H. McGAULEY.

AUTOMATIC RAILROAD SIGNALING MECHANISM.

APPLICATION FILED JULY 10, 1920.

1,360,304.

Patented Nov. 30, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

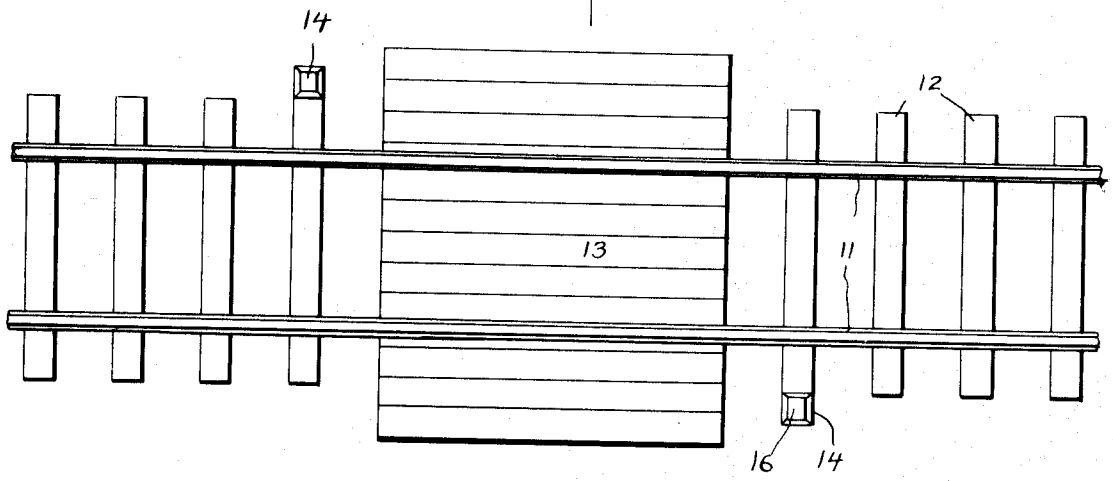


Fig. 2.

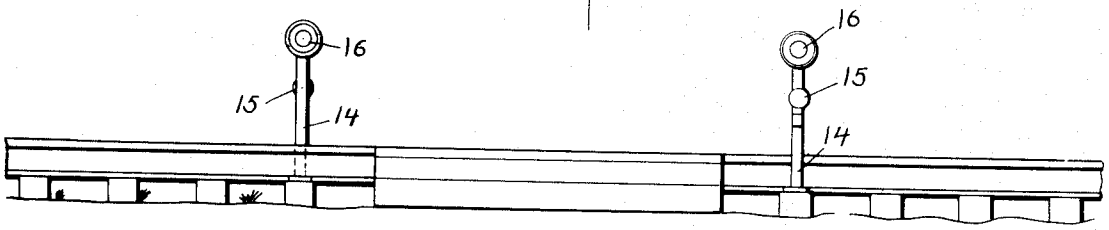
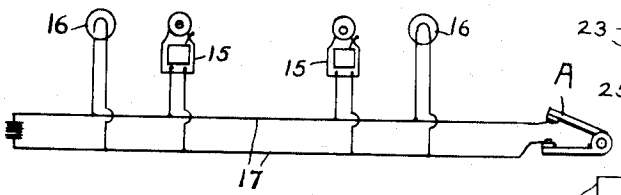


Fig. 10.



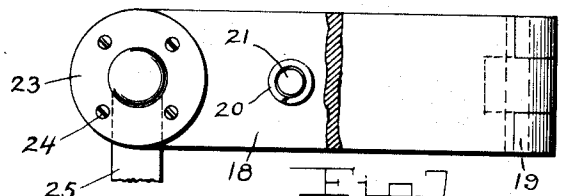


Fig. 7.

