

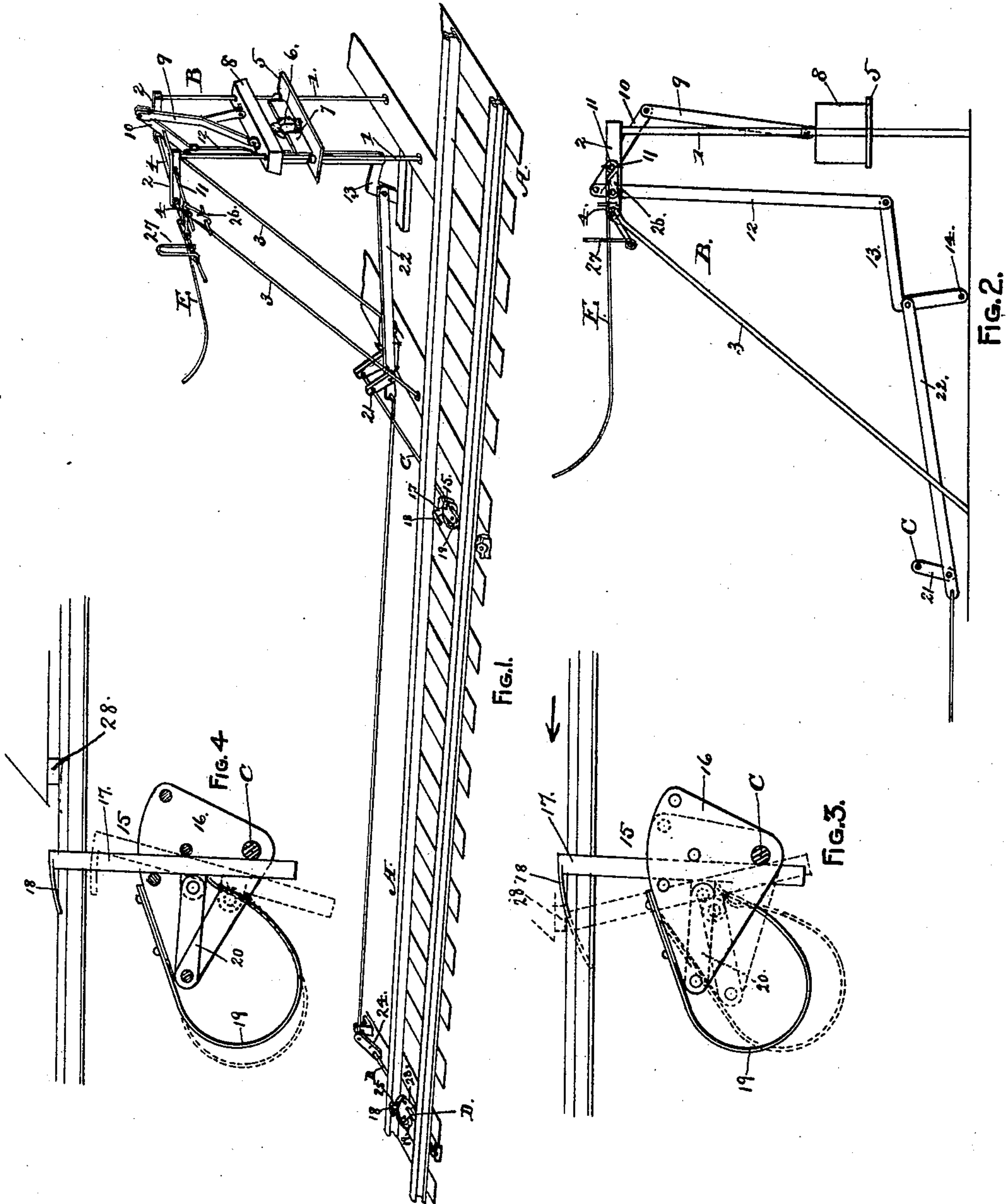
(No Model.)

W. I. HERRICK.

AUTOMATIC DANGER SIGNAL FOR RAILWAYS.

No. 459,707.

Patented Sept. 15, 1891.



WITNESSES:

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WILLIAM I. HERRICK, OF SCHODACK LANDING, NEW YORK, ASSIGNOR OF TWO-FIFTHS TO CHARLES H. LENT, OF SAME PLACE.

