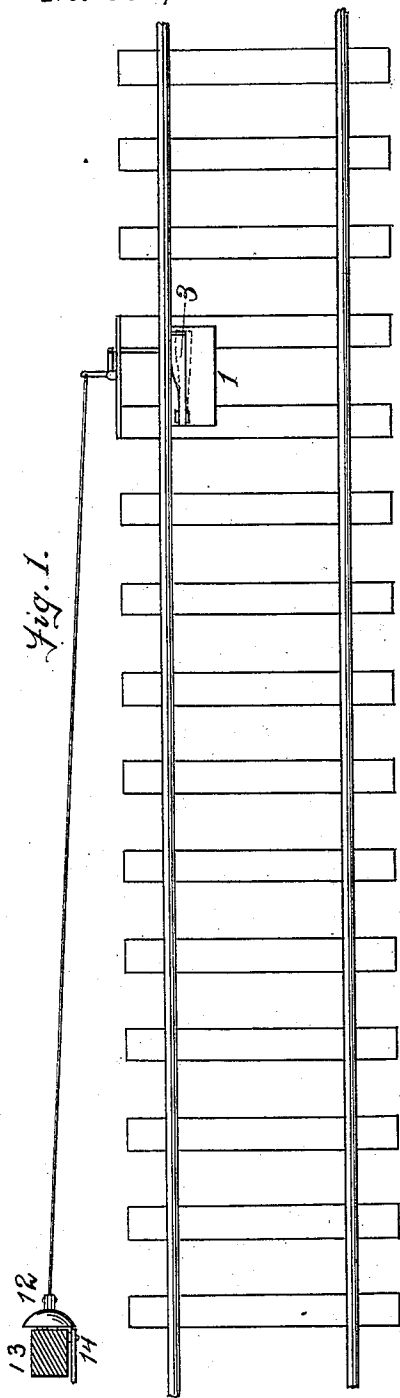


(No Model.)

W. E. BARDEN.
RAILWAY CROSSING ALARM SIGNAL.

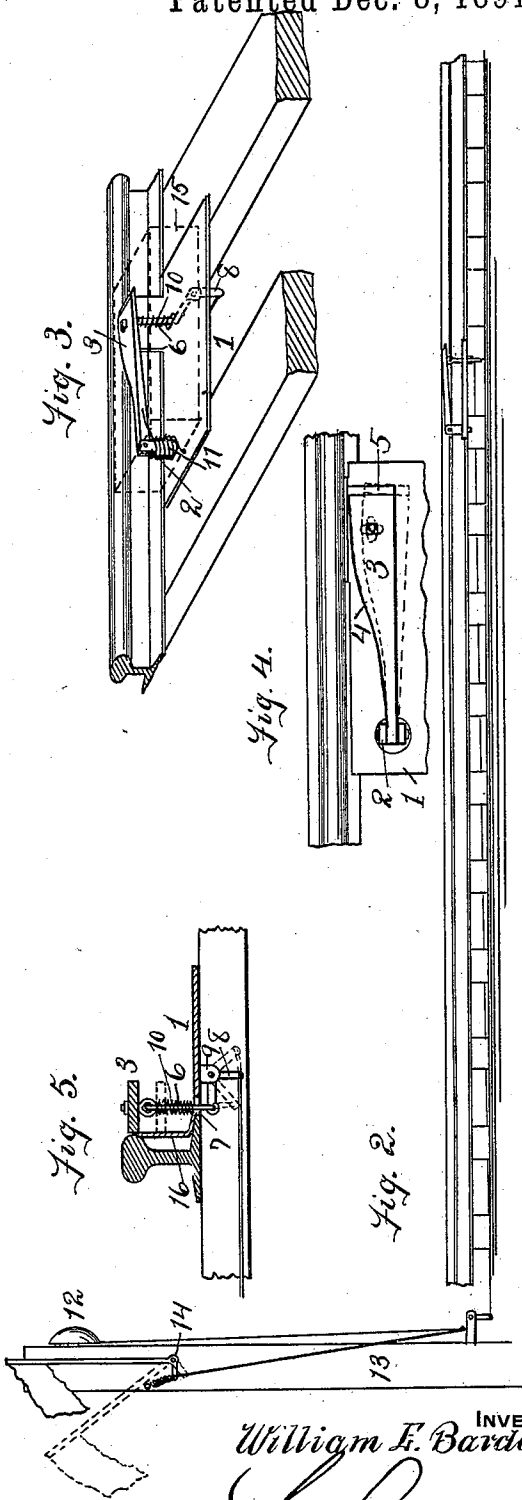
No. 464,760.

Patented Dec. 8, 1891.



WITNESSES:

John F. Merrill
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INVENTOR:

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BY

ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM E. BARDEN, OF ST. PAUL, MINNESOTA, ASSIGNOR OF ONE-HALF
TO EMILY HOCHHAUS, OF SAME PLACE.

RAILWAY-CROSSING ALARM-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 464,760, dated December 8, 1891.

Application filed January 24, 1891. Serial No. 378,976. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. BARDEN, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Railway-Crossing Alarm-Signals; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in that class of railway-signals which are designed to automatically sound at a highway-crossing an alarm of an approaching train, and is of that particular variety of such signals in which an arm or bar is located in such proximity to one of the rails of the track that the same is struck and moved by the wheels of the locomotive or cars, or both, which movement is, by means of a suitable connection, conveyed to a gong at the crossing, the latter being thus sounded during the time required for the passage of the train over the striking-arm.

The invention consists in the arrangement of parts whereby a train passing in a direction toward the crossing strikes the arm and operates the signal, while a train passing in a contrary direction moves the arm aside without operating the signal, and in the specific devices by means of which this is accomplished.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 represents a plan view of a portion of railway-track, showing my improved apparatus in position. Fig. 2 is a side view of the same from the inside of the rail, and Figs. 3, 4, and 5 are details of the operating device.

