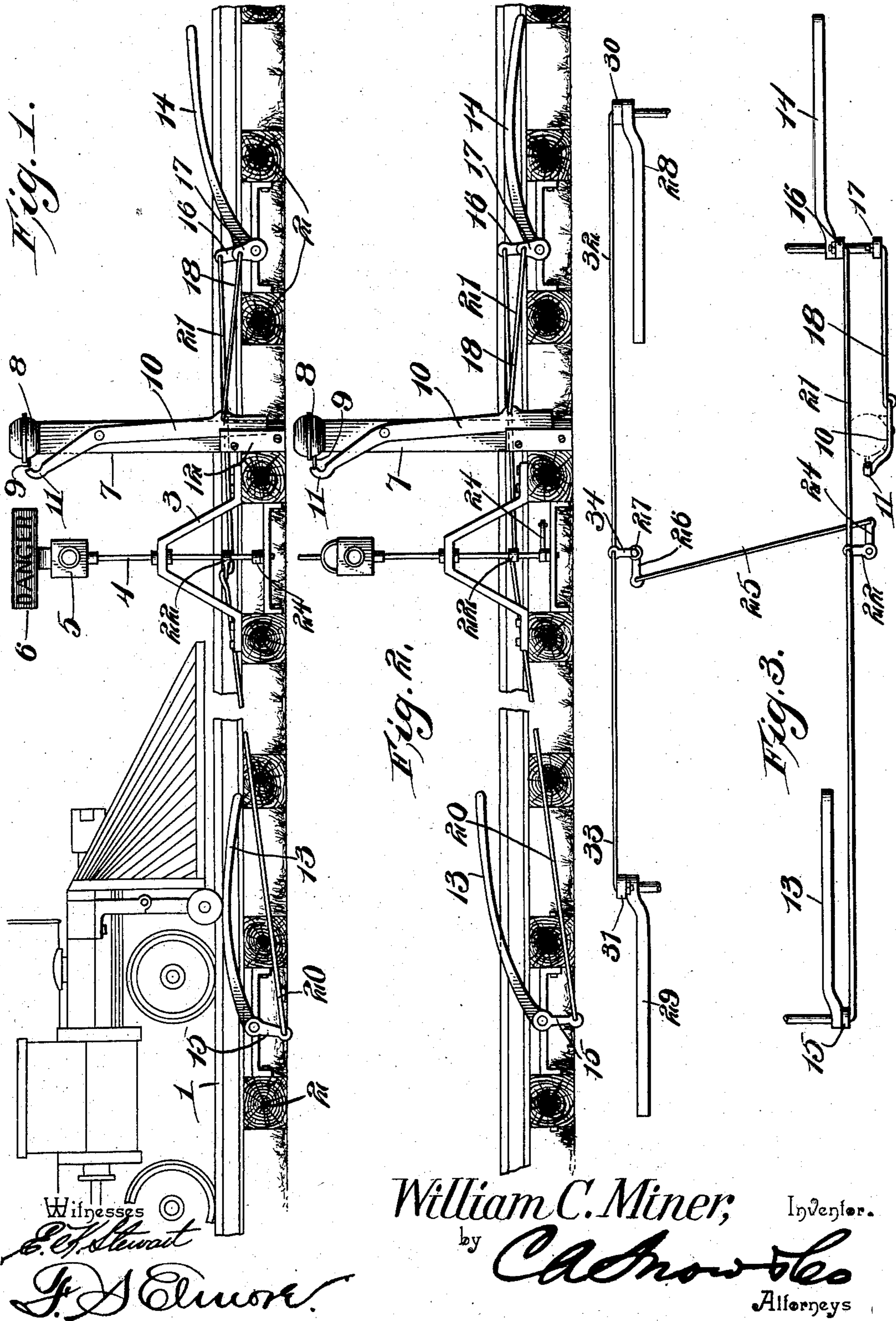


No. 757,332.

