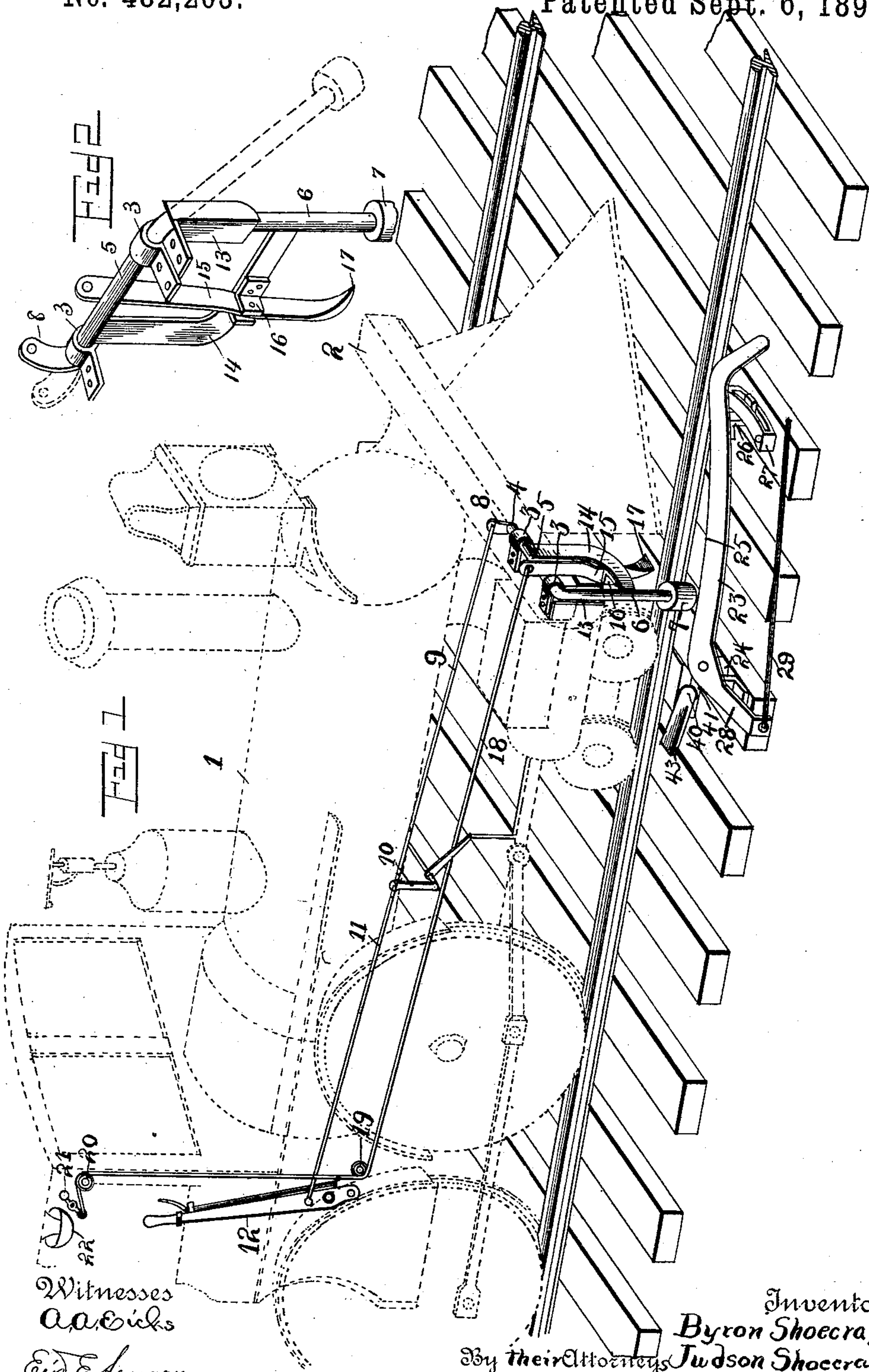


(No Model.)

B. & J. SHOECRAFT.  
AUTOMATIC SIGNAL DEVICE FOR RAILROADS.

No. 482,203.

Patented Sept. 6, 1892.



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# UNITED STATES PATENT OFFICE.

BYRON SHOECRAFT AND JUDSON SHOECRAFT, OF ST. LOUIS, MISSOURI.

