

W. J. RADER.
RAILWAY SIGNAL.
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928,328.

Patented July 20, 1909.

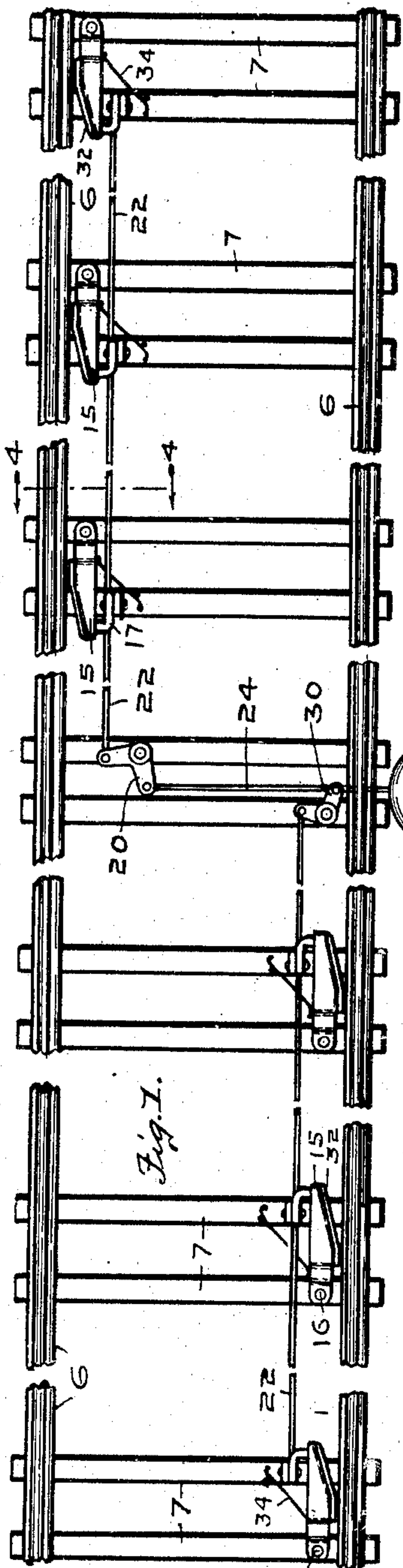


Fig. 1.

Fig. 5.

