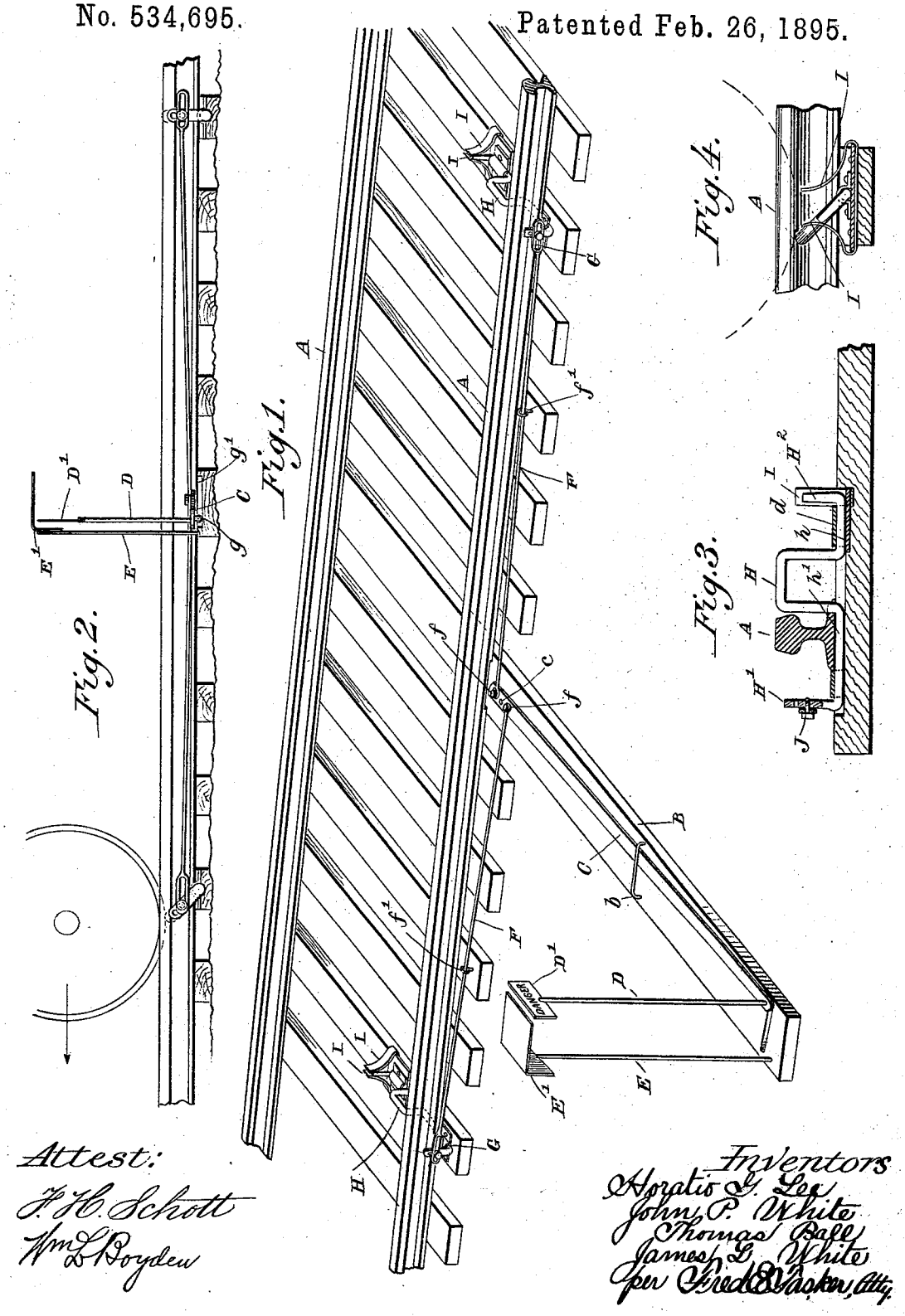
(No Model.)

H. G. LEE, J. P. WHITE, T. BALL & J. L. WHITE.

AUTOMATIC DANGER SIGNAL FOR RAILROADS.

No. 534,695. Patented Feb. 26, 1895.