## AUTOMATIC SIGNAL DEVICE FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 482,203, dated September 6, 1892.

Application filed January 6, 1892. Serial No. 417,184. (No model.) Patented in Canada February 12, 1892, No. 38,268.

*To all whom it may concern:*

Be it known that we, BYRON SHOECRAFT and JUDSON SHOECRAFT, of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Automatic Signal Devices for Railroads, of which the following is a full, clear, and exact description, (for which we have obtained a patent in Canada, dated February 12, 1892, No. 38,268,) reference being had to the accompanying drawings, forming a part hereof.

Our invention relates to improvements in automatic signal devices for railroads; and it consists in the novel arrangement and combination of parts, as will be more fully hereinafter described, and designated in the claims.

In the drawings, Figure 1 is a perspective view showing our invention as applied to a locomotive. Fig. 2 is a perspective view showing the device which is carried by the locomotive for operating the signal along the line and warning the engineer of an approaching train.

The object of our invention is to actuate levers on railroads; and it consists in a contrivance carried by the locomotive which when it comes in contact with lever mechanism arranged adjacent to the track will sound an alarm or signal at a suitable distance forward and rearward of said locomotive, whereby an approaching locomotive from either direction is warned in due time and a collision prevented.

The devices which we shall hereinafter minutely describe are so constructed as to stand the rough usage and will stand the sudden jar given them by a locomotive running at a high rate of speed.

Referring to the drawings, 1 represents an ordinary locomotive, which is shown in Fig. 1 in dotted lines, and to which our invention can easily be applied with but very little trouble and without altering the said locomotive in any way.

2 represents the front cross-beam of the locomotive, to which the cow-catcher of said locomotive is attached, and also on which is mounted or attached the device which is operated by the engineer upon the locomotive or by the remaining parts of the invention.

The devices that we are about to describe are located to one side of the locomotive and

in the front of the same, or rather the right-hand side of the locomotive.

3 3 represent two bearings, which are secured to the top of the cross-beam 2 of the locomotive at a suitable distance apart in order to accommodate the angular operating-arm 4 and allow the said arm to rotate in said bearings. The horizontal portion 5 of said arm is received by the bearings, and loosely secured to the lower end of the vertical arm 6 is a friction-roller 7, which roller is adapted to come in contact with the curved surface of an operating-lever, as hereinafter more specifically described.

8 represents an arm, which is formed with the horizontal portion 5 opposite to the vertical arm 6, and to which is loosely attached a rod 9, leading to and connected with the operating-arm 10 of the reversing link mechanism of the locomotive, and also secured to said arm 10 is a second rod 11, leading to and attached to the reversing-lever 12 above the pivotal point of the same.

By the construction as above described the locomotive when moving in a forward direction will cause the arm 4 to assume the position as shown in Fig. 1 of the drawings; but when said locomotive is desired to be backed or run in a reverse direction the reversing-lever 12 is reversed in the usual manner and in consequence raises the friction-roller 7 from out of contact with the remaining parts of our invention automatically. Secured, also, to the beam 2 of the locomotive is an angular plate 13, the depending portion of which acts as a rest for the arm 4 when the same is in the position as shown in Fig. 1, and in order that the said arm will be held rigidly when the friction-roller attached to the same strikes or comes in contact with the levers, as hereinafter more specifically described.

14 represents a curved brace, one end of which is secured to the horizontal portion 5 of the arm 4 and the opposite end of the same attached to the vertical or depending portion 6 of said arm, which not only strengthens the said arm, but provides means for supporting the pivoted lever 15.

16 represents angular plates, which are rigidly secured to the curved brace 14, which provide bearings for the lever 15, and between which the said lever is inserted. The lower end



of said lever is provided with a wedge-shaped end 17, which is adapted to come in contact with a suitable device located to one side of the rails and adapted to sound an alarm within the cab of the locomotive. To the upper end of the lever 15 is loosely secured a cord or rope 18, which passes over a suitable roller 19, located within the cab of the locomotive and upward over a second roller or pulley 20 to the clapper 21 of a gong 22.

Having described the construction and operation of the device which is carried by the locomotive, we shall now proceed to describe the construction and operation of one form of mechanism which we employ in connection with our invention.

The devices that we are about to describe are duplicated on both sides of the track in order that the devices may be operated in either direction of the locomotive.