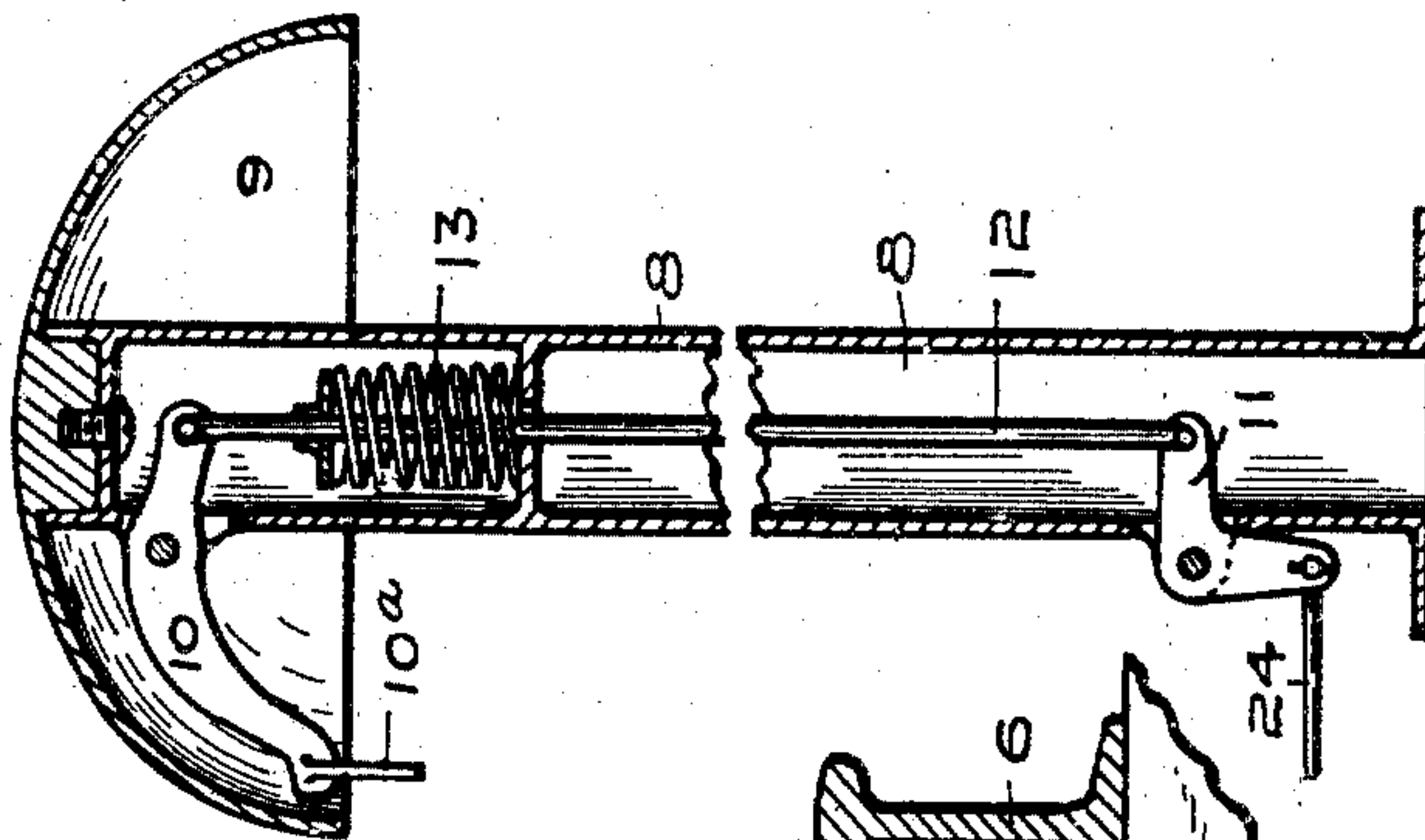


Fig. 4.