PATENTED APR. 12, 1904.

W. C. MINER.
RAILWAY SIGNAL.
APPLICATION FILED DEC. 15, 1903.

NO MODEL.



UNITED STATES PATENT OFFICE.

WILLIAM CHARLES MINER, OF TRAVERSE CITY, MICHIGAN.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 757,332, dated April 12, 1904.

Application filed December 15, 1903. Serial No. 185,312. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CHARLES MINER, a citizen of the United States, residing at Traverse City, in the county of Grand Traverse and State of Michigan, have invented a new and useful Railway-Signal, of which the following is a specification.

My invention relates to railway-signals such as are employed at the crossing or intersection of the railroad and highway, and has for its objects to produce a comparatively simple inexpensive device of this character which will be automatically operated by the passing trains, said device comprising a simultaneously-operative visible signal and audible alarm, whereby ample warning will be afforded to persons approaching upon the highway.

To these ends the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation illustrating the position of the parts when actuated by an approaching train. Fig. 2 is a similar view showing the parts in their normal positions after the train has passed. Fig. 3 is a top plan view.

Referring to the drawings, 1 designates the railway-rails, and 2 the cross-ties to which the rails are secured, these parts being of the usual or any appropriate construction and material, inasmuch as they constitute no part of my invention.

3 designates a supporting stand or base bolted or otherwise secured to a pair of the cross-ties at a convenient point to one side of the track and having pivoted therein for rotation a vertical rod or member 4, carrying upon its upper end a signal-lamp 5, designed in practice to display a red light when turned to one position and a white light when in its other or normal position. There is also provided upon the upper end of the rod or shaft 4 a plate or its equivalent 6, bearing upon one face the word "Danger," said plate being fixed for rotation with the shaft and adapted to normally extend in a direction transversely of the rails 1.

7 indicates a vertical post or standard erected and sustained in any suitable manner adjacent to the shaft 4 and having mounted upon

its upper end an audible signal preferably in the form of a bell 8, having a push-finger 9, which when pressed inward will release mechanism for continuously ringing the bell until the finger is released. As bells of this class are well known and as the same constitutes no part of my invention so far as the structural details of the bells are concerned, I will forego further detailed description of the latter.

Pivoted to the standard 7 is an operating-lever 10, having an angularly-disposed arm or portion 11 overlying at its outer end the outer end of the push-finger 9. The lower end of the lever, which moves in a suitable guide 12, preferably in the form of a block bolted to and spaced from the standard in any suitable manner, normally swings slightly beyond the adjacent edge of the standard, as herein shown. It is here to be noted that when the projecting edge of the lever is pressed inward flush with the face of the standard the lever will be rocked on its pivot and its arm 11 caused to press the finger 9 inward and ring the bell, while at the same time the shaft 4 will, through mechanism hereinafter described, be simultaneously rotated in the proper direction to display the red light and the word "Danger."

Pivotally sustained upon the side of the track with the signal, one in advance and the other in rear of the latter, is a pair of actuating devices or levers 13 14 so arranged relatively that when the rear end of the former stands in normal position elevated above the track the rear end of the lever 14 will occupy a depressed position, as seen in Fig. 1. Disposed, respectively, upon the pintles of levers 13 14 and for movement with the latter are crank-fingers 15 16, projecting in reverse directions, the finger 15 being extended vertically downward, while the finger 16 extends upward. There is also arranged upon the pivotal axis of lever 14 for movement with the latter a supplemental crank-finger 17, to which is pivoted a reciprocatory rod or member 18, having a lateral extension 19, engaging and operating the lever 10, as will hereinafter more fully appear. The crank-fingers 15 16 are connected by rods or equivalent elements 20 21 with the arm 22 of a bell-crank 23, fixed upon the lower end of shaft 4, the

