

(No Model.)

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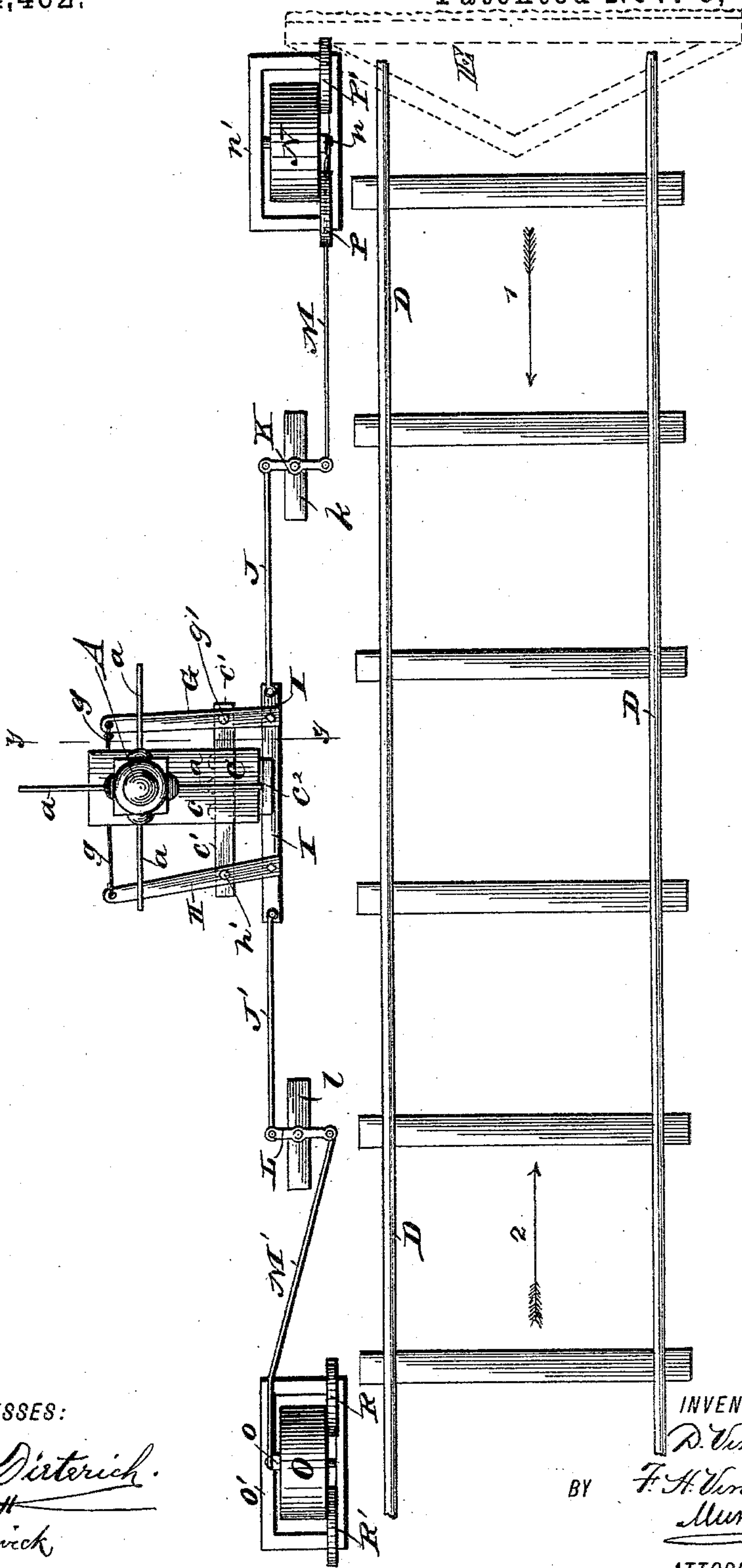
D. VINTON, Jr. & F. H. VINTON.
AUTOMATIC SIGNAL FOR RAILWAYS.

AUTOMATIC SIGNAL FOR RAILWAYS.

No. 414,462.

Patented Nov. 5, 1889.

Fig. 1.