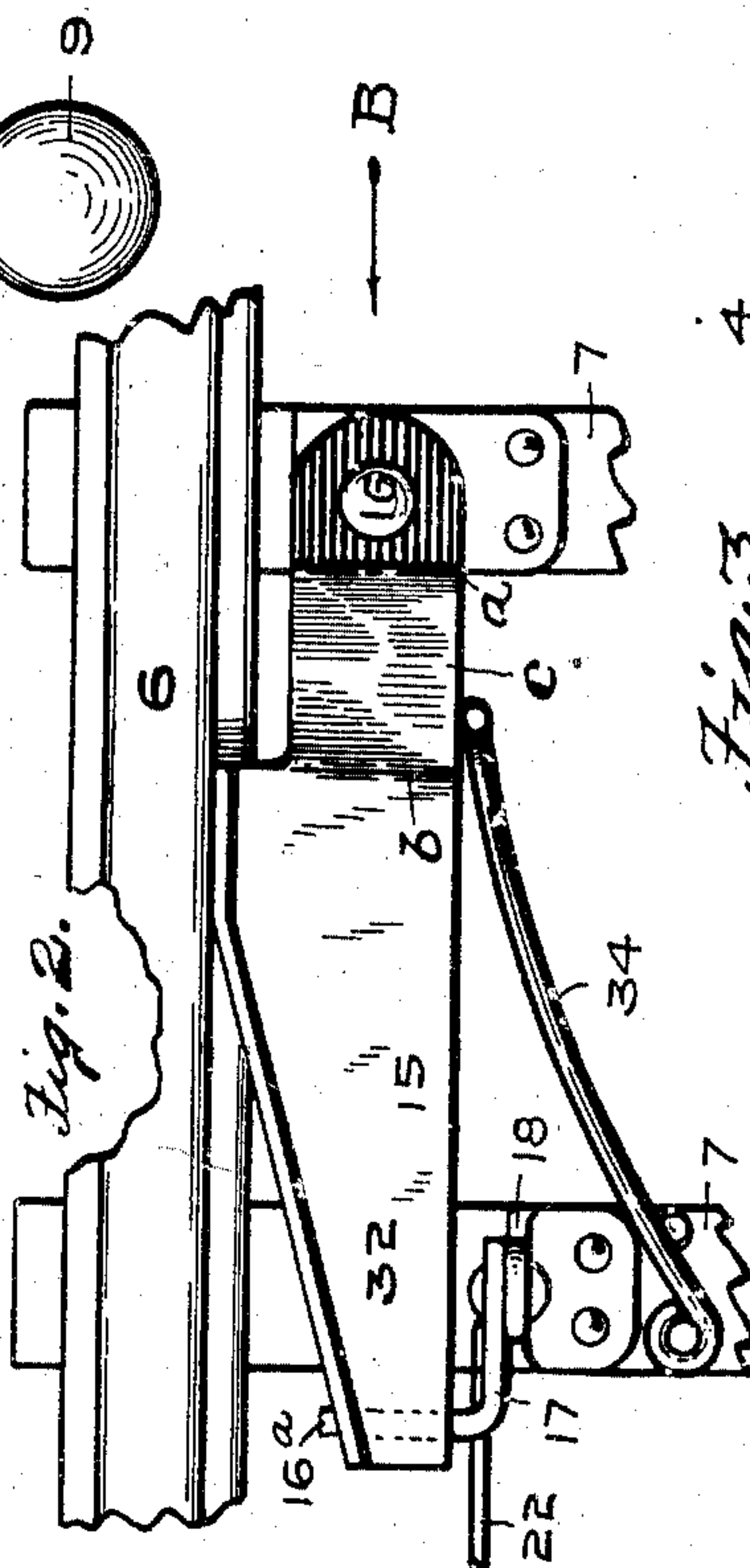
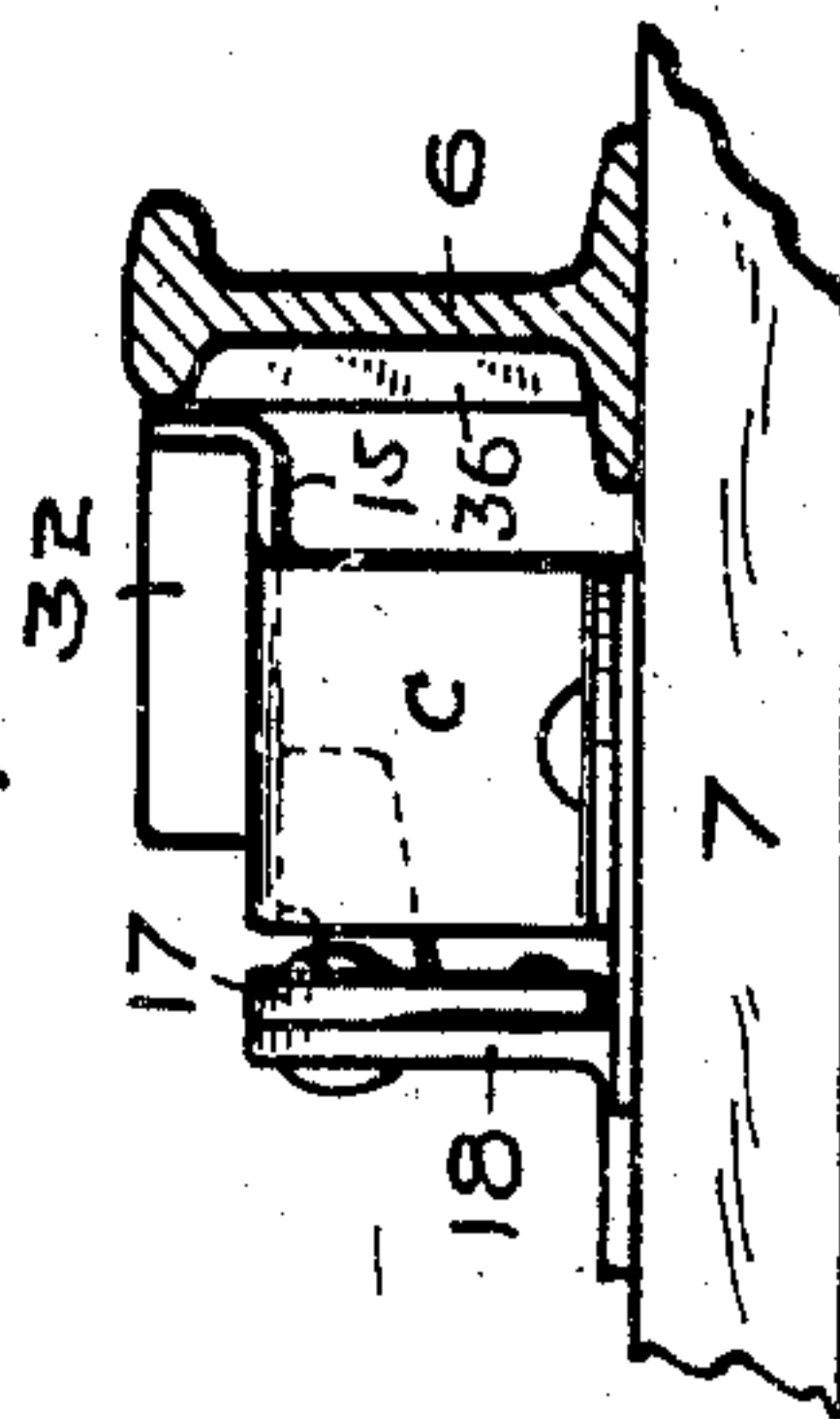
