

(No Model.)

4 Sheets—Sheet 1.

J. M. ALLAN.

AUTOMATIC RAILROAD CROSSING SIGNAL.

No. 368,368.

Patented Aug. 16, 1887.

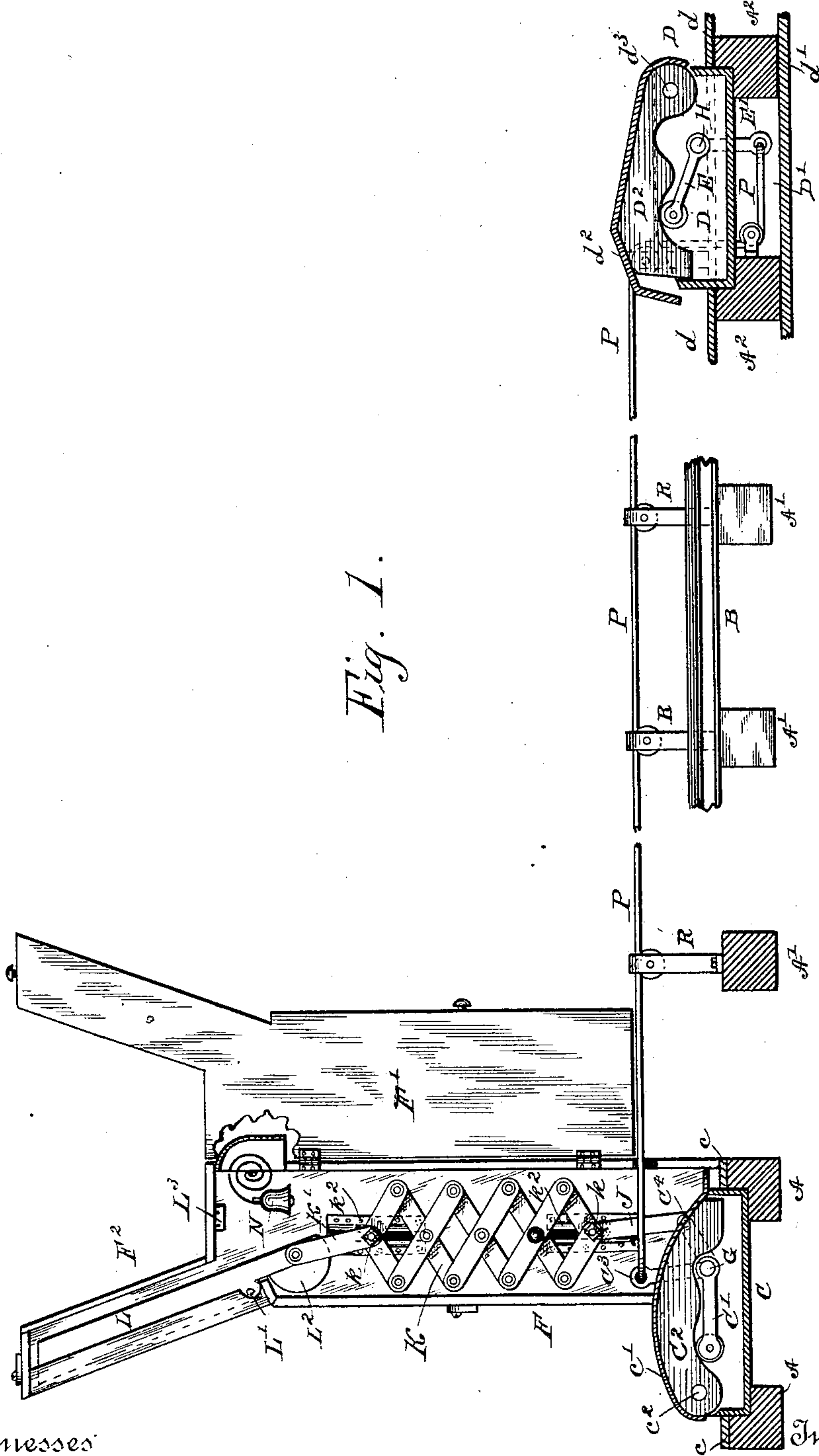


Fig. 1.

Witnesses

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Percy White.

Inventor

John M. Allan.

