

No. 765,264.

PATENTED JULY 19, 1904.

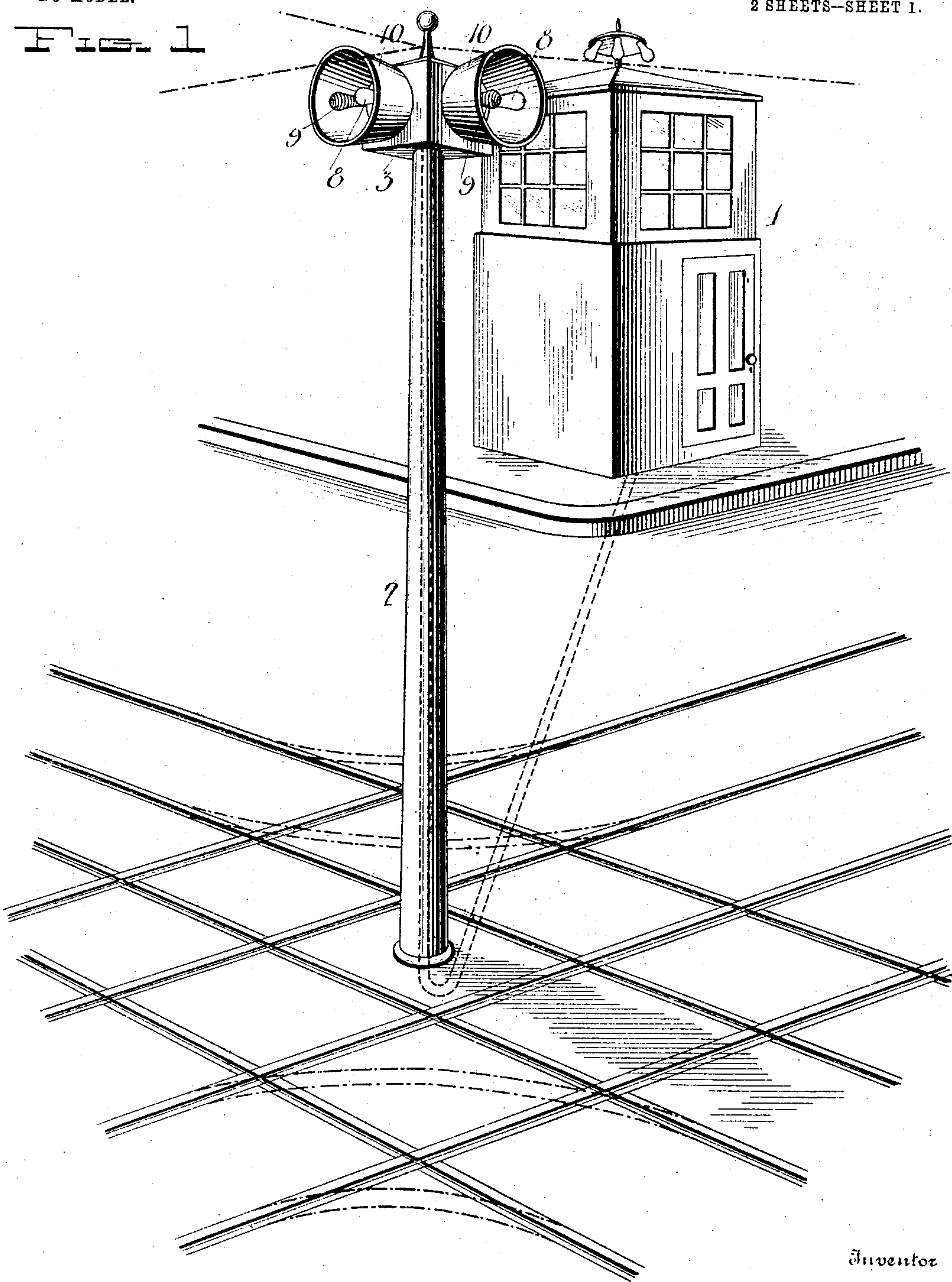
W. J. BELL.
RAILWAY CROSSING SIGNAL.