WITNESSES:

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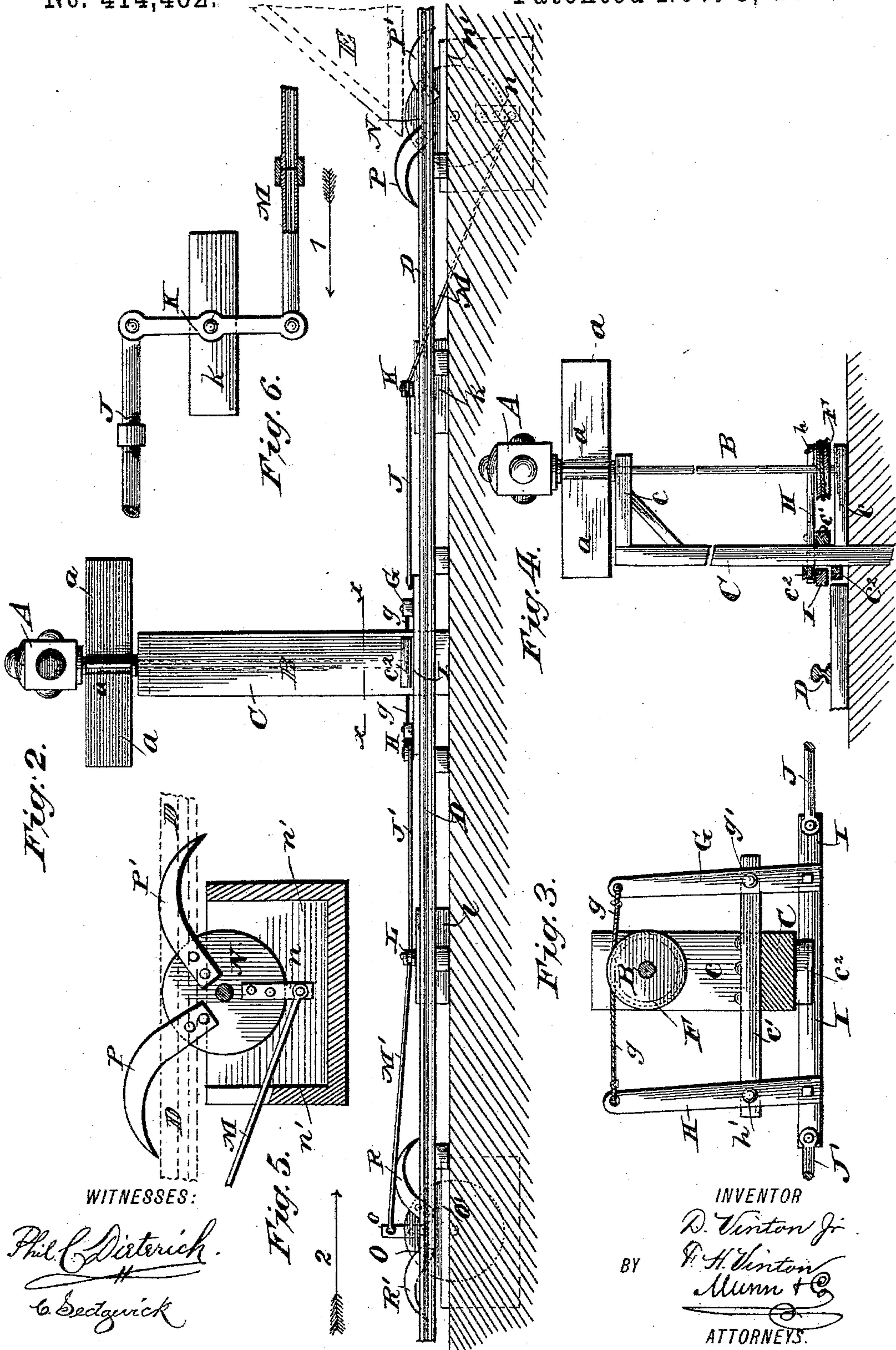
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

DAVID VINTON, JR., AND FRANK HENRY VINTON, OF WILLIAMSBURG,
MICHIGAN.

AUTOMATIC SIGNAL FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 414,462, dated November 5, 1889.

Application filed February 25, 1889. Serial No. 301,088. (No model.)

To all whom it may concern:

Be it known that we, DAVID VINTON, Jr., and FRANK HENRY VINTON, of Williamsburg, in the county of Grand Traverse and State of Michigan, have invented a new and Improved Railroad-Signal, of which the following is a full, clear, and exact description.

Our invention relates to signaling apparatus to assure safety of trains, more particularly those trains running on single-track railways, the invention being designed for use in railroads where crossed by other railroads or by common roads and at curves and tunnels.

The invention has for its object to provide simple, comparatively inexpensive, and reliable signaling apparatus of this character useful by day or at night and operated by or from the pilots of locomotive-engines moving in either direction along the track.

