

2 Sheets—Sheet 1.

RAILWAY CROSSING ALARM SIGNAL.

Patented June 12, 1888.

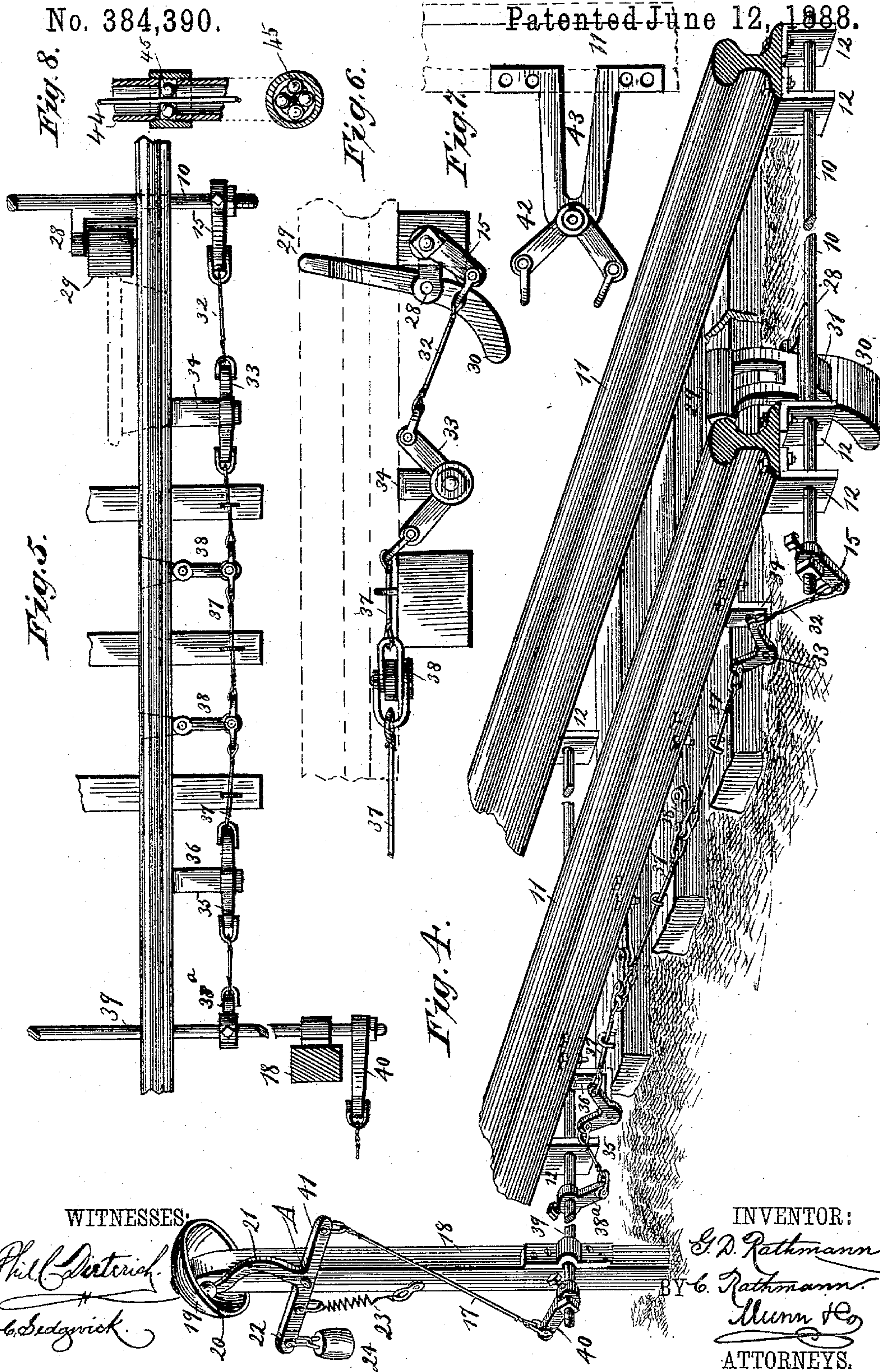




G. D. & C. RATHMANN.  
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No. 384,390.

Patented June 12, 1888.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE D. RATHMANN AND CHRISTIAN RATHMANN, OF BLAIR, NEBRASKA.

## RAILWAY-CROSSING ALARM-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 384,390, dated June 12, 1888.

Application filed November 5, 1887. Serial No. 254,374. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE D. RATHMANN and CHRISTIAN RATHMANN, of Blair, in the county of Washington and State of Nebraska, have invented a new and Improved Alarm Signal for Railway-Crossings, of which the following is a full, clear, and exact description.

The object of this invention is to provide a means for sounding an alarm as a railway-train approaches a crossing that is on a level with the track, the invention consisting, essentially, of a gong located at the crossing, a tripping-dog mounted upon a rock-shaft and located in close proximity to one of the rails of the track, and connections between the rock-shaft and the gong-hammer, all as will be hereinafter more fully described, and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of a portion of a track, representing the same as it appears when provided with our improved signaling apparatus. Fig. 2 is a plan view of the tripping-dog and its connections. Fig. 3 is a sectional view taken on line *x x* of Fig. 2. Fig. 4 is a perspective view representing a modified connection between the rock-shaft and the hammer of the gong. Fig. 5 is a plan view of a portion of the construction illustrated in Fig. 4. Fig. 6 is a side view of a portion of the signaling apparatus, the position of the rail being indicated by dotted lines. Fig. 7 is a detail view of a portion of a modified construction, and Fig. 8 is a detail view of another modified construction.

