

(No Model.)

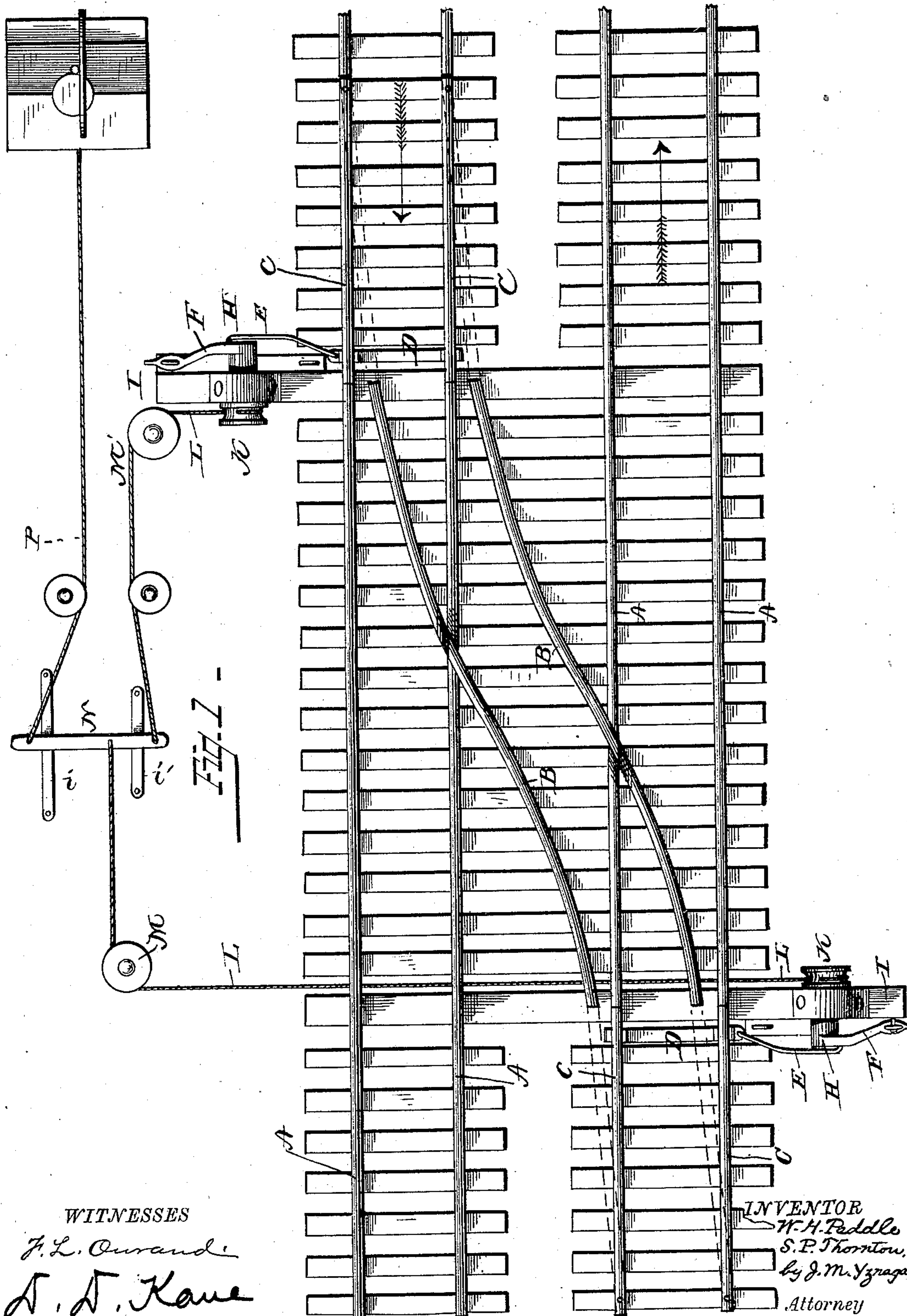
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RAILROAD SIGNAL.

No. 287,051.

Patented Oct. 23, 1883.