The operating parts are located upon a base-plate or standard 1, which may be rigidly mounted upon adjacent ties by means of screws or other means of fastening. Near one end of this plate is located an upright post 2, of about the height of the rail, so mounted as to turn with reference to the

plate. This post may consist, simply, of an eyebolt having a nut fitted upon the lower end thereof below the plate, and upon the upper end thereof is pivotally mounted the operating-arm or transmitter 3. The position of the parts is such that when in normal position the arm 3 will lie just inside of and parallel to the tread of the rail in position to be struck by the flange of the wheels in passing over that portion of the track. The pivoted end of the arm is, however, at a little greater distance from the rail than the thickness of the wheel-flange, and from a point just beyond the pivot the arm gradually widens with an inclined or curved surface, as at 4, toward the other end. The object of this construction and the pivotal arrangement of the post 2 is to allow the flange of the wheel of a locomotive approaching from this direction, which is toward the crossing, to enter behind the arm and force it away from the rail without depressing the same. The other or wider end of the arm is preferably chisel-shaped, as shown at 5, and lies closely against the tread of the rail, so that the wheels of a train coming from that direction—that is, approaching the crossing—strike the inclined face and depress the same, thereby operating the signal, as hereinafter described. The object of the chisel-shaped edge is to relieve the arm of the shock which would be occasioned by a rapidly-moving train striking against an abrupt or square surface.

To the underside of the arm 3, near its wide or free end, is hinged a vertical pin or bolt 6, preferably an eyebolt, for the purpose of allowing a little play of the joint in two directions. This pin or bolt passes through a slot or opening 7 in the base-plate, and its lower end is loosely connected with one arm of an elbow-lever 8, journaled horizontally upon an ear or ears 9 upon the under side of said plate. The depression of the arm caused by its being struck by the flange of a passing wheel also depresses the horizontal arm of the elbow-lever, thereby throwing out the other arm, to which is connected the signal by suitable wire or cable connection. The elbow-lever 8 is preferably journaled so as to stand at right angles to the rail, and the connection passes under the rail, to the outside

of the track, to a second elbow-lever, and thence to the signal.

Around the pin or bolt 6 is a coiled-wire spring 10 for the purpose of returning the arm after it has been depressed by the passing train, the ends of the said spring abutting against the under side of the arm and the upper side of the base-plate. The post 2 is also preferably provided with a spring 11, so connected with the arm 3 and the base-plate as to act to return the former to its position against the rail after it has been moved away by a train passing from the other direction, or as a substitute may be employed a flat spring acting upon the outside of the arm for the same purpose.

The signal ordinarily consists of a gong 12, located upon an upright post 13 at one side of the highway-crossing, the hammer of the gong being connected with the wire or cable before mentioned. It will be understood from the construction described that the gong will be sounded by the passing of every wheel of the train, thus giving a continued alarm during the existence of danger in crossing the track, the operating apparatus being located at any required distance beyond an ordinary train's length from the crossing. It will be understood, also, that similar operating devices are located upon both sides of the crossing, and that the gong is not sounded by a train which has passed the crossing, as similar devices for a like purpose have generally been constructed heretofore, by which arrangement an alarm is sounded for which there is no necessity, thereby to a great extent destroying its usefulness.

As a further safeguard the portion of the wire connection near the signal-post may be in two branches, one of which is connected with the gong, as stated, and the other with one end of a pivoted arm 14, upon the other end of which is hung a flag or other visible signal adapted to be thrown into view in the same manner and at the same time as the gong is struck. A visible and an audible alarm are thus given at the same time and by the same operation.

The operating parts are preferably covered and protected from ice and snow by means of a box 15, as shown in dotted lines in Fig. 3, the box or cover having an opening upon the side next the rail, through which the edge of the arm 3 projects. A guide-plate 16, being a part of or attached to the base-plate, extends upwardly therefrom to the top of the rail and flush with the edge thereof for the pur-

pose of preventing the operating-arm from being caught under the projecting part of the rail in its upward movement.

It is the intention of the invention herein set forth to provide an automatic signaling apparatus which shall be simple and efficient, and which can be easily kept in proper working order by the usual trackmen. Being constructed of but few parts and with no delicate or complex movements, it is not liable to require frequent attention.

I claim—

1. In a railway-crossing signal, a lever hinged to an oscillating pivot or standard at a distance from the inner side of the tread of the rail and extending so as to lie against the rail at its other extremity, the free end of said lever lying substantially at right angles to the rail and downwardly inclined, and an elbow-lever connected by one arm with a distant signal and by the other arm connected with the free end of said hinged lever in such a manner that the depression of the free end of said lever depresses the arm of said elbow-lever and operates the signal, substantially as and for the purpose specified.

2. In a railway-crossing signal, a standard or base mounted upon the ties just inside the rail, a vertical post mounted and adapted to turn in said standard, a lever hinged at one extremity to said post and thence extending to the side of the tread of the rail at an angle thereto in position to be struck and turned aside by the flange of a passing wheel, the free end of said lever lying substantially at right angles to the rail and inclined downwardly at its edge, an elbow-lever mounted upon the under side of said standard or base and having one arm operatively connected with a distant signal and the other arm with the free end of said operating-lever in such manner as to be depressed by the depression of the latter, and a spring or springs acting normally to retain the free end of said lever in a raised position and close to the tread of the rail, substantially as specified, whereby the flange of a wheel moving in one direction depresses the lever and operates the signal and a wheel moving in the opposite direction turns the lever aside without depressing it.

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

WILLIAM E. BARDEN.

Witnesses:

WALTER HOLCOMB,
F. W. LANE.