

The present improvement consists in pivoting the weighted arm upon the switch-lever itself as its axis, whereby the construction of the lever is simplified and other advantages
40 are obtained, the parts being so adjusted that the arc through which the switch-lever moves in order to operate the switch shall be wholly on one side of the said vertical plane if the return motion is to be automatic, or shall be
45 about equally divided by said vertical plane if the action is to be non-automatic or indifferent in either direction, this change of relation with regard to the vertical plane being effected by varying the length of the switch-operating
50 rod.

The invention is illustrated in the accompanying drawings, forming part of this specification, wherein—

Figure 1 is a side elevation of a switch-lever

55 arranged for automatic return of the switch. Fig. 1^a is a plan of the weighted arm, to be hereinafter described. Fig. 2 is a front elevation of the device shown in Fig. 3; and Fig. 3 is a side elevation of the same apparatus
60 with a different adjustment, by which the switch-lever stays in the position in which it is turned and does not automatically return.

The switch-lever A is mounted on a horizontal pivot B in a standard C, the switch-rod H being connected to its lower end by a screw-coupling T and its upper part E of round
65 section forming the pivotal axis of the arm F, carrying the weight G. Upon the squared upper end *e* of the lever A, or otherwise mounted so as to be incapable of turning, is
70 secured by a nut *o* a bracket O, adapted when placed in the position shown in Figs. 1, 1^a, and 2 to limit the pivotal motion of the weighted arm F about the lever A, so as by arresting it
75 before reaching the dead-point to insure the instability of its position necessary for its automatic return after being moved, as hereinafter described.

In the case of the automatic-return form of the device shown in Fig. 1 the length of the
80 switch-rod H is so adjusted by the screw coupling T that the arc *a a'*, through which the lever A moves in order to operate the switch, will be wholly on one side of the vertical *b b*
85 through axis B. The correct position is easily ascertained by setting the lever A so that its lower member just clears the projecting end of a bolt I, temporarily inserted in a hole *i* in the standard C. This bolt may serve when
90 required to lock the switch-lever against being operated, being provided with means for the attachment of a padlock. The operation in this case is the same as in my previous application for Letters Patent, viz: When the
95 switch is to be opened to the siding, the weighted lever F is swung on the part E of lever A as a center through a nearly but not quite complete semicircle. During this movement the weighted arm exerts a moment of
100 oscillation on the lever A, and the result of the conjoint movements of arm F about lever A and of lever A about its pivot B is to bring the lever A and weighted arm F to the dotted position G² shown and to open the switch.
105 As the lever A has completed its movement before reaching the vertical plane *b b* of its pivot B, the axis E still makes an acute angle with the horizontal on the side at which

the arm F was situated when in its normal position, and as the arm F is now on the opposite side of the lever A it follows that the weight G is now at a higher level than when it was in the normal position, and as the arm F is arrested by the stop O before it swings through a complete semicircle and reaches the dead-point it follows that the weight is in an unstable position, in which it can be easily returned by hand so long as the switch is required to be held open, but from which it will return to its normal position by its own gravity directly it is released, thus returning the lever A to the normal position shown in full lines and closing the switch.

In order to adapt the apparatus to act indifferently in either direction, as shown in Fig. 3, so that the switch remains in whichever position it was last placed, the stop O is shifted round a quarter of a turn upon the squared part of the lever, so that it is out of the way of the arm F, and the switch-rod H is shortened by screwing up the coupling T, so that the arc of oscillation $a^2 a^3$ of the lever A necessary to open or close the switch extends to or past the vertical $b b$. As a guide to this adjustment the pin I is temporarily inserted in another hole m in the standard C, (this hole being usually closed by a plug M,) the coupling T being then screwed up until the lever A abuts against the pin I, which is then removed. By swinging the arm F about the part E of lever A it will be caused to exert a moment of oscillation on lever A, opposed in direction to that which it previously exerted, whereby the lever is caused to oscillate through the arc $a^2 a^3$, thereby moving the switch, the arm F on the completion of this movement occupying a stable position, from which it cannot of itself become displaced. As the difference in position with regard to the vertical $b b$ of the arcs $a a'$ and $a^2 a^3$ through which the lever moves in the two arrangements shown in Figs. 1 and 3 would alter the initial height of the weight G, the lever F is made not at right angles, but obliquely to its axis of rotation E, so that by inverting it when changing from the automatic-return to the non-automatic form of the apparatus, or vice versa, the height from the ground of the weighted end of the arm F in each case is such as to be most convenient for operating said arm, and the moment of force exerted by the weight is equalized in the two cases by shifting it along the arm F and fixing it by a bolt in one or other of the two holes $s s'$, as the case may be, the weight being at same time placed on the arm with its handle uppermost, as shown.

I claim—

1. A switch-operating lever mounted to oscillate on a horizontal axis and adjusted to move through an arc wholly on one side of the vertical passing through said axis, in combination with a weighted arm pivoted to swing about the said lever itself as an axis, and with a stop on the lever to limit the mo-

tion of the arm about the lever so that when arrested by said stop the weighted arm will be in an unstable position from which it will tend to return by gravity to its normal position and thereby to also return the switch to its normal position as specified.

2. A switch-operating lever mounted to oscillate on a horizontal axis and adjusted to move through an arc wholly on one side of the vertical passing through said axis, in combination with a weighted arm pivoted to swing about the said lever itself as an axis, and with a stop formed by a bracket removably fixed on the switch-lever and presenting a lug in position to limit the motion of the arm about the lever, so that when arrested by said stop the weighted arm will be in an unstable position from which it will tend to return by gravity to its normal position and thereby to also return the switch to its normal position as specified.

3. A switch-operating lever mounted to oscillate on a horizontal axis, in combination with a weighted arm pivoted to swing about the said lever itself as an axis, and with a screw-coupling connecting the switch-lever and switch-rod and permitting the adjustment of the position of the arc through which the lever oscillates with regard to the vertical through the axis of oscillation of the lever, in order that the return action of the lever may be readily made automatic or not, as required.

4. A switch-operating lever mounted to oscillate on a horizontal axis, in combination with a weighted arm pivoted to swing about the said lever itself as an axis, and with a screw-coupling connecting the switch-lever and switch-rod and permitting the adjustment of the position of the arc through which the lever oscillates with regard to the vertical through the axis of oscillation of the lever, the said arm being at such an angle to its axis that by inverting it upon its axis its height will be adapted to suit the position of the arc of oscillation of the switch-lever according as the return action of said lever is to be automatic or non-automatic, as specified.

5. The combination, with a switch-lever pivoted on a horizontal axis in a standard, and having a weighted arm pivoted about the lever for operating the said lever in the one or other manner described, of a guide-pin inserted in one or other of two guide-holes in the standard, as a guide in adjusting the position of the arc of oscillation of the lever to suit the intended mode of operation as specified.

6. The combination of a lever fulcrumed on an approximately horizontal axis, and a weighted arm pivoted to the lever and swinging thereon as the lever swings so as to cause the lever to assume a certain position, substantially as described.

GUSTAVE JEAN MARIE VANNESTE.

In presence of—

PIERRE GROSFILS,

LOUIS BRAUNSCHWEIG.