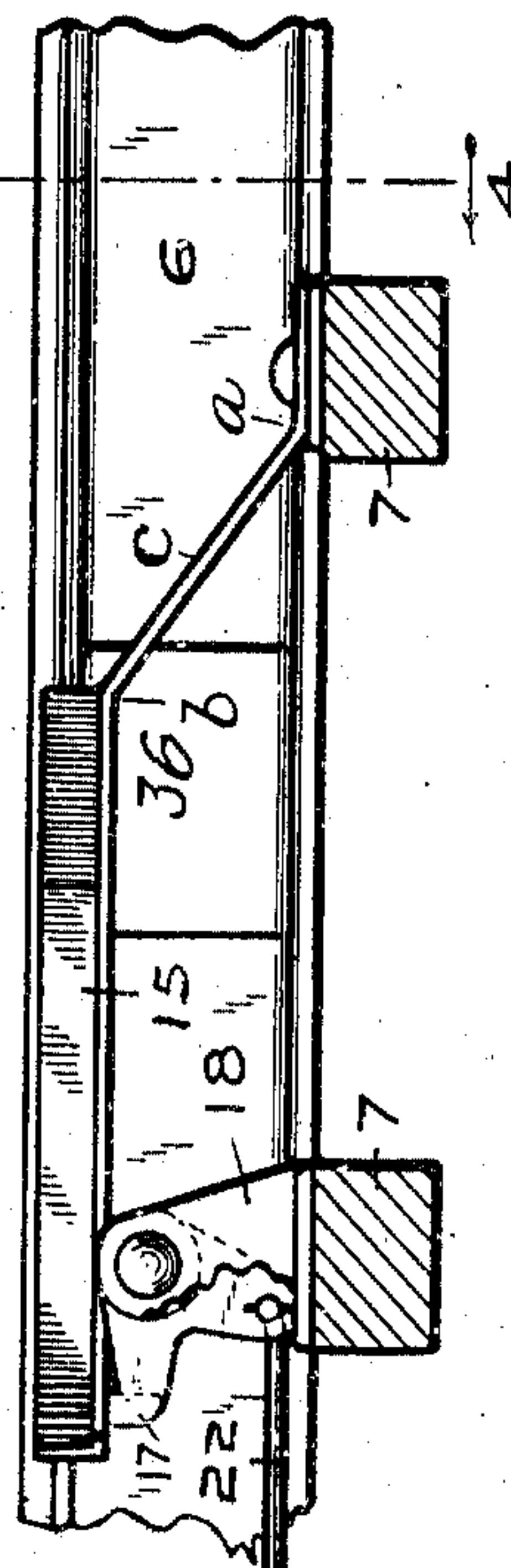