23 represents an angular lever, which is movably secured to a bearing 24, and said bearing is attached in any suitable manner to one of the cross-ties of the railroad. The long arm of said lever is provided with a curved edge 25, which is of such a radius as to be struck by the roller 7 when the locomotive passes the said lever. Secured to the under surface of the extreme end of the long arm of the lever 23 is an angular plate 26, one end of which is adapted to slide or move in a guide 27 when the said lever is operated, thereby holding the same in its proper position in relation to the rails, premising, however, that said guide is rigidly secured to one of the cross-ties of the railroad. To the short arm 28 of the lever 23 is attached one end of a wire 29, and the opposite end of said wire is movably attached to devices similar to or different from lever 23, one function of which may be to cause stops 43 to be alternately elevated or depressed by the impact of roller 7 against the track-levers.

Should a locomotive be running in a forward direction, the roller 7 on coming in contact with the lever 23 will cause the arm 43 of the shaft 40, at a suitable distance from the locomotive, to be elevated, and should a locomotive be coming in the opposite direction the said arm 43 is so elevated that it will come in contact with the wedge-shaped end 17 of the lever 15, causing the rod or rope, as the case may be, to pull the clapper 21 and sound an alarm within the cab of the locomotive, notifying the engineer that there is an approaching train in the distance, and consequently give him ample time to reverse his locomotive and stop the same before the said locomotives come in contact with one another. In such an instance the engineer on reversing the locomotive will elevate the roller 17, carried at the lower end of the arm 4, and consequently when said locomotive moves backward the said roller will be elevated from out of contact with either the lever 23 or the arm 43, that has been previously elevated. Should there be no locomotive in the distance, the roller 7, after passing the lever 23, will come

in contact with another lever and lower the arms 43 to their normal position.

It would be well to state for the sake of clearness that the roller 7, carried by the device upon the locomotive, is located a suitable distance above the level of the track-rails, and consequently the track-levers are raised and mounted a suitable distance in order that the said roller will come in contact with the same. This is only a matter of degree, however. The rod for operating the device upon the locomotive may be a continuous one, and by a suitable lever upon said locomotive said rod may be operated independently of the reversing-lever and with the said reversing-lever when the locomotive is backed.

While we have herein described the track mechanism we prefer to employ in carrying out our present invention, it will be understood that we do not herein claim the same, said mechanism being embodied in a separate application filed by us the 28th day of March, 1892, Serial No. 426,803.

Having fully described our invention, what we claim is—

1. In an automatic signaling device for railroads, the combination, with the locomotive, of a rocking arm comprising a horizontal bearing portion and a vertical portion projecting normally downwardly at the side of the locomotive, and means connecting said rocking arm with the locomotive reversing-lever, whereby said arm is actuated by the latter, substantially as and for the purpose set forth.

2. In an automatic signaling device for railroads, the combination, with a locomotive, of a rocking arm mounted thereon and comprising a downwardly-projecting member, mechanism for connecting said arm with the locomotive reversing-lever, and a local alarm-lever carried by said arm and adapted to be simultaneously thrown out of operation therewith, substantially as and for the purpose set forth.

3. An automatic signal device for railroads, consisting of an arm 5, suitably mounted in bearings and adapted to be attached to the front of the locomotive, a friction-wheel 7, carried by said arm, a curved brace 14, also secured to said arm, a lever 15, movably secured to said brace, having a wedge-shaped lower end 17, a rope or cord 18, attached to the upper end of said lever, leading to and connected to an alarm in the cab of the locomotive, a rod attached to the said arm 5 and connected to the reversing-lever on the locomotive, levers secured to the cross-ties and adapted to be moved by the said roller, and suitable wires leading to and connected with a shaft for operating or elevating an arm, substantially as described.

4. An automatic signal device for railroads, consisting of a right-angular arm, such as 5, mounted in suitable bearings 3, an arm, such as 8, attached to or formed with the arm 5, a rod 9, movably attached to the said arm



8 and also attached to the lever 10, for operating the link upon the locomotive, a second-rod, such as 11, attached to the said arm 10 and also to the reversing-lever 12 upon the  
5 locomotive, a brace such as 14, a lever, such as 15, movably secured to said brace, having a wedge-shaped lower end 17, a cord or rope, such as 18, attached to the upper end of said lever and passed over suitable rollers and  
10 also attached to the clapper 21 of the gong 32 for sounding an alarm, and a system of levers

arranged to one side of the track-rails for operating or rotating suitable shafts, such as 40, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

BYRON SHOECRAFT.  
JUDSON SHOECRAFT.

Witnesses:

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EWD. E. LONGAN.