The invention consists in certain novel features of construction and combinations of parts of the signaling apparatus, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of our improved railroad-signal with adjacent portion of a railway-track and the pilot of a locomotive-engine indicated in dotted lines. Fig. 2 is a side elevation thereof, the road-bed being in vertical section. Fig. 3 is a detail plan view with the main signal-post in horizontal section on the line $x x$ in Fig. 2, and drawn to a little larger scale than like parts are shown in Figs. 1 and 2. Fig. 4 is a transverse sectional elevation taken on the line $y y$ in Fig. 1, the signal post and shaft being partly broken away. Fig. 5 is an enlarged sectional side view of one of the signal trip-wheels and its box or casing, and Fig. 6 is an enlarged detail plan view of one of the signal-rod-lever connections.

The signal proper consists of a lantern A, having red and green bull's-eyes or glasses set in opposing pairs in its side walls and fixed to a vertical shaft B, journaled in arms $c c$, projecting from a post or upright C, set at one side of a railway-track D, on which trains of cars will be run, the dotted lines at

E in Figs. 1 and 2 of the drawings indicating the pilot or cow-catcher of one of the locomotive-engines supposed to run on the track. Signal boards or plates $a a a a$, set at right angles to each other and painted red and green at faces corresponding to the red and green bull's-eyes of the lantern, will preferably be held to the shaft B under the lantern, so as to turn one-quarter around and back again with the lantern, the lantern being designed for night service and the boards for day use, as will readily be understood.

To the signal-shaft B is fixed a pulley, wheel, or drum F, around which is wound a cord g , the ends of which extend in opposite directions and are secured to the levers G H, which are fulcrumed at $g' h'$ to a bar c' , bolted to the post C, and the other ends of these levers are pivoted to opposite end parts of a bar I, which is fitted to slide lengthwise of the railway-track on the post C and between guides c^2 , fixed thereto, the bars c' and I being arranged at opposite sides or faces of the post, so that the levers G H project laterally from the track, as most clearly shown in Figs. 1, 3, and 4 of the drawings. With this construction it is obvious that as the bar I is moved endwise in opposite directions the right distance the signal will be turned one-quarter around in reverse directions, so as to display the green and red lights or boards alternately to the engineers of approaching trains or to persons approaching on roads crossing the railway-tracks.

To one end of the bar I is connected one end of a rod J, preferably made of metal gas-pipes joined together, and the other end of this rod is connected to one forked end of a lever K, which is fulcrumed about at its center to any suitable post, bed-plate, or support k , set at one side of the railway-track and preferably about two or three hundred feet from the signal-post C. The other end of the bar I is connected by a rod J', like the one J, to one forked end of a lever L, like the one K, and supported on a bed-plate l , to which it is pivoted about at its center. A rod M, also made of joined lengths of gas-pipe, connects the other forked end of the lever K with a downwardly-projecting lug n , fixed to a drum or wheel N, journaled to and in a suitable box

or case n' , set at the side of the railway-track at any required distance from the signal-post C and lever K, and a like rod M' connects the other forked end of the lever L with the end of an upwardly-projecting lug o , fixed to a drum or wheel O, like the one N, and journaled to and in a box or casing o' , set near the track D at the other side of the signal and lever L and at any required distance therefrom. The drum N is provided with two curved arms P P', and the drum O is provided with two curved arms R R', all four arms being adapted to be struck by the heel of the engine-pilot only as a train approaches and passes the signal from either direction, and as hereinafter more fully explained. The gas-pipe rods J J' M M' are affected less by changes of temperature than cords, wires, or chains would be. Consequently we employ these rods to assure safe working of the signal.

The distance between the two drums N O may be one thousand feet, (more or less,) and that portion of the railway-track between the drums may be a curve of larger or smaller radius, and at which the signal will prevent collision of trains running on a single track, or the track between the drums may be either straight or curved and the signal may be set at or near the crossing of an ordinary roadway or another railway to warn vehicles off the track should a train be approaching. As many of the signals A and operating mechanism therefor, substantially as above described, may be set up along a line of railway and as closely together as a guarantee of safety under any circumstances may require.