Fig. 2.

Fig. 3.



WITNESSES:

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ATT'YS.

UNITED STATES PATENT OFFICE.

WILLIAM J. RADER, OF OTTERBEIN, INDIANA.

RAILWAY-SIGNAL.

No. 928,328.

Specification of Letters Patent.

Patented July 20, 1909.

Application filed February 11, 1909. Serial No. 477,393.

To all whom it may concern:

Be it known that I, WILLIAM J. RADER, a citizen of the United States, residing at Otterbein, in the county of Benton and State of Indiana, have invented certain new and useful Improvements in Railway-Signals, of which the following is a specification.

This invention relates to improvements in automatic signaling devices for railway crossings, and the object of the invention is to provide a mechanically operated signal which will be actuated by the passing car wheels to ring a warning bell at the crossing.

The object further is to simplify the details of construction of devices of this kind so as to render them inexpensive to construct and simple and durable in operation, which details will be hereinafter fully described and specifically pointed out in the appended claims.

I accomplish the above objects by the mechanism illustrated in the accompanying drawing, in which—

Figure 1 is a detail in plan view of a railroad track equipped with my invention, the view showing numerous broken portions which are made necessary in order to bring an extended length of track within the compass of the drawing. Fig. 2 is a detail on a larger scale, in plan view, of one of the plates which contact with the car wheels in operating the signal. Fig. 3 is a view in side elevation of the same parts illustrated in Fig. 2. Fig. 4 is a detail in cross-section on the line 4—4 of Figs. 1 and 3, and Fig. 5 is a detail in longitudinal vertical section of the post supporting the signal bell, the post being broken away at its middle portion to bring the illustration within the compass of the drawing. Like characters of reference indicate like parts throughout the several views of the drawing.

The two rails of a track are represented at 6 and 7 are the sleepers or ties which support the rails, both being of usual and well known construction.

8 is a post, preferably a hollow tube or pipe, located by the side of the track, at a suitable distance therefrom to avoid interference with the rolling stock of the railway adjacent to a part of the track which is crossed by a wagon road or side walk,—the purpose of this invention being to warn persons who desire to cross the railroad track, of an approaching train. Mounted at the top of the post 8 is a gong or bell 9.

10 is a hammer for ringing the bell, here shown as pivotally secured to the post with an end extending into the post.

11 is a bell-crank lever pivoted to the post near the base of the latter, outside, and having one of its arms extending through a slot and terminating within the post.

12 is a rod connecting the inner arm of the bell-crank lever 11 with the inner end of the hammer-lever 10, whereby, an outer movement of the outer arm of the lever 11 will force the hammer 10 into contact with the bell or gong 9 and ring the gong. The hammer-lever 10 is provided with the signal plate 10^a which projects below the gong and moves with the hammer-lever. This signal plate is intended to warn persons who are deaf, or those who fail to hear the gong on account of wind blowing in an adverse direction. The spring 13 throws the rod 12 normally in an upward direction thereby holding the outer end of the hammer 10 out of contact with the bell.

I will now describe the mechanism by which a passing car wheel will cause one stroke to be rung on the gong 9, and as many strokes will be rung on said gong as there are wheels moving over one of the rails of the adjacent track. 15 is a plate-lever of special construction which is pivoted at one end to one of the ties 7 by means of a pivot 16. This pivot permits the opposite end of the plate-lever 15, which I designate the free end of the lever, to move both vertically and horizontally. The major portion of this plate-lever 15 stands normally near enough to the top level of the adjacent rail 6 to contact with the flange of a passing car wheel and be depressed by said flange, and as this desired level of the said major portion of the plate-lever is in a plane above the level of its attachment to the tie 7, I form two bends *a* and *b* therein, to form the oblique member *c*. This oblique member *c* is also advantageous in properly receiving the first contact of the flange of the car wheel which will be moving in the direction of the arrow B when calculated to ring the gong. The oblique position of this contact plate *c* relieves the abruptness of the impact of the wheel and prevents injury which might result from a more abrupt contact. The free end of the plate-lever 15 rests upon a laterally bent arm 16^a of a bell-crank lever 17. The bell-crank lever 17 is pivotally supported by a standard 18 the base of

which is bolted to one of the ties 7 of the track. Pivotaly secured to another one of the railroad ties, directly opposite the post 8 carrying the bell 9, is a bell-crank lever 20.

5 The lever 20 moves in a horizontal plane and one of its arms is connected by a rod 22 with the lower arm of the bell-crank lever 17. The opposite arm of the lever 20 is connected by a rod 24 with the outer and lower

10 arm of the bell-crank lever 11 at the post 8. By the connections above described a lowering of the plate-lever 15, as by the action of the flange of a passing car wheel, will transmit a downward movement to the rod

15 10, with sufficient force to overcome the tension of the spring 13, and the outer end of the hammer 10 will be thrown into a striking contact with the gong. After the car wheel has passed the tension of spring 13

20 will restore all of said connected parts including the plate lever 15 to a normal position ready to be moved by the next car wheel in the same manner as above described, to give another stroke upon the gong.

