P. RYDER & E. BREMOND.

Apparatus for Avoiding Collisions upon Railways.

No. 149,794. Patented April 14, 1874.

Fig. 1.

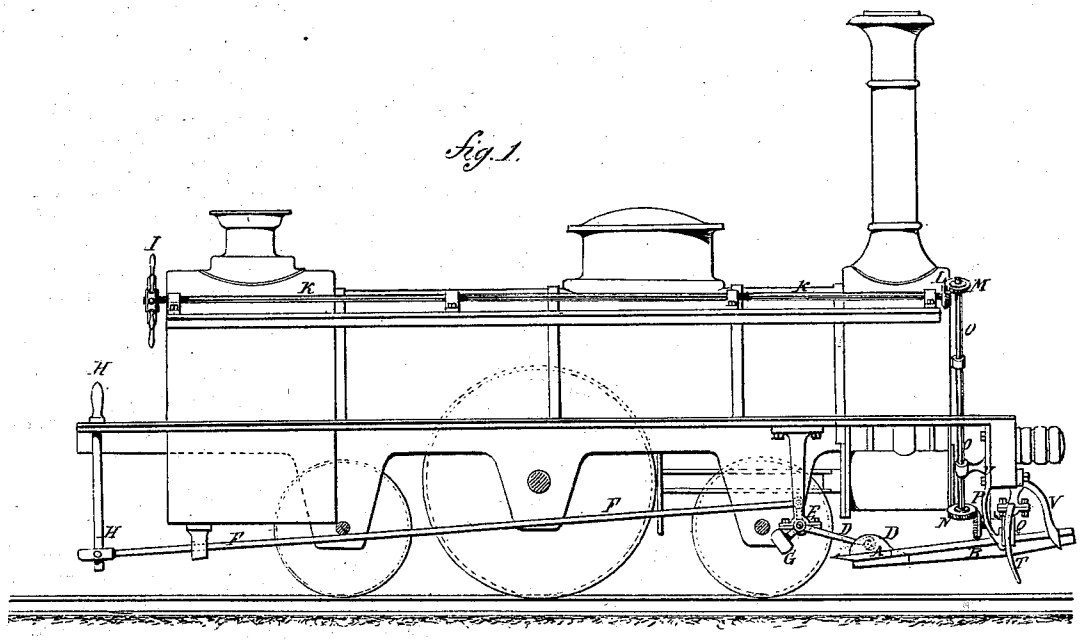


Fig. 4.

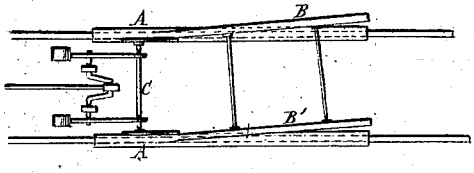


Fig. 2.

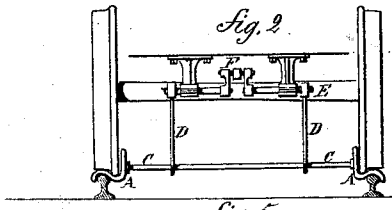


Fig. 5.

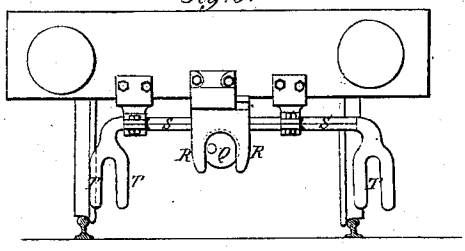
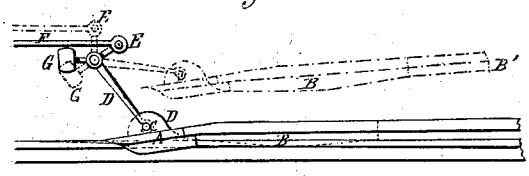


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

PAUL RYDER AND EMILE BRÉMOND, OF MARSEILLES, FRANCE.

IMPROVEMENT IN APPARATUS FOR AVOIDING COLLISIONS UPON RAILWAYS.

Specification forming part of Letters Patent No. **149,794**, dated April 14, 1874; application filed July 9, 1873.

To all whom it may concern:

Be it known that we, PAUL RYDER and EMILE BRÉMOND, of Marseilles, France, have invented an Improved Portable Apparatus applicable to Locomotive-Engines for Preventing Collision on Railways, of which the following is a specification:

This invention is based upon the idea of preventing railway collisions by fitting portable switches to the locomotive-engines, so as to allow of the train being run off the line in case of need. Accidents caused by trains running off the line are, as a rule, not nearly so disastrous as those caused by the collision of two trains, and for this reason we fix to the engine a pair of switches of special construction, which can be readily brought into action, enabling the driver to run the train off the line to the left or right, as circumstances require, either to avoid collision, or in case he should see other danger ahead, such as a broken bridge or viaduct.