The operation of our signal is very simple and effective, as follows: We will suppose that the signal stands with the green or safety bull's-eyes or boards presented to trains on the track D. The arms P R of the drums N O, respectively, would then be raised and their other arms P' R' would be lowered, as shown most clearly in Fig. 2 of the drawings. If now a train approaches the signal in direction of the arrow 1 in Figs. 1 and 2 of the drawings, the engine-pilot E would lower the arm P, and thereby turn the drum N and draw on the rod M and push the rod J and bar I forward, and thereby actuate the levers G H, the cord or cable g , and the drum F and shaft B to turn the signal A a one-quarter around to display the red or danger lights or boards, and simultaneously with this movement of the signal the bar I, by pushing on the rod J' and drawing on the rod M', will also turn the drum O to reverse the positions of the arms R R', or lower the arm R and raise the arm R', so that as the train after having passed by the signal reaches the drum O the engine-pilot will strike and lower the arm R' of the drum O, and thereby draw on the rod M' and push backward on the rod J' and bar I to actuate the levers, cord or cable, and pulley at the signal to turn it back one-quarter revolution or reset it as at first, or so that it presents the green or safety lights or

boards to a following train or to a train approaching the signal from the opposite direction. It will be remembered that as the signal was reset to "safety" the drum-arms R P would both be raised again to their first-described positions. Should the same train back down the track or another train now approach the signal in direction of the arrow 2 in Figs. 1 and 2 of the drawings, the arm R of the drum O would first be depressed to set the signal to show a red light or board or "danger," and after the train had passed the signal the raised arm P' would next be lowered to return the signal to the green or safety position again; hence from whichever direction a train may approach the signal, whether moving forward or backward along the track, the signal will be automatically shifted to "danger" and "safety" alternately, and in ample time to prevent collisions on the track of trains moving in either direction.

In using the signal to warn vehicles from road-crossings of the track the signal lights and boards will show red and green or "danger" and "safety" alternately from or along the cross-road, as will readily be understood.

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

1. The combination, in a railroad signaling apparatus, of a post or support, a revoluble signal held thereto, a wheel or drum on the signal-shaft, two levers fulcrumed to the post or a bar held thereto, a cord or cable connected at each end to the levers and wound around the wheel or drum, a sliding bar pivoted to the other ends of the levers, and rod, cord, or wire connections leading each way from the sliding bar and adapted for operation by trip devices actuated by passing trains, substantially as herein set forth.

2. The combination, in a railroad signaling apparatus, of a post or support, a revoluble signal held thereto, a wheel or drum on the signal-shaft, two levers fulcrumed to the post or a bar held thereto, a cord connected at its ends to the levers and wound around the wheel or drum, a sliding bar pivoted to the other ends of the levers, two rock-levers, one fulcrumed to a support at each side of the signal, rods connecting opposite ends of the sliding bar to one end of both rock-levers, a drum or wheel journaled next the railway-track at one side of the signal and provided with two arms adapted for depression by an engine-pilot, and provided also with a pendant arm, a rod connecting said arm to one of the rock-levers, another drum or wheel journaled next the railway-track at the other side of the signal and provided with two arms adapted for depression by an engine-pilot, and provided also with an upwardly-extending arm, and a rod connecting this arm to the other of the two rock-levers, all arranged for operation substantially as described, for the purposes set forth.

3. The combination, in a railroad signaling

apparatus, of a post C, a revoluble signal, as
B A *a*, journaled thereto, a wheel F on the
signal-shaft B, two levers G H, fulcrumed to
the post or a bar held thereto, cord or cable
5 *g*, wound around the wheel F and connected
to the levers G H, respectively, and a sliding
bar I, pivoted to the levers G H and adapted
for connection to trip devices operative by a
passing train, substantially as herein set forth.
10 4. The combination, in a railroad signaling
apparatus, of a post C, a revoluble signal, as
B A *a*, journaled thereto, a drum or wheel F
on the signal-shaft, two levers G H, fulcrumed
to the post or a bar held thereto, a cord *g*,
15 connected to one end of these levers and
wound onto the drum or wheel, a sliding bar
I, pivoted to the other ends of the levers, two
rock-levers K L, one fulcrumed at each side

of the signal, rods J J', connecting opposite
ends of the bar I to one end of both levers K 20
L, a drum N, journaled next the railway-track
at one side of the signal and provided with
two arms P P' and a pendent arm *n*, a rod M,
connecting said arm to the rock-lever K, an-
other drum O, journaled next the track at 25
the other side of the signal and provided with
two arms R R' and an arm *o*, and a rod con-
necting this arm to the rock-lever L, all con-
structed and arranged for operation substan-
tially as described, for the purposes set forth. 30

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Witnesses:

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