By his Attorney

Robt. J. Murray

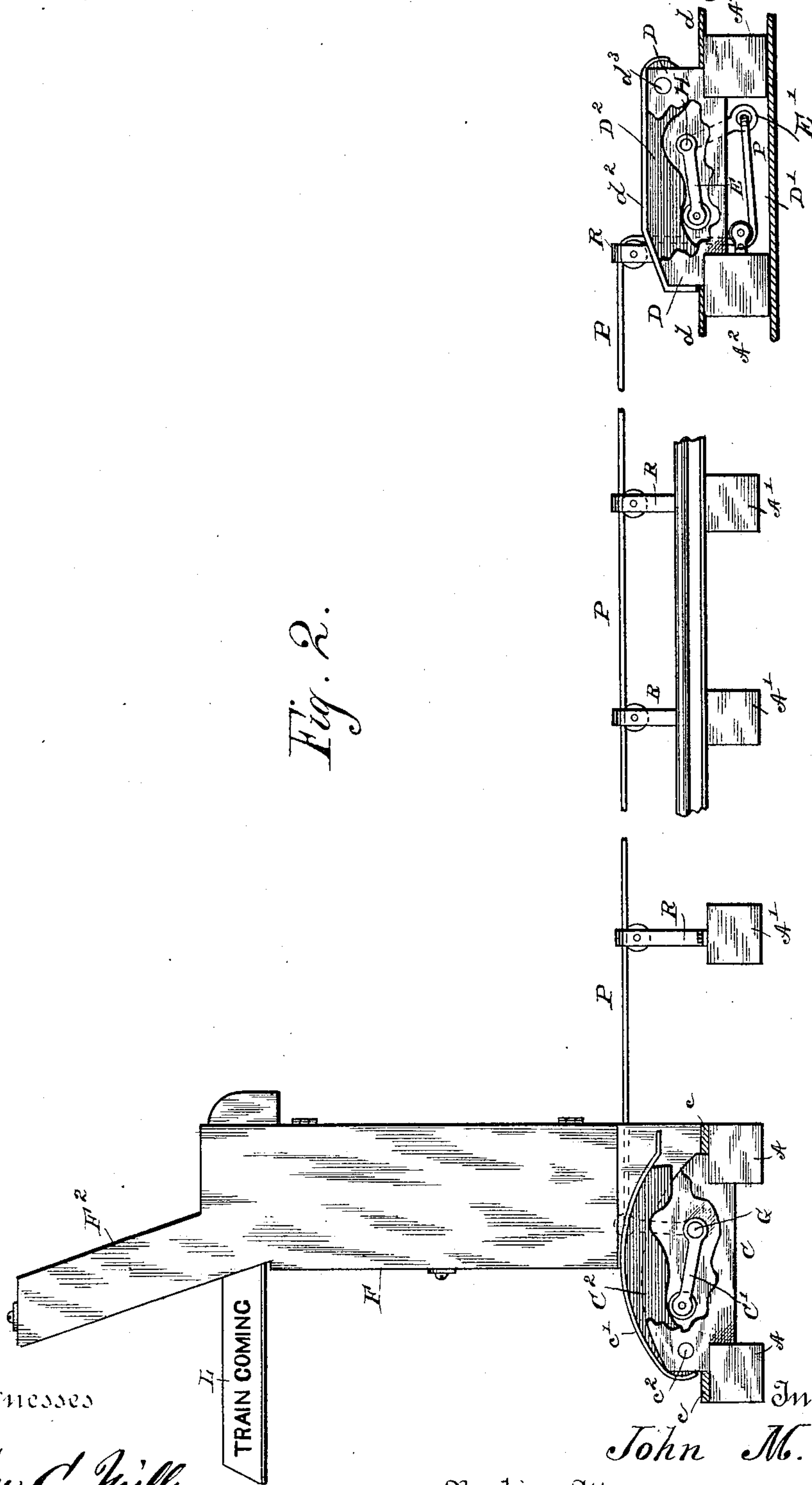
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