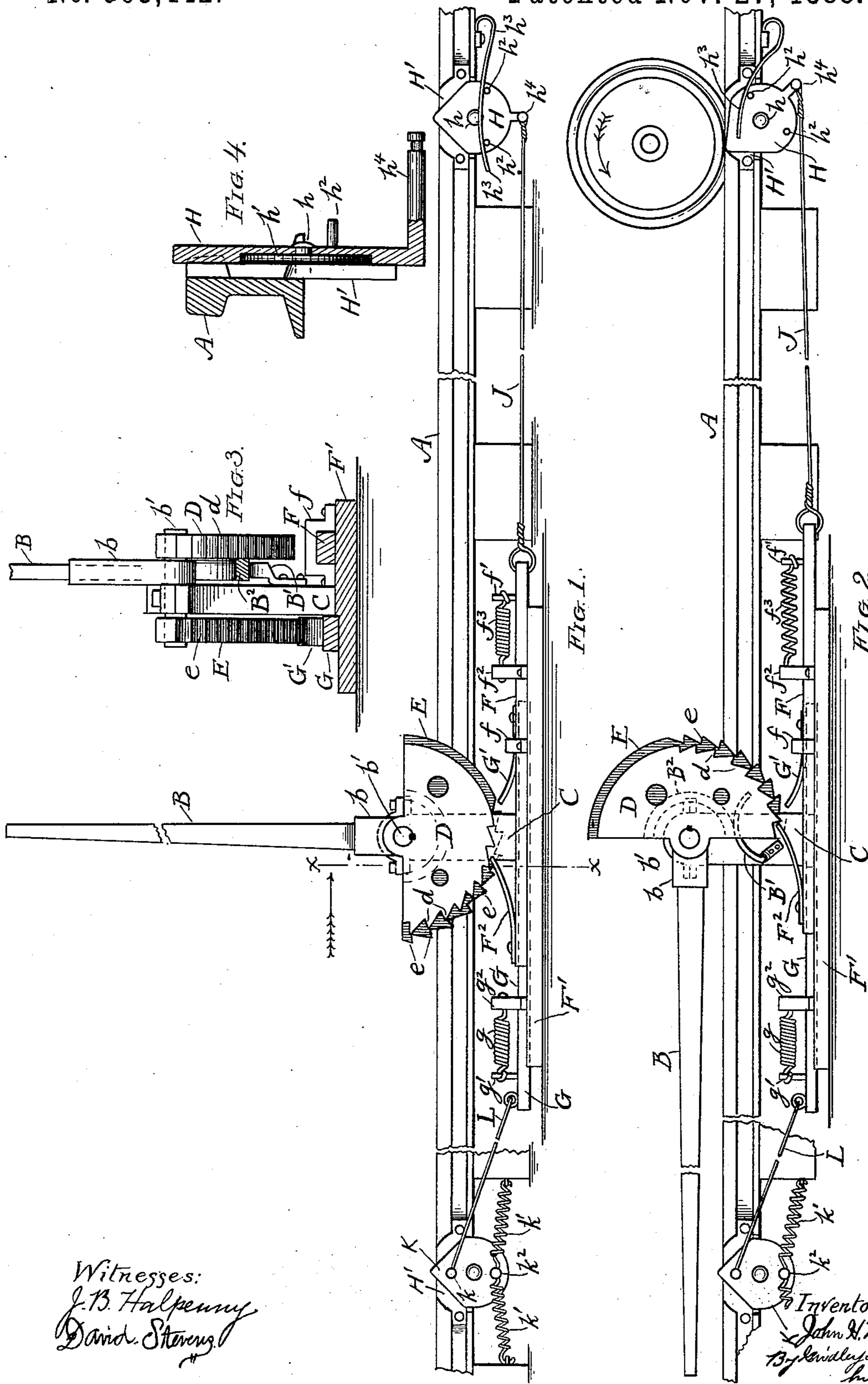


(No Model.)

J. H. MORSE.  
RAILWAY SAFETY GATE.

No. 393,442.

Patented Nov. 27, 1888.



Witnesses:  
J. B. Halpenny  
David. Storing

Inventor:  
John H. Morse  
By David Storing  
his Atty.

# UNITED STATES PATENT OFFICE.

JOHN H. MORSE, OF EVANSTON, ILLINOIS.

## RAILWAY SAFETY-GATE.

SPECIFICATION forming part of Letters Patent No. 393,442, dated November 27, 1888.

Application filed April 10, 1888. Serial No. 270,189. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. MORSE, of Evanston, in the county of Cook and State of Illinois, have invented certain new and useful  
5 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—

10 Figure 1 is a side view of a railway-track, showing my improved gate in an open position. Fig. 2 is a like view showing the gate closed and the actuating mechanism as it appears while in the act of moving said gate.  
15 Fig. 3 is a vertical sectional view taken upon the line  $x x$ , Fig. 1; and Fig. 4 is a sectional view of the rail and tripping mechanism.

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

20 The object of my invention is to so construct a railway - gate and means for operating the same that it may be automatically closed and opened upon the passage of a train by means of suitable tripping mechanism to be actuated  
25 by means of the car-wheels.

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

Referring to the drawings, A represents one  
30 of the rails of a railway-track. Near the crossing of said track I place my improved gate, which consists of one or more of the usual pivoted bars adapted to stand normally in a vertical position and to be lowered to a  
35 horizontal one during the passage of a train.