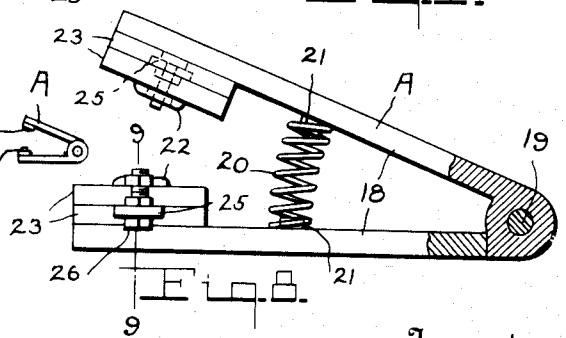
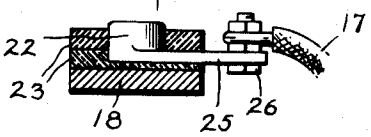


Fig. 8.

Fig. 9.



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2 SHEETS—SHEET 2.

Fig. 3.

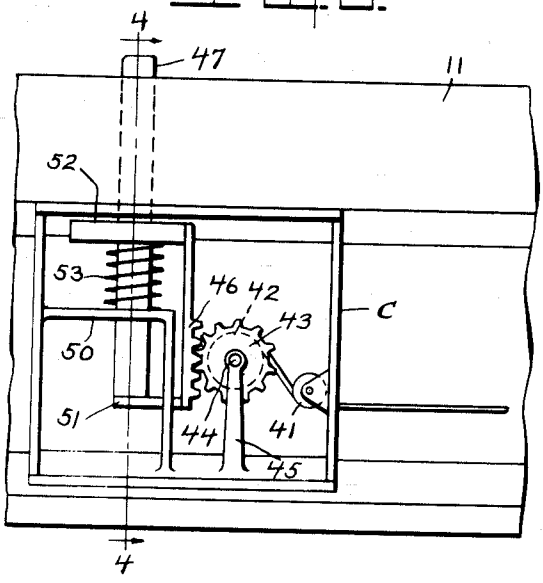


Fig. 5.

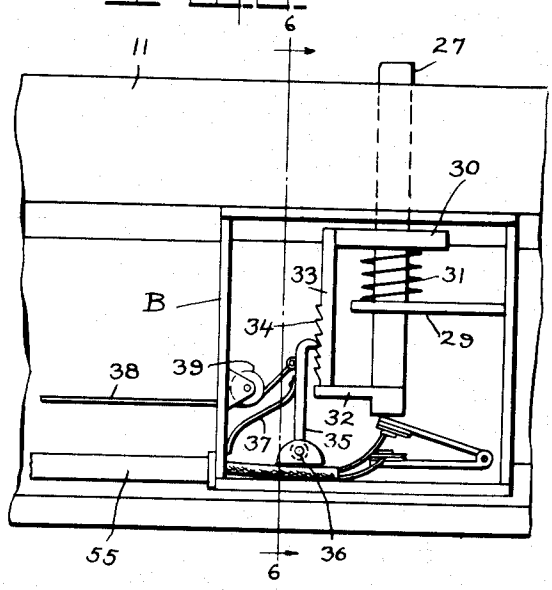


Fig. 4.

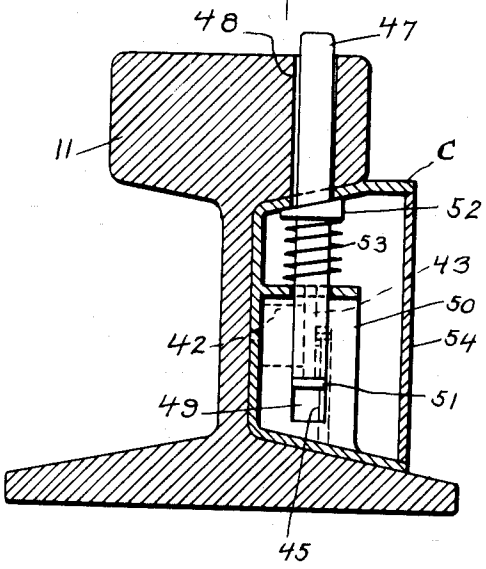
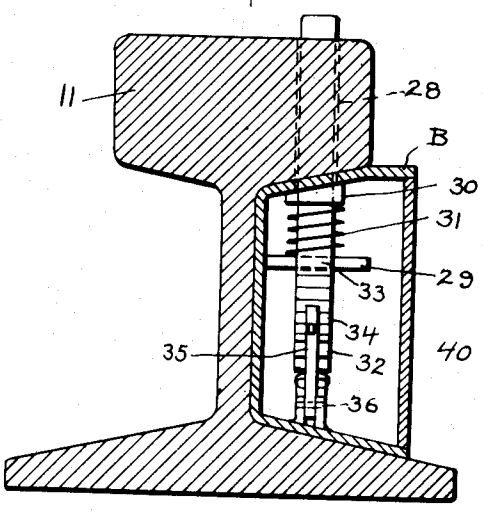


