

(No Model.)

2 Sheets—Sheet 1.

G. M. CHACE.
TRACK OPERATED RAILWAY SIGNAL.

No. 533,865.

Patented Feb. 12, 1895.

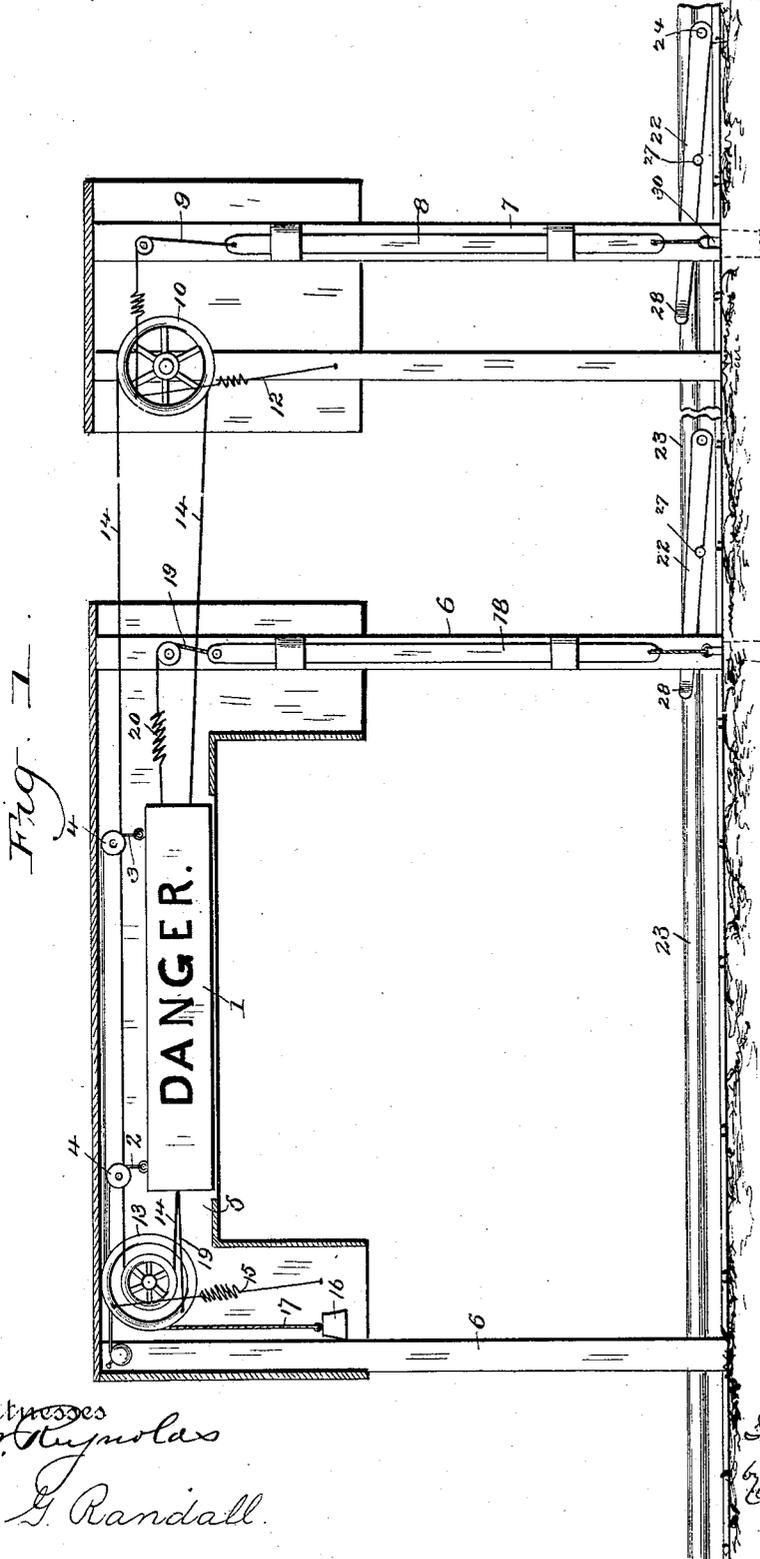


Fig. 1

Witnesses
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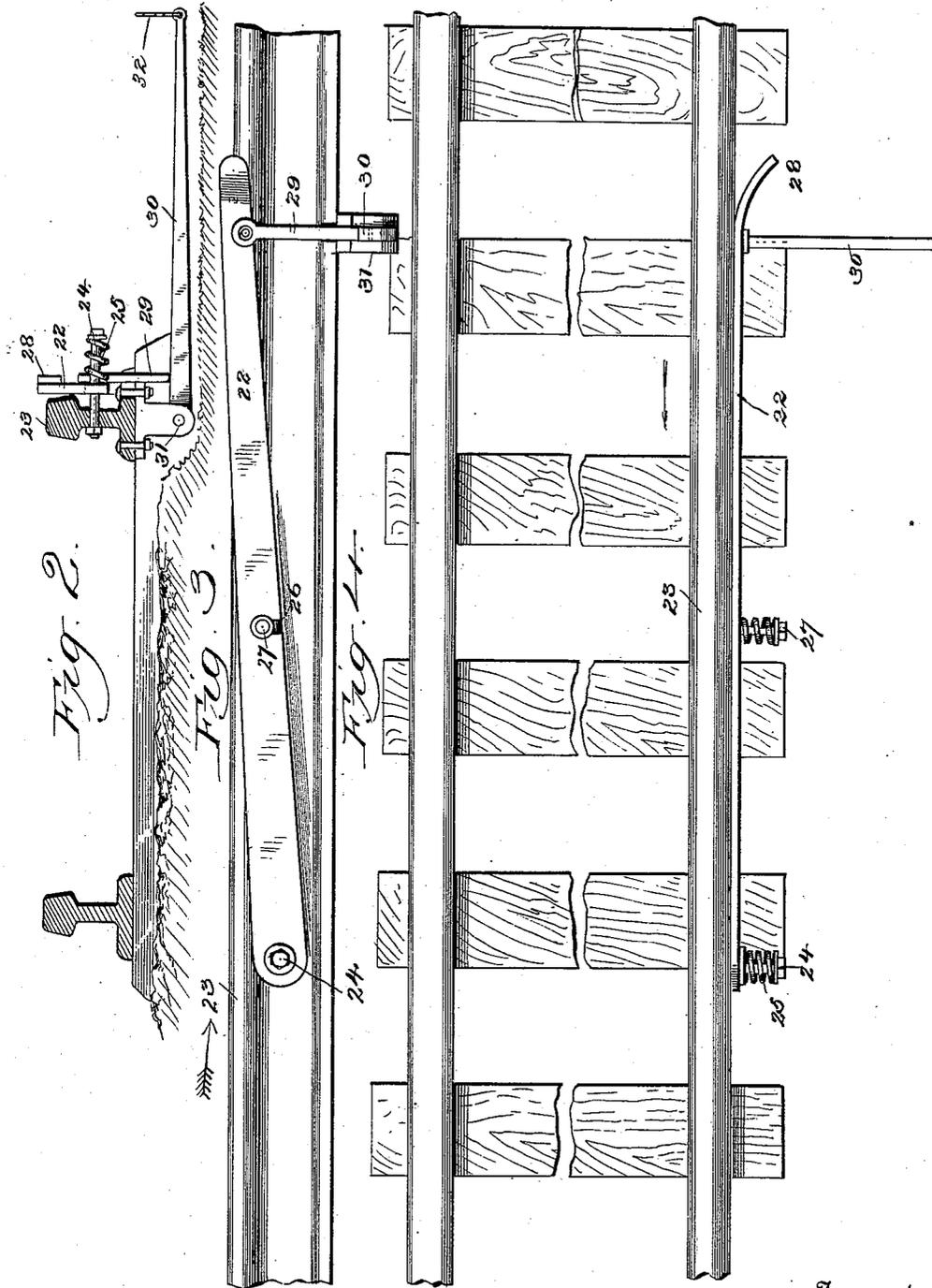
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UNITED STATES PATENT OFFICE.

GEORGE MAHLON CHACE, OF SOMERSET, MASSACHUSETTS.

TRACK-OPERATED RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 533,865, dated February 12, 1895.

Application filed November 20, 1894. Serial No. 529,351. (No model.)

To all whom it may concern:

Be it known that I, GEORGE MAHLON CHACE, a citizen of the United States, residing at Somerset, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Track-Operated Railway-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.

In my application for patent, Serial No. 504,803, filed March 23, 1894, I have shown and described an invention in danger signals, especially designed for railroad crossings, in which is employed a signal which is normally inclosed in a suitable housing and is lowered therefrom and displayed automatically by the passing train. This is done by means of a tappet on the end of an arm projecting from the side of the locomotive, which engages in its passage a lever forming a part of the operating mechanism for the signal.

My present invention is designed to do away with the necessity of providing locomotives with such tappet and in place thereof I use a signal operating mechanism which is actuated by the weight of the locomotive or train in passing over the switch.

The invention consists of providing a lever pivoted to the side of the rail upon a bolt, which has a coil spring thereon adapted to hold the said lever normally against said rail, the said lever being outwardly curved at its free end and supported at an intermediate point upon a bolt similar to its pivot bolt and working in an elongated slot. Said lever, near its forward end, has connected therewith a downwardly projecting post which engages a lever fulcrumed in the under side of the rail and having its outer free end connected to the signal operating mechanism.

The invention also consists in other details of construction and combinations of parts, which will hereinafter be more fully described and claimed.

In the accompanying drawings forming a part of this specification, Figure 1 represents a side elevation partly in section of the rails and signal mechanism. Fig. 2 is a cross section of the rails and operating mechanism in

connection therewith. Fig. 3 is a side elevation, and Fig. 4 is a plan view of the same.