B represents said bar, which is secured within a socket or otherwise attached to an arm,  $b$ , secured rigidly to a trunnion,  $b'$ , loosely mounted within a bearing in a post or stand-  
40 ard, C. Rigidly attached to the outer ends of said trunnion are sector-shaped plates D E, each of which is provided with a series of ratchet-teeth,  $d e$ . Those upon one plate point in an opposite direction from those upon the  
45 other, as clearly shown in the drawings, in which one plate is made larger than the other in order to permit them to be seen and to avoid confusion. Said plates may serve as a counterpoise for the bar D, which is lowered  
50 and raised by means of said ratchet and a pawl and tripping mechanism about to be described.

F is a sliding bar arranged in a horizontal position upon a bed or plate,  $F'$ , to which are attached one or more loops,  $f$ , which serve to  
55 retain said bar in position. Upon one end of the bar is attached a spring-pawl,  $F^2$ , Figs. 1 and 2, which is adjusted to engage with the ratchet-teeth  $d$  when the bar is drawn toward said ratchet; but its normal position is  
60 such as to clear said teeth. Attached to the block F is a pin,  $f'$ , to which is secured a spiral spring,  $f^3$ , the opposite end of which is attached to a rigid stud,  $f^2$ , upon the bed-plate. Said spring  $f^3$  serves to draw the bar F back  
65 and to hold the pawl normally out of engagement with the ratchet.

G, Figs. 1 and 2, is a like bar, attached to the bed in the same manner as the bar F, but in a reversed position, and is likewise pro-  
70 vided with a spring-pawl,  $G'$ , adapted to engage with the ratchet-teeth  $e$ , but normally held out of engagement therewith by means of the spring  $g$ , attached to the studs  $g' g^2$ .

In order to retain the gate in a vertical or  
75 other position in which it may be temporarily placed, and to prevent it from being blown down when elevated, I provide a friction-brake therefor, which consists of a bent spring,  $B'$ , Figs. 2 and 3, which bears upon a circular  
80 flange,  $B^2$ , formed upon the plate D.

H, Figs. 1, 2, and 4, is a tripper, which is pivoted at  $h$  to a metal plate,  $H'$ , bolted or riveted to the rail A, the upper flange of which is cut away, as shown, to receive said plate.  
85 The plate  $H'$  is provided with a circular projection,  $h'$ , Fig. 4, which has its counterpart formed in the plate H, concentric with the axis  $h$ , thus forming a large bearing-surface to receive the strain upon said tripper. Upon op-  
90 posite sides of said tripper are pins  $h^2 h^2$ , upon which a spring,  $h^3$ , attached to the rail, is made to bear, so as to normally hold said tripper in the position shown in Fig. 1, while it may also be permitted to oscillate. Upon the lower  
95 end of said tripper is attached an arm,  $h^4$ , which extends laterally therefrom, and is connected with the bar F by means of a rod, J, of indefinite length, which is intended to be retained in a somewhat taut condition. Upon  
100 the opposite side of the gate, and preferably near the crossing, is a secondary tripper, K, attached in like manner to a plate,  $H'$ , and which may be in every respect like the trip-

per H; but I have shown a somewhat modified construction to indicate that I do not confine myself to the specific form above described. To a pin,  $k$ , above the axis of said tripper I have attached a rod, L, which is in turn connected to the bar G. The tripper K is held normally in a vertical position by means of the springs  $k' k'$ , attached to a pin,  $k^2$ , which, it is obvious, may be employed in lieu of the spring  $k^3$ , which is shown in conjunction with the tripper H.

The operation of said device is as follows: Assuming the gate to be open, as shown in Fig. 1, the wheels of a train passing over the tripper H toward the crossing at which said gate is located alternately depress and release said tripper, which in turn reciprocates the pawl  $F^2$  until it has successively been brought into contact with all the ratchet-teeth, at which time it will have lowered the gate, and, though continuing to reciprocate, as it may for a time thereafter, it will produce no further result. As the train passes the crossing the wheels are brought into contact with the tripper K, which, operating in like manner upon the ratchet E, again raises the gate to a vertical position.

Having thus described my invention, I claim—

1. The combination, with a trunnioned railway-gate, of trippers upon the respective sides of the crossing, arranged to be depressed by the car-wheels, a reciprocating pawl connected with each of said trippers by means of a rod or cable, curved ratchets arranged concentrically with the axis of said gate in proximity to said pawls and rigidly secured to said axis, and means, as set forth, for normally holding said pawls out of engagement with said ratchets, substantially as shown and described.

2. The combination, with a balanced or

counterpoised trunnioned railway-gate, of trippers upon the respective sides of the crossing, arranged to be depressed by the car-wheels, a reciprocating pawl connected with each of said trippers by means of a cable, curved ratchets arranged concentrically with the axis of said gate in proximity to said pawls and rigidly secured to said axis, means, as set forth, for normally holding said pawls out of engagement with said ratchets, and means, such as a friction spring-brake, for preventing said gate from accidental displacement, substantially as shown and described.

3. The combination, with a trunnioned counterpoise-gate, of the segmental ratchets D E, reciprocating pawls arranged to engage therewith, springs for normally holding said pawls out of engagement with said ratchets, trippers arranged to be actuated by the car-wheels, and cables for connecting the same with said reciprocating pawls, substantially as shown and described.

4. The combination, with a trunnioned counterpoise-gate, of the segmental ratchets D E, reciprocating pawls arranged to engage therewith, springs for normally holding said pawls out of engagement with said ratchets, trippers arranged to be actuated by the car-wheels, springs for retaining said trippers in a normal position, and cables for connecting the same with said reciprocating pawls, substantially as shown and described.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 30th day of March, 1888.

JOHN H. MORSE.

Witnesses:

D. H. FLETCHER,  
J. B. HALPENNY.