AUTOMATIC DANGER-SIGNAL FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 459,707, dated September 15, 1891.

Application filed June 4, 1891. Serial No. 395,021. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM I. HERRICK, of Schodack Landing, in the county of Rensselaer and State of New York, have invented
5 new and useful Improvements in Automatic Danger-Signals for Railways, of which the following is a specification.

My invention relates to improvements in automatic danger-signals for railways; and
10 the object of my invention is to provide a simple, reliable, and efficient danger-signal that will be automatically operated by the engine or other car of a railway-train, so as to exhibit a visible or other discernible mani-
15 festation of the dangerous proximity of a preceding train. This object I attain by the means illustrated in the accompanying drawings, which are herein referred to and form part of this specification, and in which—

20 Figure 1 is a perspective view of my invention applied to a short section of a railway-track with the signal in condition to indicate "danger." Fig. 2 is a side elevation enlarged of the signal arranged to indicate "safety"
25 or a clear track. Fig. 3 is an enlarged and detached side elevation of the arm of the apparatus with which the engine or car engages to operate the signal, and Fig. 4 is the same with one of the side plates removed to expose
30 the internal parts.

As represented in the drawings, A designates the railway-track, which has one of my danger-signals erected by the side of it.

B designates the frame-work for my signal,
35 which consists of vertical posts or guides 1, each having a horizontal head 2 attached thereto and a brace 3 extending from each of said heads to the base. A tie-bar 4 connects the two heads 2 together, and said tie-bar is
40 extended inwardly toward the track A, for a purpose hereinafter explained. A cross-plate 5 is carried by the posts 1 to form a seat for a lantern 6, which will constitute a visible signal of danger at night, a vertical plate 7,
45 which is also seated on the cross-plate 5 and is colored to signify "danger," forms a visible signal during daylight, the plate 7 is preferably made in two parts with a space left between them for receiving the lantern 6, so
50 that said lantern can be plainly seen from a train running in either direction on the track

A. A hood 8 is fitted to slide vertically on the posts or guides 1, so as to conceal the indicators of danger when the track is clear. Said hood is connected by a link 9 to the free
55 end of a lever 10, secured to a shaft 11, journaled in the heads 2 of the frame-work B. The opposite end of the lever 10 is connected by means of a rod 12 to the free end of a bent arm 13, which is pivoted, as at 14, to the base
60 of the frame-work B, and said arm is operated by the mechanism described below.

C is a tumbling-shaft arranged transversely to the track A and provided with an arm 15, secured thereto between the rails of said track,
65 so as to lie in the path of a train moving on the track A. Said arm is preferably formed of side plates 16, spaced apart and connected together by means of bolts or rivets, so as to move as one piece. A sliding bar 17 is fitted
70 to slide up and down in said arm and has projecting from one side an angularly-arranged head 18, which is so adjusted that when a train approaches it in one direction the cow-catcher of the engine or other suitable part of a car
75 will engage with the upper end of said sliding bar and effect a tilting of the arm 15, that will cause the shaft C to rock in its bearings. When a train approaches said arm from the
80 opposite direction, the sliding bar 17 will be pushed downwardly, as indicated by dotted lines in Fig. 4, without effecting any rocking movement of the shaft C. A spring 19 is fitted to normally hold the sliding bar 17 in its pro-
85 truded position, and a swinging link 20 connects said sliding bar to the arm 15, so as to retain the head 18 in its required position in relation to the track A. A pendent arm 21 is secured to the shaft C and is connected to the
90 arm 13 by means of a rod 22 in such manner that the rocking motions of the shaft C will effect the movements of the hood 8, according to the direction in which the shaft C is rocked. At any required distance from the
95 tumbling-shaft C a second tumbling-shaft D is arranged in a parallel line therewith. The latter is provided with an arm 23, in every respect like the arm 15 on the shaft C, and with an upwardly-extended arm 24, which is
100 connected to the arm 21 of the shaft C, so that a rocking movement of the shaft D will effect a rocking movement of the shaft C in a direc-