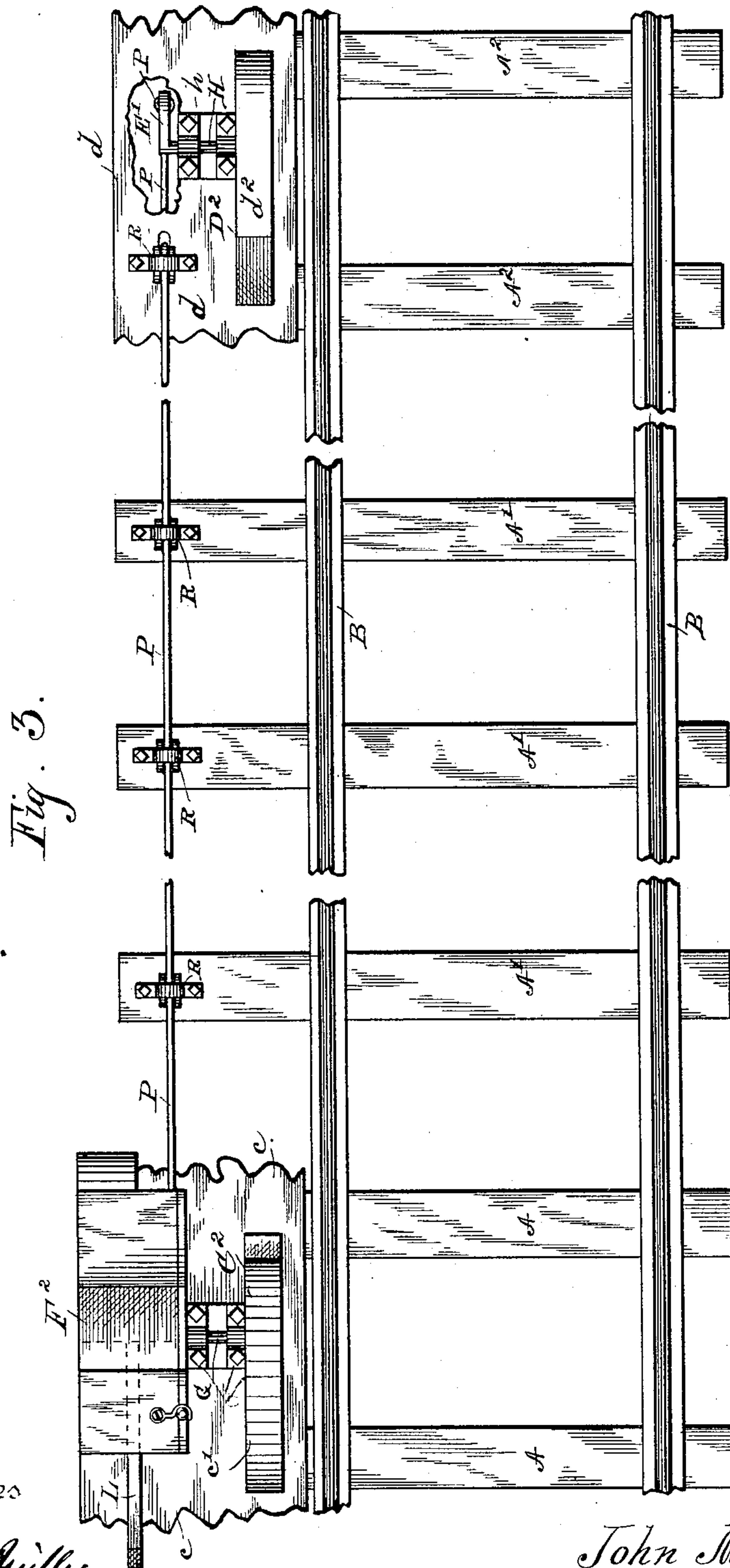
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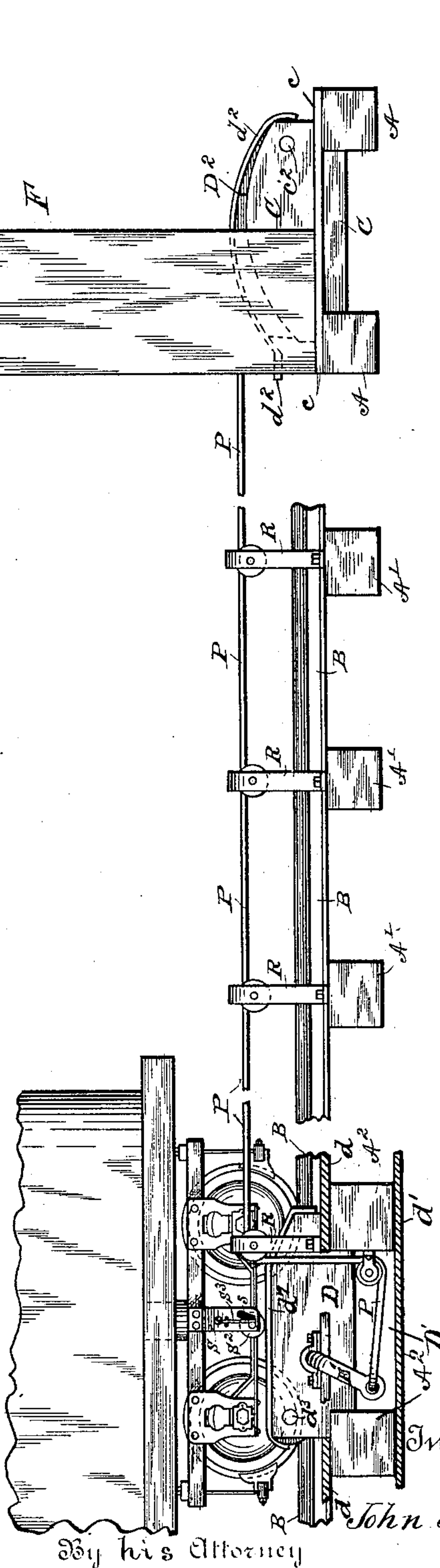