other and right-angularly-disposed arms 24 of said bell-crank being connected by a rod or like element 25 with the arm 26 of a bell-crank 27, pivotally sustained upon the far side 5 of the track. Disposed also upon the far side of the track is a pair of pivoted actuating devices or levers 28 29, similar in construction and arrangement with the levers 13 14 and situated one in advance and the other in the 10 rear of the signaling apparatus. Mounted upon the pivotal axis of lever 28 is a downwardly-depending crank-finger 30, while a similar but upwardly-extending finger 31 is mounted upon the axis of lever 29, said fin- 15 gers being fixed for movement with their respective levers and connected by rods or analogous elements 32 33 with arms 34 35 of the bell-crank 27.

In practice, supposing the parts to be in 20 their normal position, as shown in Fig. 2, it is apparent that when the lever 13 is depressed the rod 20 will move in the direction indicated by the arrow in Fig. 3, thus, through the medium of the bell-crank 23, rotating shaft 4 from 25 right to left to display the danger-signal. At the same time the lever 14 will be swung on its pivot to an elevated position, and the lever 10 will, through the medium of crank-finger 17, rod 18, and extension 19, be actuated for 30 ringing the bell, as heretofore described. The train having passed the signal, the lever 14 will be again depressed, causing a reversed motion of the parts and their return to normal position. During the operation of the 35 signal through the medium of levers 13 14 the levers 28 29 will be properly set through the medium of rod 25 and bell-crank 27, which are actuated from the arm 24 of bell-crank 23. When a train approaches from the right, the 40 lever 28 will, with the parts in normal position, be depressed, causing traction upon rod 32 in the direction indicated by the arrow in Fig. 3 and acting, through bell-crank 27, connection 25, and arm 24, to rotate the shaft and 45 at the same time actuate the lever 10, thus simultaneously displaying the danger-signal and sounding the alarm. After the train has passed the lever 29 will be depressed, causing a reversed movement of the parts and their 50 return to normal position.

For actuating the levers I preferably attach to the engine-pilot 36 a depending frame or member 37, having journaled at its lower end a roller or analogous device 38, which in 55 passing the levers will serve to depress them. The member 37 is preferably jointed, as here-

in shown, at 39, said joint being of such construction that if the engine be backing into position the joints will break and permit the roller to pass freely over the levers without 60 operating them.

From the foregoing it is apparent that I produce a device which in practice will admirably perform its functions to the attainment of the ends in view; but it is to be un- 65 derstood that I do not limit myself to the precise details herein set forth, inasmuch as minor changes may be made without departing from the spirit of the invention.

Having thus described my invention, what 70 I claim is—

1. In a railway-signal, the combination with a track, of a rotary shaft sustained adjacent thereto and carrying a danger-signal, two pairs 75 of levers disposed on opposite sides of the track and operable respectively by trains traveling in opposite directions, and operative connections between each pair of levers and the shaft for rotating the latter, one lever of each pair 80 being operable for moving the signal to danger and the other to non-danger position.

2. In a railway-signal, the combination with a track, of a rotary shaft sustained adjacent thereto and carrying a danger-signal, two pairs 85 of levers disposed on opposite sides of the track and operable respectively by trains traveling in opposite directions, a bell-crank fixed upon the shaft and having one of its arms operatively connected with one pair of the levers, a second bell-crank pivotally sustained at the 90 opposite side of the track, operative connections between one arm of the second bell-crank and the first-mentioned bell-crank, and connections between the other arm of the 95 second bell-crank and the adjacent pair of levers, one lever of each pair being operable to rotate the shaft in one direction and the other in the reverse direction.

3. In a railway-signal, the combination with a rotary shaft carrying a danger-signal, of a 100 standard carrying a bell, a lever pivoted to the standard and operable for actuating the bell, and means operable by a passing train for simultaneously rotating the shaft and actuating the lever. 105

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM CHARLES MINER,

Witnesses:

GEO. H. CROSS,
S. M. BROWN.