APPLICATION FILED JULY 28, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1



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Witnesses

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C. H. Keppel

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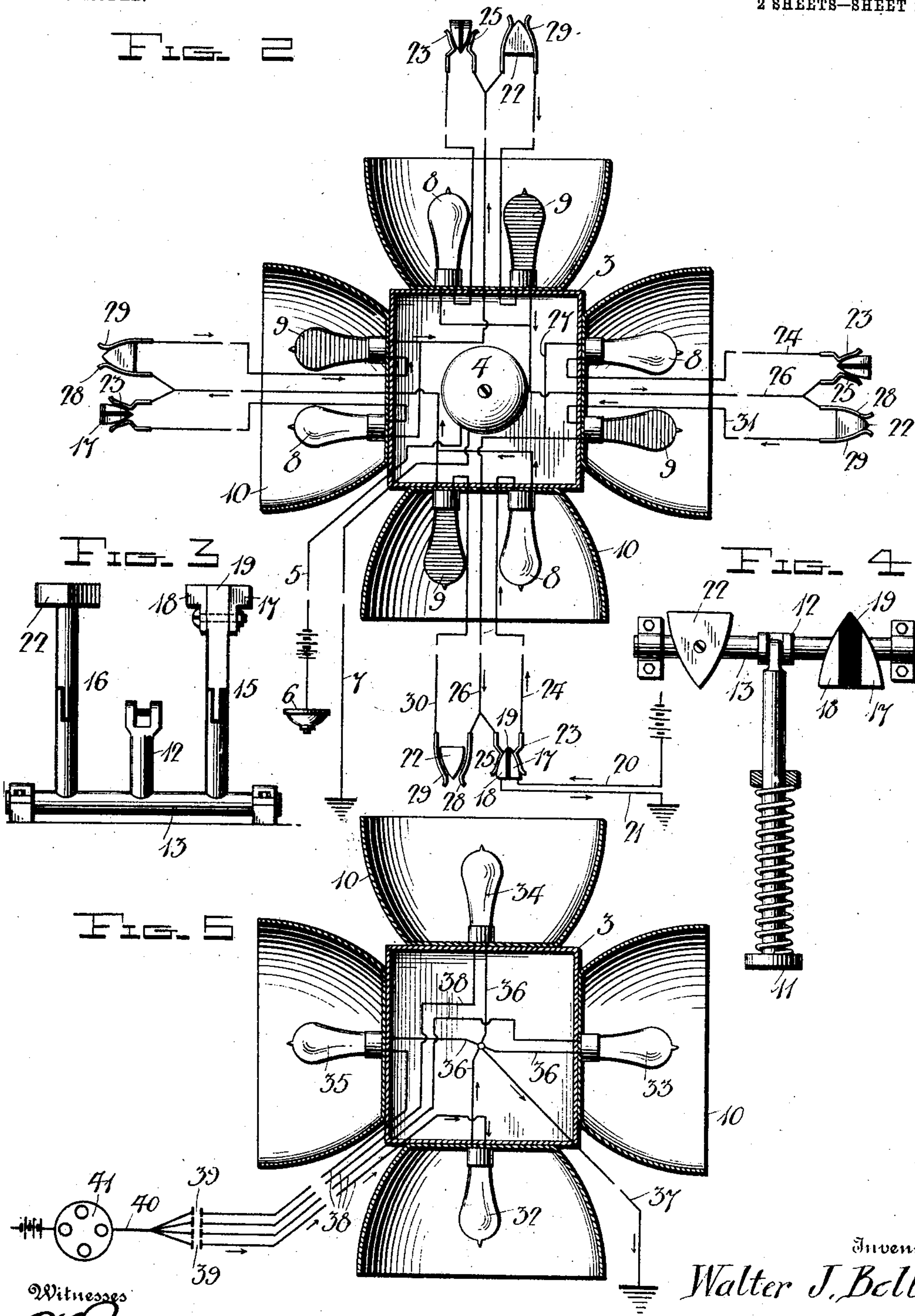
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NO MODEL.