Fig. 6.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC RAILROAD SIGNALING MECHANISM.

1,360,304. Specification of Letters Patent. Patented Nov. 30, 1920.

Application filed July 10, 1920. Serial No. 395,203.

To all whom it may concern:

Be it known that I, HARRY McGAULEY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in an Automatic Railroad Signaling Mechanism, of which the following is a specification.

My invention relates to an automatic signaling mechanism for use at railroad crossings so that pedestrians may be apprised of the approach of trains.

The invention aims to provide a means operable by the train or rolling stock to give both or either an audible and visible signal, one operable by the train to release the signal and one having the particular construction, combination and arrangement of the parts hereinafter described with relation to the accompanying drawing illustrating one preferred embodiment.

It has been a desideratum to provide such an apparatus as will be efficient in operation, employ a minimum number of and substantial parts, and one capable of manufacture at moderate cost.

In the said drawings,

Figure 1 is a plan view of a railroad track and crossing utilizing my improvements;

Fig. 2 is a side elevation thereof;

Fig. 3 is a side elevation of the signal releasing mechanism, with the cover plate removed;

Fig. 4 is a cross-sectional view on the line 4—4 of Fig. 3;

Fig. 5 is a side elevation of the signal applying mechanism, with the cover plate removed;

Fig. 6 is a cross-sectional view on the line 6—6 of Fig. 5;

Fig. 7 is a plan view, partly broken away of the switch employed for the signal circuit;

Fig. 8 is a side elevation of said switch;

Fig. 9 is a cross-section on the line 9—9 of Fig. 8, and

Fig. 10 is a diagrammatic view of the electric circuit means for the signals.

Referring specifically to the drawings, a portion of a railroad track is shown, consisting of the rails 11, supported upon ties 12, and having a bed 13 to form a crossing. These parts of course are merely conventional.

Adjacent the crossing, posts are provided on opposite sides of the track at 14, upon each of which an audible signal or bell 15 is carried as well as a lamp or visible signal 16. As shown in Fig. 10, the electric current to operate these bells 15 and lamps 16 through feed wires 17 lead from any suitable source of supply. The circuit through these signals is adapted to be closed by a switch at A consisting of arms 18, pivoted together at 19 and normally held apart by means of an expansive spring 20 positioned by means of pins 21 on the arms extending thereinto. Each arm has a contact 22 thereon, mounted by means of blocks 23 of insulating material, to the arm by means of screws 24. From each contact, an arm 25 projects which supports a binding post or clamping means 26 for the conductors or feed wires 17.

A vertically movable rod or plunger 27 is disposed in contact with one arm of the switch A as shown in Fig. 5. A metallic box or housing B is secured to the rail and said switch A is disposed therein. Rod 27 slides through an opening 28 in the rail and through the upper wall of the housing and a guide plate 29 of the housing. A stop member 30 rigid with the rod normally abuts the under surface of the top wall of the housing under the urgency of an expansive spring 31 surrounding the rod and between intermediate plate 29 and member 30. An arm 32 extends from the rod 27 and mounts an upright rack bar 33 provided with teeth 34 having their top surfaces in a horizontal plane and a beveled wall extending downwardly therefrom. A pawl 35 engages the teeth 34, being mounted on a horizontal pivot 36 and urged into engagement with the teeth by means of a spring 37. Connected to the pawl 35 is a flexible cable 38, which passes under a guide pulley 39 fastened to the housing B, and thence outwardly through an opening in the housing. This housing has a cover or front plate 40 which is removed in Fig. 5 to disclose the interior.