Like reference numerals indicate like parts in the various views.

By reference to Fig. 1 it will be seen that the signal and its connections are substantially like that shown in my former application referred to, the difference therein residing in the peculiar mechanism by which the same is actuated from the track lever.

1 represents the signal, which is preferably a board suspended at its ends by cords 2 and 3 which pass over the guide pulleys 4. This signal is normally inclosed by a housing 5 composed of parallel boards, closed at their upper edges and suspended between posts or uprights 6 on each side of the roadway or crossing. When a train is approaching the signal 1 drops below the lower edge of the housing 5 and warns persons of the approach of a train. At a proper distance from the crossing, say about an eighth or a quarter of a mile, a trip device is located to be actuated by the approaching train to display the signal. This device comprises a post 7, in which is mounted for vertical movement a bar 8 which is connected at its upper end by a cord or cable 9 with a wheel 10 suitably mounted on a frame attached to the post 7. A yielding connection is interposed in the cord or cable 9 to prevent breakage of the parts when the bar 8 is suddenly operated by a moving train. A spring 12 attached at one end to a portion of the frame and at its opposite end to the wheel 10 to one side of a vertical line passing through the axis of said wheel, serves to hold the latter in either of its two positions. A wheel 13, similar to the wheel 10, is mounted on one of the posts 6 at the crossing and is connected at diametrically opposite points by cords, cables or rods 14 with the wheel 16 at corresponding points, so that the wheels 16 and 13 move in unison, as the signal 1 is housed or displayed. A spring 15 connects the wheel 13 with a portion of the supporting frame for a similar purpose to that of the spring 12, that is, to hold the wheel 13 in either of its two positions to retain the signal in its exposed or hidden position. A weight 16 is connected by a cord 17 with the wheel 13 and serves to counterbalance the

signal 1 so that to operate the device it is only necessary that the track actuating lever overcome the inertia of the operating device. An upright bar 18 similar in construction and arrangement to the bar 8, is mounted on the other post 6 at the crossing and the bar 18 is connected by a cable or cord 19 with the wheel 13 for the purpose of returning the signal within the housing when the train reaches the crossing and passes the same. A spring 20 is interposed in the connection 19 to prevent breaking of the cords on the sudden operation of the bar 18.

The mechanism I employ for actuating the foregoing instrumentalities consists of a lever 22 situated along the side of the rail 23, pivoted at one end to the rail upon a bolt 24 and held normally in close contact with the rail by means of a coil spring 25 surrounding the bolt 24. This lever 22 has a further connection with the rail 23 in an elongated slot 26 in which is a bolt 27 similar to the bolt 24 by means of which a limited movement of the lever 22 upon its pivot is permitted. The free end of the lever 22 is curved outwardly as shown at 28, for a purpose which will appear later. Near the free end of the lever 22, the same is provided with downwardly projecting post 29, which bears against a transverse lever 30 which is fulcrumed at 31 to the under side of the rail 23. The outer end of said lever is connected by means of a cord or chain 32 with one of the bars 8 or 18. By this construction it will be seen that a depression of the lever 22 causes a similar depression of the lever 30 and thereby, a depression of one of the bars 8 or 18, for the purpose of actuating the signal. It is of course understood that mechanisms similar to that just described will be located at a point some distance from the crossing and be connected with the bar 8 for displaying the danger signal, and that similar mechanism will be located at the crossing or at a point just beyond and be connected with the bar 18 for housing the signal.

The lever 22 is kept normally in close contact with the rail 23 and a movement of the

train over the rails 23 in the direction of the arrow, Fig. 3, will cause a depression of the lever 22 and through the post 29, the lever 30, pitman 32 and bar 8 or 18 cause the display or housing of the signal. When the train is receding from the crossing, the signal will not be operated for the reason that the wheel of the locomotive or car will bear laterally against the outer curved end 28 of the lever 22, throw it out of contact with the rail 23 against the pressure of the spring 25, and allow the train to pass without depressing said lever and actuating the switch.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination with a danger signal apparatus for railway crossings, consisting of a housing supported upon a pair of uprights, slotted on its under surface, through which a signal is adapted to be lowered to expose the same to view, a bar mounted in suitable guides upon said uprights and connected by means of cords or pulleys with said danger signal, of devices actuated by a passing train for depressing said bars, the same consisting each of a lever pivoted to the side of the track upon a bolt which permits lateral movement of said lever, springs for normally holding said lever in contact with the rail, a bolt passing through an elongated slot in said lever for holding the latter against the side of the rail, the said lever having an outwardly curved end for the purpose described, a downwardly projecting post connected near the free end of said lever, a transverse lever fulcrumed to the under side of the rail engaged by said post and connected at its free end to said bar, substantially as and for the purpose described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEO. MAHLON CHACE.

Witnesses:

JOHN TUTTLE SWIFT,
MARCUS G. B. SWIFT.