

(No Model.)

E. L. PATERSON.
RAILWAY SAFETY GATE.

No. 485,771.

Patented Nov. 8, 1892.

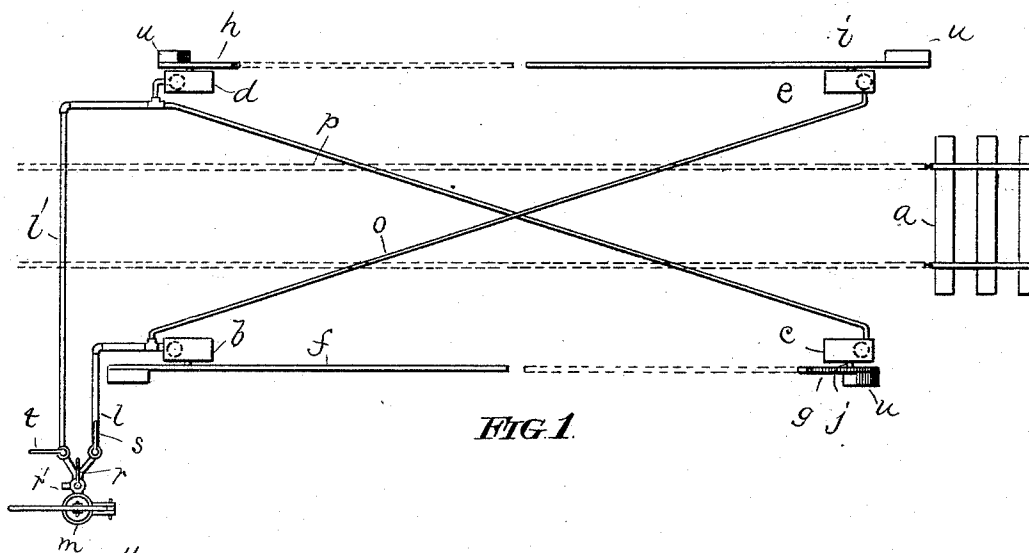


FIG. 1.

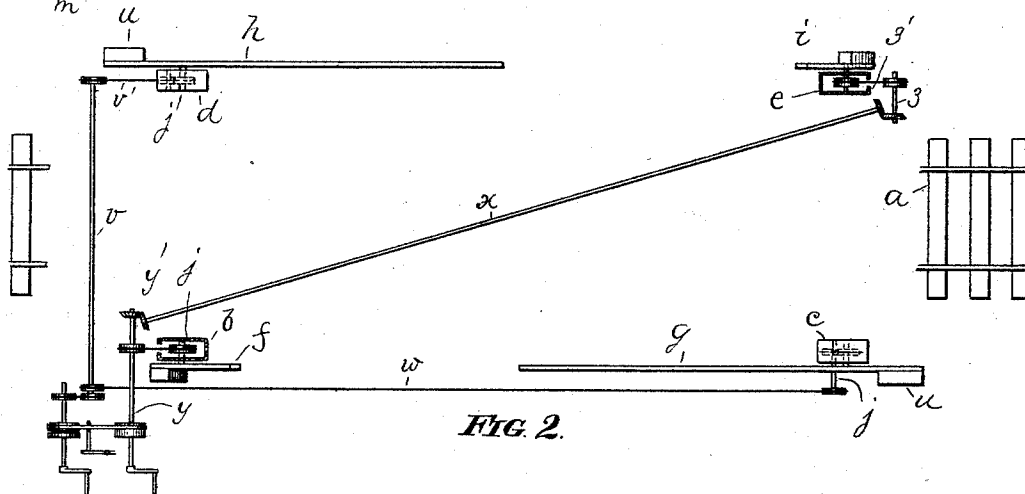


FIG. 2.

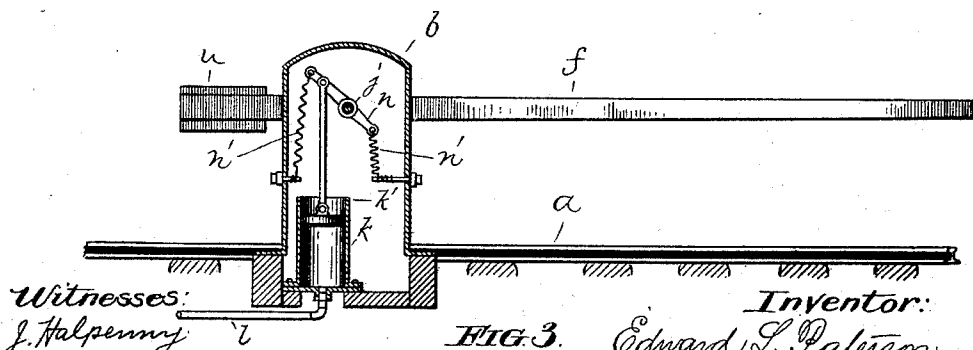


FIG. 3.

Witnesses:
J. Halpern,
Y. S. L. Dixon.

Inventor:
Edward L. Paterson,
By David H. Fletcher,
his Atty.

UNITED STATES PATENT OFFICE.

EDWARD L. PATERSON, OF CHICAGO, ILLINOIS.

RAILWAY SAFETY-GATE.

SPECIFICATION forming part of Letters Patent No. 485,771, dated November 8, 1892.

Application filed May 17, 1892. Serial No. 433,298. (No model.)