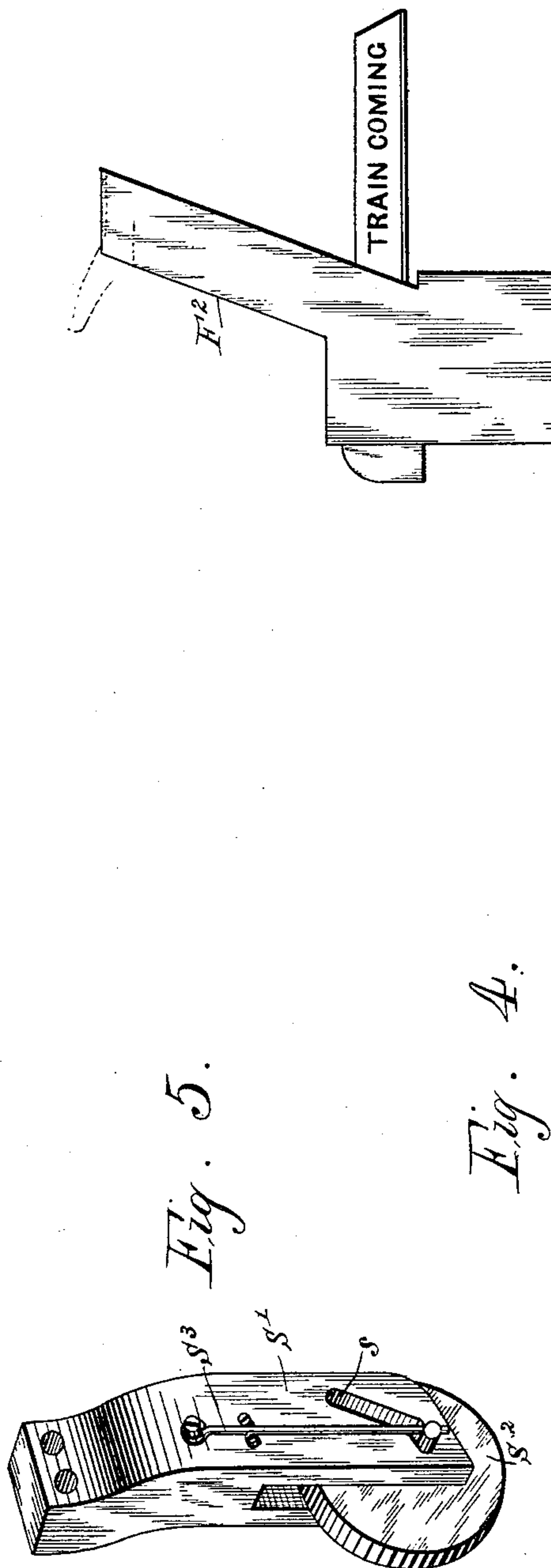
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UNITED STATES PATENT OFFICE.