2 SHEETS—SHEET 2.

FIG. 2



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UNITED STATES PATENT OFFICE.

WALTER J. BELL, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-HALF TO LEON F. MOSS, OF LOS ANGELES, CALIFORNIA.

RAILWAY-CROSSING SIGNAL.

SPECIFICATION forming part of Letters Patent No. 765,264, dated July 19, 1904.

Application filed July 28, 1903. Serial No. 167,303. (No model.)

To all whom it may concern:

Be it known that I, WALTER J. BELL, a citizen of the United States, residing at Los Angeles; in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Railway-Crossing Signals; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to signals, and contemplates an improved manually-controlled electric appliance of this character adapted more especially for employment in connection with street-railway crossings and switches to signal to the car operators the order of procedure or right of way, whereby accidents through collisions or otherwise are effectually prevented.

The invention in all of its details of construction and operation is fully and clearly set forth in the following description, in connection with which reference is to be had to the accompanying drawings, illustrating the invention in its preferred forms of embodiment, it being understood that various modifications may be made therein without departing from the spirit of invention defined by the concluding claims.

In the drawings, Figure 1 is a perspective view of a street-railway crossing and a signaling appliance embodying my invention. Fig. 2 is an enlarged view, partly in section, of the signaling appliance. Figs. 3 and 4 are further enlarged detail views of the circuit makers and breakers. Fig. 5 is a view showing a modification.

My invention in its preferred forms contemplates a series of electric incandescent lights supported or suspended at the crossing, said lights adapted when "on" to project light-rays in the direction of the approaching cars to signal to the operators thereof the right of way, each of said lights being equipped with a reflector constructed to shield it from the sight of all operators other than the one against whom the light is directed. The lights are manually controlled by a watchman stationed

at the crossing, and for convenience the watchman may occupy a watch box or tower, as shown at 1, Fig. 1. Obviously said tower may be otherwise located—as, for instance, on the pole 2, which supports the signal-lights.

On the pole 2 is supported a box or casing 3, in or on which is an audible signaling device in the nature of an electrical gong 4. A wire 5 leads from the gong-operating magnet or magnets (not shown) to a push-button 6 in the tower, and said magnet or magnets are grounded through a wire 7. This audible signal is intended to supplement the visual signal presently to be described and may be used as a warning to the car operators in the event that the visual signal is disregarded.

The preferred form of visual-signal appliance which is shown in Figs. 1 to 4, inclusive, comprises a series of white (clear) lights 8 8 and a series of red (danger) lights 9 9, supported from the casing 3, the white and red lights being arranged in pairs and each pair being partially inclosed by a reflector 10, the walls of which extend outwardly a sufficient distance to effectually shield the lights from view unless the observer approaches at the front thereof, as clearly indicated in Fig. 2. In the tower are a number of circuit-closers in the nature of push-buttons 11, which correspond in number to the number of pairs of lights 8 9. The stem of each push-button is pivotally connected at its inner end to an arm 12, fixed to a rock-shaft 13, journaled in bearings 14, said shaft having arms 15 16, each formed in two connected parts insulated from each other. The arm 15 carries at its upper end a wedge-contact formed of two sections 17 18, insulated from each other by an interposed strip 19, the section 17 being connected by a constantly-charged wire 20 with a source of electricity and the section 18 being connected with the ground by a wire 21. The arm 16 carries at its upper end a wedge-contact 22. In connection with the wedge-contacts are employed spring-contacts, by which the circuits are closed and opened. These contacts are located in the tower; but for a clearer understanding of the construction and of the course of the currents I have shown in