Our apparatus consists of two main parts, put into action and guided by ordinary means of transmitting motion. These two parts are, first, a pair of shoes or skids, which fit upon the head of the rail, so as, at any given moment, to take under the wheels of the engine; and, second, a pair of railway-switches, each jointed to one of the said shoes, and capable of being moved horizontally to the right or to the left, so as to allow the driver to run the train off at either side. Stays or cross-pieces connect these parts, so that they act together.

We will now describe the manner in which we prefer to carry our invention into effect, in reference to the annexed drawing.

Figure 1 represents an ordinary locomotive-engine, provided with our apparatus for the running of the train off the line. Fig. 2 shows the position of the shoes on the rails. Fig. 3 represents a position of the apparatus before and after the falling down of the shoes and portable switches on the way. Fig. 4 shows a top view of the switches at the moment of running off the rails. Fig. 5 represents the mechanism for operating the deviation of the switches.

The shoes A consist of a piece of iron, formed at one end into the shape of a wedge, while the body at the lower part has the form of the head of the rail fitting upon it, so that in falling it becomes, as it were, hooked thereto, sufficient play being, however, left to allow of a deviation. The upper part of this piece of iron has a longitudinal groove, in which the flange of the wheel readily engages, and a flat or slightly convex part, on which the periphery of the wheel is received. Opposite the said groove is an eye or aperture, to receive a cross-bar, which serves as a stay to maintain the two shoes at the proper distance apart, the same distance as that between the rails. A switch, B, is jointed to each shoe, and is capable of oscillating horizontally, and has the form of an ordinary rail at the upper part. The two switches B are coupled together by a tie-rod, jointed, so as to be capable of a slight oscillation around the joints. Movable rails B′ B′, forming a prolongation of the switches B, are jointed to the switches, and are capable of oscillating in a vertical plane. They are tied together similarly to the switches B. Any desired number of pairs of these jointed rails may be employed, so as, if required, to run a train from one line onto another, which would be an advantage. The cross-bar C, which connects the two shoes A, is held up by hooks D D, which form part of a set of levers, E F F, and counter-weight G. The rear end of one of these levers F has a socket, formed with a vertical hole, to receive a holding-bar, H, which is fitted with a handle.

On drawing up this bar the set of levers is freed, and, being then acted upon by the weight of the shoes and switches, causes them to fall upon the rails. (See Fig. 3.) The ends of the shoes instantaneously engage under the wheels of the engine, and the body of the shoes A fitting upon the rails, the running of the train off the line is effected. The driver, who should lift the holding-bar H, ought to turn a hand-wheel, I, in order to deviate the switches B in the required direction. This turning of the wheel I turns a longitudinal shaft, K K, and the motion is transmitted therefrom, by gearing L M N on the shaft O, and the wheel P, to an eccentric, Q, which is fitted in a collar, R, forming part of a transverse bar, S, Fig. 5. This bar S carries at its ends two vertical forks, which guide the switches. These forks take the place of the

fenders now used to clear the rails of stones or obstructions, and are suitably supported by struts U. The switches B, being engaged in these forks, follow the movement imparted to the right or left, according as the eccentric is turned in one direction or the other.

When the holding-bar H is at rest and in place, the shoes A and switches B being held up, it is necessary to support their opposite ends. This is effected by supports V, Fig. 1, in the form of a ring, so that when the parts are freed by the raising of the holding-bar H, and the shoes A and switches B consequently fall, the ends of the switches are readily disengaged. The hooks D, which support the cross-bar C, open when the shoes A and switches B fall, and free the cross-bar, for otherwise they would drag the shoes, and cause them to slide on the rails. When the hooks have left the cross-bar they are returned to their original position by the counter-weight G, before mentioned, Figs. 1, 2, and 3.

We claim as our invention—

1. The shoes A, to be set upon the rails forward of the wheels, in connection with the locomotive, in combination with the lever C D E F, whereby the said shoes may be thrown upon the rails, substantially as and for the purpose set forth.

2. In combination with the shoes A, to be set upon the rails, the switches B and the levers for throwing the shoes and switches into connection with the rails forward of the wheels, substantially as set forth.

3. The combination of the shoes A, to sit upon the rails, the switches B, movable rails B′, hung to the locomotive forward of the wheels, and combined with the levers for lowering the shoes and connections onto the rails, and raising them therefrom, substantially as specified.

In testimony whereof we have signed our names to this specification before two subscribing witnesses.

P. RYDER.
E. BRÉMOND.

Witnesses:
J. ARMENGAUD,
ALBERT CAHEN.