JOHN M. ALLAN, OF LAKEWOOD, ASSIGNOR OF TWO-THIRDS TO BENJAMIN F. LEE, OF TRENTON, AND ANDREW J. SEARING, OF MONMOUTH, NEW JERSEY.

AUTOMATIC RAILROAD-CROSSING SIGNAL.

SPECIFICATION forming part of Letters Patent No. 368,368, dated August 16, 1887.

Application filed May 3, 1886. Serial No. 200,934. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. ALLAN, a citizen of the United States, residing at Lakewood, in the county of Ocean and State of New Jersey, have invented a certain new and useful Improvement in Automatic Railroad-Crossing Signals, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of this improvement is a danger-signal for railroad-crossings, and suitable means for automatically operating the same upon the approach and passage of a train for notifying passengers along roads intersecting the track of the approach of a train. These results are attainable by the mechanism illustrated in the drawings herewith filed as part hereof, in which the same letters of reference denote the same parts in the different views. Figure 1 is a sectional representation of a railroad, an automatic danger-signal, and operating mechanism embodying the features of my improvement. Fig. 2 is a similar representation showing the position of the parts as operated by the approaching train and in position to be reset by the passing train. Fig. 3 is a plan view more fully illustrating the construction and relation of the parts. Fig. 4 is a sectional representation of a railroad, my improved signal-operating mechanism, and a locomotive-tender provided with a special attachment for operating my improved signal mechanism. Fig. 5 is a perspective representation of the device attached to the tender-truck for engaging with and operating the signal-operating mechanism.

A A' A² represent track-ties; B B, track-rails.

C is a box or casing rigidly secured to the track-ties A adjacent to the signal-inclosing box or case F F' F², of which the part F' is a door, which is shown open in Fig. 1 for the purpose of showing the interior mechanism thereof.

The box C is secured to the ties by being let into the same, as shown, or by any other suitable means. The ties A A are of extra length on the side of the track to which the box C is affixed. Immediately adjacent to the box C

is a small platform, c, secured to the ties A, 50 for a purpose hereinafter explained.

D is a box or casing secured to the ties A² A² in the same manner as the box C is secured to the ties A A, and d is a small platform secured to the ties A² immediately adjacent to the box D. Immediately beneath the box D 55 there is a recess, D', which is secured against the reception of extraneous matter from above and below the track by the platform d and by the piece or fender d', fixed to the bottom of the ties A². 60

C² is a cam pivotally fixed to the box C by a transverse pin, c². The top of the cam C² is provided with a sheet-metal attachment, c', for the purpose of projecting over the sides of the box C and preventing the admission of snow or rain into the same. 65

D² is a cam pivotally fixed to the box D by a transverse pin, d². The top of the cam D² is provided with a sheet-metal attachment, d', which is bent to conform to the outline of the box and arranged to project over the sides thereof and prevent the admission of rain or snow into the same. 70

The cam-boxes C and D are secured to the ties A A and A² A² as near as practicable to the track-rails, as more fully shown in Fig. 3, for a purpose hereinafter explained. 75

G is a rod or shaft fixed to the platform c by journal-boxes g g, or other suitable means, and extended from the interior of the box C to the interior of the signal-box F. At its end within the box C it is provided with a crank, C', having a friction-roller at its end, as shown, and arranged to engage the cam C². At its end within the signal-box F it is provided with cranks C³ C⁴, fixed to the shaft G at an angle to each other and to the crank C', substantially as shown in Fig. 1. 80

The crank C⁴ is suitably secured by means of a bar, J, to an extensible frame, K, commonly called "lazy-tongs," which is suitably connected at its upper end by means of a bar or plate, K', with the signal proper, L, which is pivotally suspended in the inclined part F² of the signal-box, as indicated at L'. 85

L² is a metal weight fixed to the inner or lower end of the signal L, which is made of 90

thin wood or other light material, and is balanced by the weight L^2 at its inner end.

L^3 is a rubber spring or cushion fixed to the signal-box in position to be engaged by the end of the signal L when the latter is operated, as hereinafter explained.

N is a bell suspended in the signal-box by means of a coil-spring in position to be engaged by the inner end of the signal and set to ringing when the latter is adjusted.