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AUTOMATIC DANGER-SIGNAL FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 534,695, dated February 26, 1895.

Application filed June 19, 1894. Serial No. 515,069. (No model.)

To all whom it may concern:

Be it known that we, HORATIO GROOMS LEE, JOHN P. WHITE, THOMAS BALL, and JAMES L. WHITE, citizens of the United States, residing at Austin, in the county of Travis and State of Texas, have invented certain new and useful Improvements in Automatic Danger-Signals for Railroads; and we 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.

Our invention relates to an improvement in danger signals for use on railways especially at crossings, but adapted to be practically employed at all points wherever a danger signal may be required.

The object of the invention is to provide a simple, easily operated and efficient device for indicating at railroad crossings and other points, the approach or departure of trains within any given distance of such crossing or with relation to any point where persons might come into dangerous proximity to the train if they were left unadvised by some such signal as this. The invention therefore consists in the construction, arrangement and combination of parts, substantially as will be hereinafter described and claimed.

In the annexed drawings illustrating our invention, Figure 1 is a perspective view of our improved danger signal. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged sectional elevation of that portion of the mechanism which is operated upon by the wheel of the passing train. Fig. 4 is an inner end view of the spring mechanism employed in connection with the mechanism shown in Fig. 3.

Similar letters of reference designate corresponding parts in the several figures of the drawings.

A A denote the parallel rails of a railway track in connection with which our improved danger signal is arranged.

We do not intend to be restricted to any particular point for the use of our invention but reserve the liberty of employing it wherever it may be found of value. Therefore the railway track shown in the drawings is given simply by way of illustration.

Alongside of the track A A at some suitable point, as for instance near a road crossing, is located a foundation beam or plank B situated at right angles to the track and serving as a support for a horizontally-swinging arm C which extends from a point near the outside of one of the rails A, to a point at a suitable distance from the track, lying its full length upon the beam B and adapted to horizontally slide thereon, and carrying at its outer end a fixed vertical post D, at the top of which is a signal arm D′ of some suitable variety, as for instance a placard with the word "Danger" imprinted thereon. This signal D′ may if preferred be painted red or some other color and it may have any suitable kind of designation upon it. Adjacent to the signal D′ is a fixed post E which is supported in the end of the beam B, or in some other manner at the extremity of the rod C. This post E carries at its upper end a hood E′, which at times serves to cover the signal D′. This signal can be placed within the hood and thereby concealed from view or it can be withdrawn from the hood and exposed so as to be seen by persons passing over the crossing. The shifting horizontally of the arm C operates to transfer the signal from a position within the hood, to a position without it and vice versa, so that it may be exposed to view or withdrawn from view as may be required. On the beam B is a strap *b* which passes over the rod C and serves as a guide therefor so that the movement of said rod may take place along an accurate line and within defined limits. The end of the rod C which carries the danger signal is preferably provided on its under side with a roller *g* which works within a slot *g′* in the plank B, so as to give the rod C, freedom and ease of movement. The rod C is pivoted by means of a pivot pin *c* to the plank B at a point near the rail A, a short portion only of the rod C being between the pin *c* and the rail A.

There are two rods F F which are pivotally attached to the rod C at the pivoted end thereof and on opposite sides of the pivot pin *c*, said