In setting up such a signaling apparatus as the one forming the subject-matter of this application we provide a rock-shaft, 10, that is mounted beneath the rails 11, said shaft being supported by bearings that are formed in brackets 12; which brackets are bolted or otherwise connected to the under side of the bases of the rails, the extending end of the shaft being supported by a bearing, 13, that is secured to a post, 14. A lever-arm, 15, is connected to the shaft 10 in close proximity to the post 14, and this arm is in turn connected

to a bell-crank lever, 16, that is pivotally connected to the post at a point near the top thereof, the connection between the arm 15 and the lever 16 being established by a rod or wire, 17.

At a point beyond the post 14 there is another post, 18, which carries a gong, 19, of which the hammer 20 is mounted upon the upwardly-extending arm 21 of a bell-crank lever, A, the other arm, 22, of said lever being normally held in about a horizontal position by a spring, 23, or a weight, 24; or both spring and weight could be employed for this purpose. Between the posts 14 and 18 we stretch a heavy supporting-wire, 25, which wire carries a number of downwardly-extending loops, 26, through which loops there is passed a wire, 27, said wire being connected at one end with the lever 16 and at the other with the arm 21 of the lever A.

At the point just within the line of one of the rails 11 the shaft 10 carries two forwardly-extending arms, 28, between which arms there is mounted a tripping-dog, 29, which dog extends upward in close proximity to the tread of the rail, the dog being normally held in the position in which it is shown in the drawings by means of a counterpoise, 30, which is made integral with it, that face of the counterpoise which is adjacent to the shaft 10 resting against a stop, 31, which extends downward and forward from the shaft 10.

The signal above described is arranged so that it may be operated by trains passing in the direction of the arrow shown at *a*. As such trains approach the dog 29, the flanges of the wheels will bear upon the dog, and the shaft will be rocked in the direction of the arrow shown at *b*, and in so moving will carry down the arm 15, which movement of the arm will draw the wire 27 in the direction of the arrow *c*, whereby the hammer 20 will be thrown against the gong 19; but immediately after the flange of the wheel passes from engagement with the dog 29, the spring 23 or the weight 24, or both if the two are used, will act to return the hammer and the parts connected thereto to the position in which they are shown in the drawings, the above-described movement being repeated when the flange of the following wheel comes into engagement



with the dog 29. If, however, a train be moving in a direction opposite to that indicated by the arrow *a*, the dog 29 will simply be rocked upon its connection with the arms 28, the counterpoise acting to return the dog to its normal position, but, as will be readily understood, the above described movement of the dog will not affect the position of the shaft 10.

In Figs. 4, 5, and 6 we illustrate a construction wherein the post 14 is dispensed with and the arm 15 is connected by a wire, 32, with a bell-crank lever, 33, said lever being mounted upon a bracket, 34, that is connected to one of the rails 11. The lever 33 is connected to a second bell-crank lever, 35, which is supported by a bracket, 36, in close proximity to the post 18, the connection between the two levers 33 and 35 being established by means of wires or rods 37, which wires are in turn connected to arms 38, that are mounted upon brackets secured to the under side of the rail treads. The lever 35 is connected to an arm, 38<sup>a</sup>, that is mounted upon a transverse rock-shaft, 39, and this shaft carries an arm, 40, which is connected to a spur, 41, that extends outward from the lever A.

It will be seen that the construction last-above described will operate in the same manner as that shown in Fig. 1, the construction shown in Fig. 1 being applicable for use where the track is laid upon low, swampy ground, while the construction shown in Figs. 4, 5, and 6 is employed upon high or dry ground.

Instead of using the shaft 39 we could mount a bell-crank lever, 42, upon a standard, 43, connecting one arm of the lever 42 to the lever 35 and the other arm to the spur 41 of the lever A. In Fig. 8 we show another modification, whereby the connecting wires extending from the arm 15 of the shaft 10 to the lever A pass through tubes 44, in the joints of which there are arranged anti-friction balls 45, said balls tending to support the wire and reduce its frictional contact with the inclosing tubes. If the construction shown in Figs. 4,

5, and 6 be employed, the connecting mechanism between the shaft 10 and the gong should be properly housed.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. In a railway-signal, the combination, with a gong supported on a post at one side of the track and a spring-actuated bell-crank lever pivoted to the post and carrying a hammer, of a rock-shaft below the rails and provided with the arm 15, the arms 28, and the stop 31, the tripping-dog 29, pivoted between the arms 28 and having the counterpoise 30, and connections, substantially as described, between the bell-crank lever and the arm 15 of the rock-shaft, as specified.

2. In a railway-signal, the combination of the rock-shaft 10, provided with the forwardly-projecting arms 28 and the stop 31, and the tripping-dog 29, pivoted between the arms 28 and having a counterpoise, 30, on one end, substantially as herein shown and described.

3. In a railway-signal, the combination, with a rock-shaft mounted beneath the bases of the rails and provided with arms 28 and a projection, 31, of a tripping-dog mounted between and supported by the arms 28, a counterpoise arranged in connection with the tripping-dog, a post, 14, an arm, 15, carried by the rock-shaft in close proximity to the post, a second post, 18, a lever, A, carried by said post and provided with a gong-hammer, a spring arranged in connection with the lever, a gong, a supporting-wire, 25, loops carried by said wire, a wire, 27, connected to the lever A and passing through said loops, a lever, 16, mounted upon the post 14, and a wire connecting the lever 16 and the arm 15, substantially as described.

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