H is a rod or shaft fixed to the platform d by journal-boxes h , or other suitable means, and extended from the interior of the box D to a point in line with the crank-arm C^3 , fixed to the rod or shaft G , extended from the interior of the box C to the signal-box F . At its end, within the box D , it is provided with a lever-arm, E , having a friction-roller at its end, as shown, and arranged to engage with the cam D^2 . At its outer end it is provided with a lever-arm, E' , fixed thereto in a perpendicular position, as shown in Fig. 1.

P is a wire rope or chain fixed to the crank C^3 , and connected thence through roller-stands R , fixed to the track-ties at suitable distances, with the lever-arm E' , as shown in Figs. 1, 2, 3.

The upper and lower ends of the extensible frame or lazy-tongs K are provided with bolts k , having slotted heads arranged to engage with and move between flanged plates k^2 , fixed to the rear side of the signal-box, and hold the lazy-tongs K in proper relative position with the signal L and crank C^4 . The outer edge of the signal is provided with a strip of sheet-rubber, l , which is sufficiently extended laterally from the body of the signal L to engage with the adjacent sides of the signal-box, and by closing the same thoroughly exclude the entrance of snow or rain into the box.

Referring to Figs. 4 and 5, S represents a locomotive-tender. S' S^2 S^3 is the device affixed to the truck for engaging with parts of and operating the signal mechanism. The construction of the device S' S^2 S^3 is more fully illustrated in Fig. 5. S' is a bifurcated curved bar or arm fixed to the truck-frame, and provided at its lower ends with angular upwardly-inclined slots for the reception of an axial pin of a disk or friction-roller, S^2 . S^3 is a light spring fixed to the sides of the arm S' in position to engage with the axial pin of the friction-roller S^2 when the latter may be adjusted out of the position shown, as hereinafter explained, and facilitate its return thereto.

At the approach of a train the roller S' will engage the cam D^2 . The position of the roller will be secured by the horizontal part of the slot in the arm S' , and the cam D^2 will be forced downward against the crank E , connected through lever E' with the cranks C' C^3 C^4 through the rope or chain P and shaft G . The downward movement of the lever E' , that will be caused by the inward action of the

cam D^2 , will give a corresponding movement to the cranks E' C^4 C^3 and an upward movement to the cranks C' , which will elevate the cam C^2 , as shown in Fig. 2. The downward action of the crank C^4 , connected to the extensible frame K through the bar or plate J , will cause the frame to elongate and operate the signal L , which will take the position shown in Fig. 2, and also engage and put in motion the bell N , which will notify by its ringing travelers approaching the track, who may not be looking toward the track or see the signal at "danger," indicating the approach of the train, and when the tender passes the signal-box the roller S^2 will engage the cam C^2 in the same manner as the cam D^2 , and by returning the cranks C' C^3 C^4 to the position shown in Fig. 1 through the engagement of the cam C^2 with the crank C' , which will be caused by the engagement of the roller S^2 and the cam C^2 , the signal L and all the connecting parts will be returned to the position shown in Fig. 1.

The cushion L^3 , fixed to the signal-box, will prevent the end of the signal L from striking the case or box F with sufficient force to injure it, and the weight L^2 , at its inner end, will also operate to prevent violent and injurious action of the signal during the outward and inward movement of the latter.

The cam D^2 , casing D , and connecting cranks E E' are to be located at a sufficient distance from the signal-box F to give timely warning of the proximity of an approaching train, in the manner described.

Having explained the features of my improvement, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a railway-signal, with the pivoted cams C^2 and D^2 , cranks C' C^3 C^4 E E' , rod or rope P , and bar J , of the lazy-tongs K , carrying the sign-board L , all constructed and arranged substantially as and for the purposes described and shown.

2. The combination, in a railway-signal, with the lazy-tongs K and mechanism, substantially such as described, for operating said tongs, and frame F F' F^2 , of the sign-board L , pivoted to the frame F , as at L' , with weighted end L^2 , and secured to the top end of said lazy-tongs, as described and shown, for the purposes specified.

3. In a railway-signal, the combination, with the lazy-tongs K , bar J , and connecting-rod P , of the inclosed box or case C , cam C^2 , having a cover, c' , and cranks C' C^3 C^4 , pivoted therein and connected with the bar J and rod P , substantially as described and shown, for the purposes specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN M. ALLAN.

Witnesses:

CHARLES G. DICKINSON,
E. H. SWEENEY.