25 In practice I will prefer to use a number of these striking plates 15, stationed at different distances from the crossing so as to give several warnings to the people desiring to cross the railway track, and also so as to

30 give a proper warning for trains of different lengths including a very short train and a passing engine and tender without any attached cars. These plates will be properly spaced apart along the track approaching

35 the crossing so as to give ample warning under all conditions. It will be readily apparent that the several wheels of a passing car will sound a stroke on the gong for each car wheel passing over the plate-lever 15 and

40 that therefore a plurality of strokes will always be sounded, the number depending upon the length of the train.

A separate post and gong may be mounted on each side of the track at a crossing and

45 the system of levers and connecting rods above described, may be duplicated so as to cause the respective gong to be sounded when a train is approaching from either direction, and in some respects this may be preferable

50 as the people desiring to cross may be able to determine by the gong that is ringing the direction from which the train is approaching. I have shown in the drawing however, a means of connecting up these levers extending

55 in both directions from the crossing, with a single gong located at one side of the track. This is accomplished by placing the bell-crank lever 30 in the position shown in Fig. 1 and connecting one of its arms with the

60 rod 24 running over to the lever 11 at the post 8. The other arrangement is the same as has already been described except that the levers 15 are turned so that their pivoted ends will be the ones which are the farthest

65 from the crossing.

As it is only necessary and desirable to sound an alarm at a railway crossing of an approaching train, I provide a construction of the plate-levers 15 which will cause the flanges of the car wheels to press the levers 70 to one side and out of the way when the direction of approach of the train is from the crossing and not toward the crossing. This is made possible by the pivotal connection at 16 permitting the plate-lever 15 to 75 move edgewise or horizontally as heretofore mentioned, and to cause the flange of the car wheel to press the plate-lever 15 out of its way, I make the edge of the lever adjacent the rail oblique, as shown, and provide an upwardly extending flange 32 along 80 the oblique and entire edge of the plate-lever 15 adjacent the nearby rail. 34 is a spring which presses the plate-lever 15 back into normal position after it has been moved 85 horizontally by a passing wheel. The rail 6 is provided with the fillet 36 opposite the plate-lever 15 at a suitable position to keep the said plate-lever from crowding under the head of the rail and becoming locked as 90 might happen without this precaution.

In practice the rod 22 connecting the several plate-levers 15 will lie close to the inner edge of the base of the rail 6 for the sake of protection to said rod and to present as 95 little obstruction as possible, but in the drawing the limited scale and shortening up of the same prevents the proper illustration of this feature.

The arrangement of levers and their shape 100 and proportioning of parts here shown by me may be varied by those skilled in the art without departing from the spirit of my invention, but

What I claim as new and wish to secure 105 by Letters Patent, of the United States, is—

1. In a signal for railway crossings, a gong, a hammer to ring the gong having a signal plate 10^a, a plate-lever between the rails of the track hinged at one end and 110 adapted to be depressed by contact therewith of the flange of a passing car wheel, a bell-crank lever having a lateral extension under the free end of said plate-lever, and means connecting the bell-crank lever with 115 the gong-hammer to operate the hammer and ring the gong by the downward movement of said plate-lever.

2. In a signal for railway crossings, a gong, a hammer to ring the gong, a spring 120 to hold the hammer out of normal contact with the gong, a plate-lever between the rails of the track hinged at one end to permit both vertical and horizontal movement, the opposite end of said plate-lever from its 125 pivoted end being tapered on the side next the rail and provided with an upwardly projecting flange on that side, a spring to press the plate lever normally toward the adjacent rail of the track, said plate-lever being 130

adapted to be depressed by the flange of the car wheel approaching the crossing and to be moved laterally by an opposite travel of said wheel, and means by the downward
5 movement of said plate-lever for transmitting a movement to the bell hammer to cause said hammer to strike the gong.

3. In a signal for railway crossings, a single gong located at the crossing, a hammer to ring the gong, a plurality of plate-levers located in both directions from the crossing along a rail of the track, said plate-levers being pivoted at their ends most remote from the gong and adapted to be depressed by the flange of a car wheel moving
10
15

toward the gong and to be swung laterally on its pivot by a wheel moving away from the gong, and means connecting said plate-levers with the gong-hammer to cause the hammer to strike the gong at each downward movement of each of said plates. 20

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this 29th day of December, A. D. one thousand nine hundred and eight.

WILLIAM J. RADER. [L. S.]

Witnesses:

J. A. MINTURN,
F. W. WOERNER.