tion that is opposite to that of the shaft D, so that when the arm 15 is tilted over by the passing of a train to effect the movement of the intervening mechanism in such manner that the signal of danger will thereby be exposed, the arm 23 will be moved into an erect position to bring the upper end of its sliding bar 25 in the path of that part of the cow-catcher of the engine or any part of a car that is fitted to engage with the upper end of said sliding bar. The head of the sliding bars 17 and 25 is arranged to project in the direction in which a train is required to move normally on the track. By this arrangement an erect portion of the sliding bar will be presented to the action of the part of the train that is fitted to operate the tumbling-shafts C and D. The upper end of said sliding bars is only required to project above the level of the head of the track-rails sufficiently to permit the lower part of the cow-catcher or the part of the car designed for that purpose to come into contact with said sliding bars. The lower point of the heads 18 should be arranged to lie below the level of the contacting part of the engine or car; so that when a train is moved in a direction that is contrary to the one in which the rocking of the tumbling-shafts C and D will be effected the contacting part of the engine or car will, by moving up on the inclined head 18, push down the sliding bar without effecting any movement of the arm to which said sliding bar is connected.

E designates a slender arm that is loosely journaled on the shaft 11, so as to strike a bell or bells attached to a train of cars and thereby produce an audible alarm when a train is passing by a signal-station at night when, whether by accident or design, the signal-light has become extinguished. An arm 26 is attached to the outer end of the shaft 11, and said arm is so arranged that when the hood 8 is lowered to cover the danger-signals it will elevate the arm E sufficiently to have it clear the bells attached to the train; but when the hood 8 is raised, as shown in Fig. 1, the arm 26 will swing downward and permit the arm E to drop into position where it can strike the bells of the train. For the purpose of maintaining the arm E in position and to permit said arm to have a perfectly free movement an open guide 27 is attached to the outer end of the tie-bar 4, said guide being preferably made in the form of a loop or staple that will allow the arm E to rise and fall without frictional contact therewith.

My invention operates in the following manner: When a train is moving on the track A in the direction indicated by the arrow on Fig. 3, the bar 28 on the bottom of the cow-catcher or a depending part of a car will engage with the upper end of the sliding bar 17 and throw the arm 15 into the position indicated by dotted lines in Fig. 3, whereby the tumbling-shaft C will be rocked to effect an exposure of the signals of danger and free the arm E to operate upon the bells of the

train. Simultaneously with this action the tumbling-shaft D will be rocked to bring the head of the sliding bar 25 into the path of the bar 28. When the train reaches a point where the bar 28 will engage the upper end of the sliding bar 25, the arm 23 will be moved to rock the tumbling-shaft D, and thereby, through the intermediate mechanism herein described, the hood 8 will be lowered to cover the visible signals 6 and 7 and the arm E will be raised to clear the bells of the train. It will be noticed that the arms 21 and 24 are so arranged that the rocking motion of either of the tumbling-shafts will always throw a pulling strain on the connection between said arms, and for that reason said connection may be made very light, without regard to the length of the same.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a railway danger-signal, the combination of a visible signal, a hood fitted to cover said signal and having a rising and falling movement to correspondingly expose and conceal the signal, a tumbling-shaft operated by a passing train and connected by intermediate mechanism, substantially as described, to said hood, and an arm secured to said tumbling-shaft and provided with a sliding bar which remains rigid if pushed in one direction, but yields inwardly if pushed in the opposite direction, substantially as specified.

2. In a railway danger-signal, the combination of two tumbling-shafts fixed distantly from each other and connected together, so that when one of said shafts is rocked in either direction the other will be rocked in an opposite direction, each of said shafts being provided with an arm having a sliding bar, which will remain rigid when pushed in one direction, but will yield inwardly when pushed in the opposite direction, a visible signal placed in a fixed position, a movable hood fitted to cover said signal, and mechanism, substantially as described, for connecting said hood with said tumbling-shafts, as and for the purpose herein specified.

3. In a railway danger-signal, the combination of a shaft 11, fitted to receive a rocking movement and having an arm 26 secured thereto, and an arm E, loosely journaled on said shaft, the arm 26 being fitted to engage with the arm E, as and for the purpose herein specified.

4. In a railway danger-signal, the combination, with a tumbling-shaft, of an arm secured to said shaft and provided with a sliding bar which will remain immovable when pressure is applied in one direction, but will slide inwardly when pressure is applied in an opposite direction, as and for the purpose herein specified.

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Witnesses:

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