Said cable 38 passes into a housing C, under a guide pulley 41 and thence over a drum 42 with which a pinion 43 is rigidly fastened and which are journaled at 44 on a bearing 45 rising from the housing. A rack bar 46 meshes with the pinion 43 and is carried by a vertically movable rod or plunger 47 movable in an opening 48 of the rail and an opening of the housing and through

an opening 49 of a guide bracket 50. An arm 51 which connects the rack bar to the rod 47 also moves in said slot 49. A stop member 52 rigid with plunger 47 underlaps the top wall of the housing C and a coil spring 53 surrounds the plunger 47 underlapping the member 52 and resting on the bracket 50. The cover or front plate 54 of this housing C is also removed in Fig. 3 to disclose the interior.

Cable 38 exteriorly of the housings B and C may be housed in a protecting conduit or the like.

In operation as the train approaches the crossing 13, the wheels will engage the plunger 27 and depress the same, so as to move the contacts 22 in engagement through the swinging of arms 18 on pivot 19. The circuit through the signals 15 and 16 is thus established. As plunger 27 moves downwardly, the teeth 34 slip past the pawl 35 and this pawl holds it and the plunger in its lowermost position until the pawl is released and thus the bells 15 and lamps 16 continue to function until the such release occurs. As the train moves past the crossing 13, the wheels will depress the plunger 47, causing the rack teeth 46 to rotate the gear 43 and drum 42 to draw the cable 38 and pull the pawl 35 out of engagement with teeth 34 thus enabling the spring to throw the plunger 27 into normal or reset position as in Fig. 5. After the wheels have passed beyond the plunger 47, spring 53 will urge that plunger into normal or projecting position and accordingly the cable and operating parts into position for the next operation. It will be understood that the contacts 22 are normally disengaged due to the provision of spring 20 and that as the plunger 27 moves upwardly this spring 20 separates said contacts 22.

Since merely the preferred embodiment of the invention has been illustrated and described, it is to be understood that changes in the details of construction may be made without departing from its spirit and scope as defined by appended claims.

I claim:—

1. A signaling mechanism including a signal and electric circuit means, a switch in said means, a depressible member to close said switch, guide means for said member, a spring to normally maintain the member in a set position, a pawl, a rack coöperating therewith and carried by said member, and means operable to move the pawl from engagement with the rack.

2. A signaling mechanism including a signal and electric circuit means, a switch a plunger to close said switch, means to hold the plunger in position closing the switch, drum means, a flexible member thereon, said flexible member being connected to the first mentioned means, and means operable to turn said drum to coact with the flexible member.

3. A signaling mechanism including a signal and electric circuit means, a housing, a plunger slidable in said housing, a guide for the plunger extending from the housing, arms on the plunger, a rack bar between said arms, an expansion spring on the plunger intermediate one of said arms and said guide, a switch in said circuit means normally open, the other of said arms being engageable with the switch to close it, a pawl mounted in said housing to engage said rack bar, a spring intermediate the pawl and housing, and means to retract the pawl to release the rack bar.

4. A signaling mechanism including a signal and electric circuit means, a switch in the latter means, means to hold the switch closed including a flexible member extending therefrom, a drum over which the flexible member is trained, means to mount the drum, a gear associated with the drum, a rack bar in mesh with the gear, a plunger carrying said rack bar, guide means for the plunger, and a spring in engagement with the plunger and said guide means.

5. A signaling mechanism including a signal and electric circuit means, a housing, a switch within the housing, a plunger slidable in said housing to close said switch, a rack bar associated with the plunger being connected thereto, a pawl normally held in engagement with said rack bar adapted to hold the plunger in a depressed position, a flexible member extending from the pawl, a drum over which the flexible member is trained, a gear associated with the drum, a rack bar in mesh with the gear, a plunger carried by said rack bar whereby the drum is revolved when the plunger is depressed, said flexible member releasing said pawl, and means to raise the first mentioned plunger to its normal position.

In testimony whereof, I have affixed my signature in the presence of two witnesses.

HARRY McGAULEY.

Witnesses:
GEORGE FERSON,
CHAS. F. GREENLE.