pivoting of the two rods being accomplished by means of pivot pins *f f* as is clearly shown in Fig. 1. These rods F F extend alongside of the track in opposite directions from the rod C. At points between the rails A A closely contiguous to the tread of the rail to which the danger signal is nearest and at points adjacent to the extremities of the rods F F, although on opposite sides of the rails, as is clearly shown in Figs. 1 and 3, are the wheel-operated rock shafts which are depressed by the wheels of the passing train for the purpose of actuating the signal and placing the latter in an operative or an inoperative position as the case may be. These wheel-operated rocking devices, consist of suitably bent rods, one end of which is loosely connected to the end of the rod F, while the other end is held between springs which keep the device in a normally upright position and return it to that position whenever it is temporarily depressed or deflected by a passing train. Each of these devices has a right angled loop H, whose upper part provides a horizontal edge in an exact horizontal plane with the upper edge of the rail and closely contiguous to said tread, as is clearly indicated in Fig. 3, so that whenever a train rolls along the tread, the flange must necessarily come into contact with this part H and depress the same downwardly out of its normal position into a lower horizontal plane, thereby causing a rocking of the remainder of the rod of which the rocking device is composed. This remaining portion of the rod consists of the two parts *h* and *h'* on each side of the loop sections H, said parts *h* and *h'* serving as journals and being held in suitable bearings, the part *h'* being in a bearing beneath the rail and the part *h* being in a bearing *d* on one of the ties. The portion *h'* is provided at its end on the other side of the rail A, with a right angled arm H' which is pivoted to the end of the rod F, the pivoting being accomplished by means of a pivot bolt J, which passes through one of a series of holes in the arm H', said series being for the purpose of permitting a variation of the adjustment, and the pivot bolt passing also through a slot G in the end of the rod F, within which slot the bolt lies loosely and is freely movable. The bearing portion *h* of the rocking device is provided at its end with a right angled bent arm H^2 which normally occupies a vertical position between two flat springs I I which bear equally thereupon from opposite sides.

By referring to Fig. 4 it will be seen that when the vertical arm H^2 is bent in one direction, it will deflect one of the springs I and when bent in the other position it will deflect the other of said springs, and when the force which occasions such temporary departure of the arm H^2 from its normal vertical position ceases to act, the one or the other of the springs will immediately return the arm H^2 to its proper vertical position.

Whenever a train passes along the tracks A A, the rocking device with which its wheels come into contact will be rocked or partially rotated and the result will be that the arm H' of said device will move its pivot bolt J along the slot G in the arm F until it strikes the end of said slot and pushes said arm F endwise sufficiently to shift the rod C and transfer the danger signal from one position to the other. As soon as the wheel leaves said rotary device, its springs will immediately return it so that its arm H' will again occupy a vertical position, but this return movement of the arm H' will not have any effect upon the danger signal, because the bolt J will simply move backward through the slot G, which is long enough to permit it to have such play, without affecting the signal. As the train moves on from one of the track devices to the other and comes into contact with the latter, its action thereon will be the reverse of its action upon the first one, because as it deflects this second device from its normal position, its arm H' will carry the bolt J along in the slot G to the outer end thereof and shift the rod F endwise in such a manner as to return the danger signal to the position which it formerly occupied before the train operated upon the first track device. Therefore it will be seen that whichever way the train may be passing upon the tracks, it will first come in contact with one track device which it will operate and by this operation the danger signal will be removed from its covering and exposed to view and remain exposed to view until the train strikes the second track device which is placed at a suitable distance from the first track device, and the result of its contact with the second track device will be to return the danger signal to its concealed position where it will remain inoperative until a train again passes either in one direction or the other.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a danger signal, the combination with the signal and the horizontally-swinging rod supporting it, of a wheel-operated rocking track device, a link connection between said device and the signal-carrying rod and spring mechanism for keeping the track device in its normal position, substantially as decribed.

2. The combination with the signal and signal-carrying rod, of the wheel-operated rocking track device, consisting of a rectangular loop adjacent to the tread of the rail, bearings on each side of the loop, each of which has an angular arm, a link pivotally attached to one of said arms and to the signal-carrying rod and springs operating against opposite sides of the other arm, substantially as described.

3. The combination with the signal and the signal-carrying rod which is pivoted near one end, of a link, pivoted to the signal-carrying rod near its pivotal point and having a slot at its other end, a wheel-operated track device

having a rectangular loop near the rail tread and having bearings on opposite sides of the loop, each provided with upwardly projecting arms, one of which is pivoted to the slotted end of the link and flat springs tensioned against opposite sides of the other arm for the purpose of keeping the track device in a normal vertical position, substantially as described.

4. In combination with the signal, the pivoted signal-carrying rod and the pivoted link attached thereto, of the wheel-operated track device, consisting of rectangular loop H, bearing portions $h\,h'$, arms H' H^2 and a spring bearing on the arm H^2, substantially as described.

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

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JOHN P. WHITE.
THOS. BALL.
JAMES L. WHITE.

Witnesses:
FRED CARLETON,
MICHAEL J. DOYLE.