To all whom it may concern:

Be it known that I, EDWARD L. PATERSON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway Safety-Gates, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view showing a railway-bed from which the track has been removed in order to show the pipes beneath for conveying liquid or compressed air to operate the gates. Fig. 2 is a similar view in diagram, showing the manner in which the gates are actuated, shafting being shown as a substitute for air-pipes; and Fig. 3 is a side view, partly in section, showing one means for operating and cushioning the movement of one of the gates.

Like letters of reference in the different figures indicate corresponding parts.

Great difficulty has been heretofore experienced in connection with railway safety-gates and serious accidents have resulted from their use, for the reason that if closed at the proper time to warn approaching passengers upon the respective sides of the railway-track of a passing train no chance is given for the escape of such as may be upon the crossing and between the gates, and hence they are shut in with no chance of escape except at the most serious risk, if at all. This is particularly true of crossings where there are a number of tracks, and hence a considerable distance between the gates.

The object of my invention is to so construct and operate railway-gates that while warning may be given by the simultaneous presentation upon both sides of the track of a partial barrier, yet a way may be left open for the escape of those already upon the crossing at the time at which it may be necessary to close the gates.

To this end my invention consists in the combination of elements hereinafter more particularly described and claimed.

Referring to the drawings, *a* represents a railway-track, upon each side of which are placed two standards *b c* and *d e*, respectively, which may be constructed in any well-known way for the support of the usual pivoted gates

f g and *h i*, which are rigidly attached to horizontal shafts *j*, mounted in suitable bearings in the stationary supports. I prefer to actuate said gates by means of compressed air, which may be accomplished in any approved and known way without departing from the essential feature of my invention. In Fig. 3 I have shown one means of actuating a gate. Inclosed within the casing and rigidly secured upon a suitable foundation is a cylinder *k*, which is connected with a pipe *l*, communicating in turn with an air-pump *m*, Fig. 1. The cylinder *k* is provided with a piston *k'*, which is connected, as shown, with a crank-arm *n*, rigidly attached to the shaft *j*. Springs *n' n'* are connected with the crank-arm, as shown, and with the casing, respectively, and serve to cushion the movement of the pivoted gate *f*. A secondary pipe *l'* is connected with the air-pump and extended beneath the track to the cylinder inclosed within the casing *d* upon the opposite side of said track, as shown in Fig. 1. Connecting with the pipe *l* and extending diagonally across beneath the track to the cylinder in the casing *e* and connecting with the pipe *l'* near the casing *d*, and extending thence diagonally across to the cylinder in the casing *c*, are pipes, by means of which the gates *c* and *e* may be operated, respectively, from a given point. A two-way valve *r* is adapted to open and close an escape-vent *r'*, while independent valves *s* and *t* are placed in the pipes *l* and *l'*, so that the air may be admitted to or excluded from one or the other, as desired. The counter-weights *u* upon the gate-arms, together with the weight of the piston *k'*, enable the gate-arms to assume a vertical position and to be normally maintained therein; but upon the admission of air to the cylinders the pistons are raised and the gate-arms forced into a horizontal position, as shown in Fig. 3.

The operation of my improved safety-gate is as follows: Assuming the valve *s* to be opened, the air rushes through the pipes *l* and *o* and actuates the gates *f* and *i*, respectively, as indicated in Fig. 1, while the gates *g* and *h* remain open. This action serves a warning to passengers approaching from opposite sides that a train is near, and should any person or persons be crossing the track in either direction at the time said gates are being op-

erated a means of escape is obviously provided by turning to the right or left, as the case may be, to the passage left by the unclosed gate. It is immaterial which of the valves *s t* is turned first, as it is obvious that in either event the gates diagonally opposite will be closed, while the others may be allowed to remain open until such passengers as may be in the act of crossing may have time to get outside of the gates.

In Fig. 2 I have shown a modified construction to indicate that shafting or belting, either or both, may be employed to accomplish the same result as that attained by the use of compressed air, and while I prefer to make the connections themselves diagonal, as indicated by the arrangement of the pipes *p o*, it is obvious that this need not be done so long as the gates diagonally opposite are arranged to operate in unison. By extending a shaft *v* from the operating position near the gate *f* directly across and at right angles to the track and connecting said shaft by means of belts *v' w* with pulleys upon the shafts to which the gates *h g* are attached it is obvious that the gates *h g* may be actuated in unison, or a shaft *x* may be arranged diagonally beneath the track and connected by means of beveled gears with the gate-shafts of the gates *f i*, or,

as is shown, with secondary shafts *v z*, which in turn are connected by means of belts *v' z'* with pulleys upon said shafts and the gate-shafts, respectively. The shafts may be operated by means of cranks, as shown, or in any other way. If desired, and where there is no one upon the crossing at the time the gates need to be closed, it is obvious that both sets of gates may be operated at once by opening both of the valves *s t* or turning both cranks. If compressed air be employed, said gates may be opened by turning the valve *r*, so as to permit the air to escape.

Having thus described my invention, I claim—

The combination, with a railway-track, of a pair of safety-gates arranged upon each side of the track and means for operatively connecting one gate of each pair with the gate diagonally opposite thereto, substantially as shown and described.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 28th day of April, 1892.

EDWD. L. PATERSON.

Witnesses:

D. H. FLETCHER,
T. S. E. DIXON.