Fig. 2 the contacts as being adjacent to the respective pairs of lights. Referring to said Fig. 2, 23 designates one of a pair of juxtaposed spring-contacts connected by a wire 24 with the lower white light 8, the other contact, 25, being connected by a wire 26 with the right-hand red light 9 and by a wire 27 with the right-hand white light 8. The lower wedge-contact 22 is arranged between a spring-contact 28, connected with the wire 26, and a spring-contact 29, connected by a wire 30 with the lower red light 9. A wire 31 leads from the right-hand red light to a spring-contact 29, the companion contact 28 being connected by a wire 26 with the upper red light 9, and said wire 26 also leads from a spring-contact 25, being the common conductor for the contacts 25 and 28. 24 is a wire leading from a contact 23 to the right-hand white light 8. Similar spring-contacts and connections are provided for each pair of lights 8 9, and at the pairs of spring-contacts are wedge-contacts constructed as above described. In normal position the wedge-contacts 22 are in engagement with their respective spring-contacts 28 and 29, and the wedge-contacts 17 18 are disengaged from the contacts 23 and 25. Pressure against one of the push-buttons effects movement of the rock-shaft 13 and the wedge-contacts carried thereby to cause the disengagement of the wedge-contact 22 from contacts 28 and 29 and the engagement of the wedge-contacts 17 18 with the contacts 23 and 25, as shown in Fig. 2. This closes a circuit through one white light and three red lights at the other sides of the casing, the course of the current being indicated by arrows in Fig. 2. The illumination of the white light is the signal to the car approaching it that it has the right of way, and danger-lights are shown to the cars approaching in the other directions, the lights being maintained so long as pressure on the push-button remains. Pressure on any one of the buttons will effect the illumination of one white and three red lights, and when said button is retracted the circuit is interrupted and all of the lights are extinguished.

In Fig. 5 is shown a construction comprised of four white lights 32, 33, 34, and 35 connected by wires 36 with a common ground-wire 37, and from said lights also lead wires 38 38, which connect with circuit-closers 39 39. 40 is a feed-wire having branch connection with the four circuit-closers. In said wire 40 is a group of lights 41 for resistance. To illuminate the light 32, for example, the circuit is closed at the proper circuit-closer, and the course of the current is as indicated by the arrows. Obviously only one of the lights is illuminated at a time unless two op-

positely-moving cars on parallel tracks approach the crossing at the same time.

While I have shown and described the signaling-lights supported through the medium of a post or upright, it will be obvious that other means may be employed for their support—as, for instance, overhead suspending wires or cables.

I claim as my invention—

1. A right-of-way signaling appliance for railway-crossings, comprising a plurality of electric lights each arranged to project light-rays in a direction different from the others, and a group of separately-manipulated circuit-closers in the light connections.

2. A right-of-way signaling appliance for railway-crossings, comprising a plurality of electric lights each arranged to project light-rays in a direction different from the others, a shield at each light, and a group of manually-operated circuit-closers one for each light.

3. A right-of-way signaling appliance for railway-crossings, comprising a plurality of electric lights each arranged to project light-rays in a direction different from the others, a group of manually-operated circuit-closers one for each light, and an audible signaling device.

4. A right-of-way signaling appliance for railway-crossings, comprising a plurality of pairs of electric lights each pair arranged to project light-rays in a direction different from the other pairs and the lights of a pair being differently colored, and a group of manually-operated circuit-closers each adapted to effect the alternate illumination of the lights of each pair.

5. A right-of-way signaling appliance for railway-crossings, comprising a plurality of pairs of electric lights each pair arranged to project light-rays in a direction different from the other pairs and the lights of a pair being differently colored, and a group of manually-operated circuit-closers adapted to effect the illumination of any one light of a pair and the coincident illumination of the differently-colored lights of the other pairs.

6. A right-of-way signaling appliance for railway-crossings comprising a plurality of pairs of differently-colored lights and a group of manually-operated circuit-closers each having two contacts simultaneously movable to close a circuit through one light of a pair and break the circuit through the other light.

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

WALTER J. BELL.

Witnesses:

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EVALINE VIOLET LOVELL.