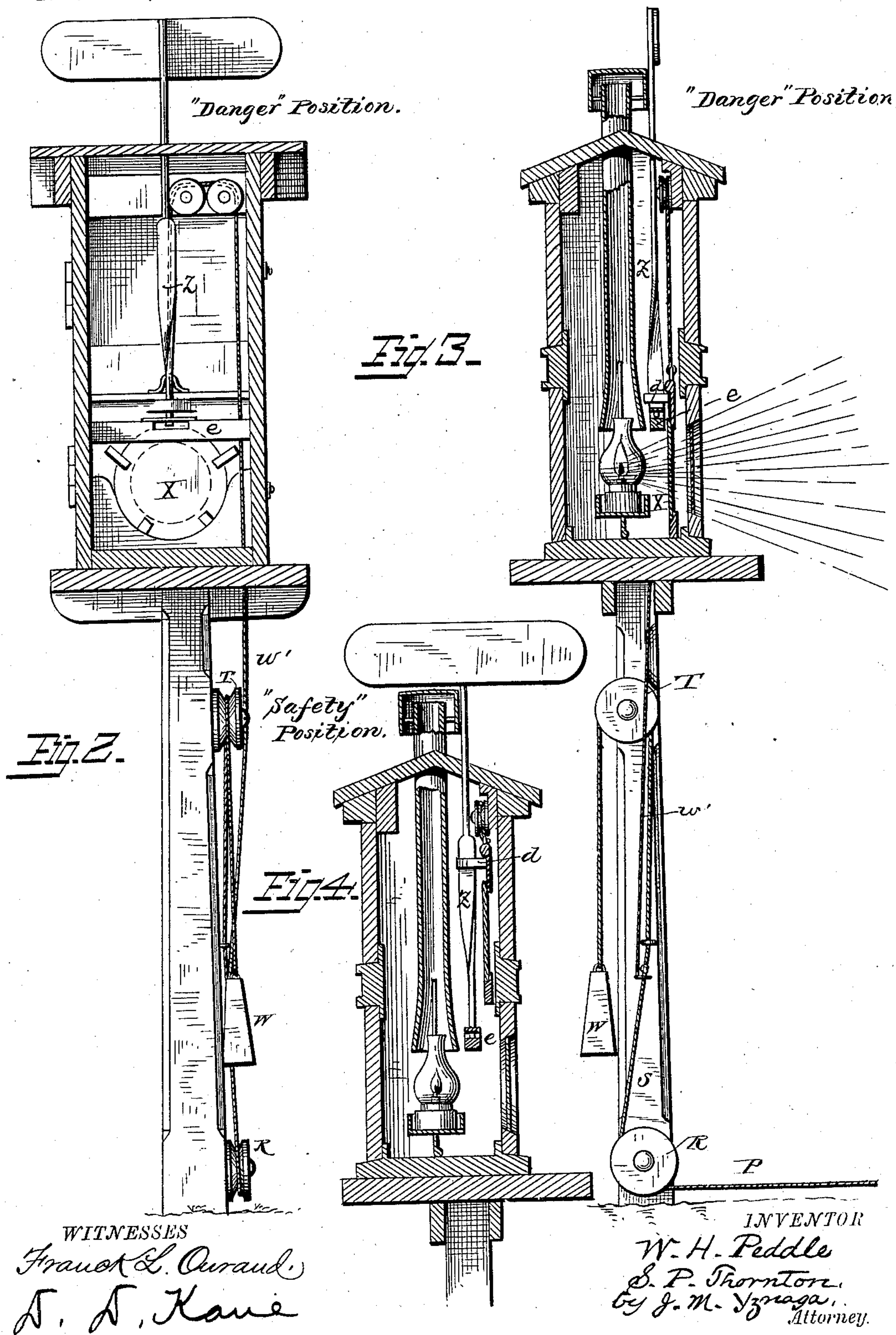
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UNITED STATES PATENT OFFICE.

WILLIAM H. PEDDLE, OF ROSELLE, AND SAMUEL P. THORNTON, OF ELIZABETH, NEW JERSEY.

RAILROAD-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 287,051, dated October 23, 1883.

Application filed January 4, 1883. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. PEDDLE, residing at Roselle, Union county, New Jersey, and SAMUEL P. THORNTON, residing at Elizabeth, in the county of Union and State of New Jersey, citizens of the United States of America, have invented certain new and useful Improvements in Railroad-Signals; 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.

This invention relates to railroad-signals which are actuated from a "safety" to a "danger" position, and vice versa, by the shifting of one or more of the switches connected to the signals.

It is a well-known fact in railroading that the red screen displayed in the box cannot be seen at times during the day, on account of it being difficult to see the red when the sun is in the engineer's eyes, or when the sun shines at an angle on the glass; also, in some snow-storms, it is difficult to make out the color of the displayed screen, on account of the drift or accumulation of snow on the glass covering the sight-opening of the signal-box. To obviate these difficulties with engineers on railroad-trains, we employ an auxiliary signal which is arranged outside of the box or support containing the danger-screen signal, so as to work or coincide with the red screen, to indicate "danger" or "safety"—that is to say, when the red screen is down, indicating "danger," the target, having its face colored, will also be presented in a transverse direction of the track, to indicate "danger," and when the screen is raised, to indicate "safety," the target will also be presented in a direction corresponding with the line of the track, to show "safety," thereby providing an auxiliary means for the engineer to see in case the sun or snow should obstruct the view of the screen within the box.

Our invention consists in the novel construction, combination, and arrangement of parts, as will be hereinafter more fully set forth.

Figure 1 of the annexed drawings is a plan view of two railroad tracks and switches, show-

ing our improvements in connection therewith. Fig. 2 is a view of an elevated signal-box in section, showing the red signal and signal-target in "danger" position. Fig. 3 is another sectional view of an elevated signal-box, showing also the red signal and signal-target in "danger" position; and Fig. 4 is a similar view to Fig. 3, but showing the red screen elevated and the target shifted, indicating "safety."

The letter A represents the main tracks, B the cross-over rails, and C the switches, as seen in Fig. 1 of the drawings.

To the switches are fitted the shifting-bars D, provided at their outer ends with the connecting-bars E, connected with lever-arms F of the short shaft H, working in suitable bearings on the cross-bars I. To the opposite ends of the short shaft H are fitted small pulleys or small grooved wheels K, to which are suitably secured ropes or wire cables L, passing over the grooved small pulleys M M' to the movable lever N, resting on supports, where they are firmly secured, as seen in Fig. 1 of the drawings.

To the outer or off end of the movable lever N is connected a rope or wire cable, P, passing to and under the grooved wheel R, attached to the side of the post S, and thence over another grooved wheel, T, and terminating in a weight, W, substantially as seen in Figs. 2 and 3 of the drawings.

By the employment of the lever N, loosely arranged on the supports *i* and *i'*, there is very little friction. There is no binding of the lever, and it does not require special attention, since it is not liable to get out of order.

Mounted upon the post S is a signal-box, which may be of the usual construction, and provided with the usual light and danger-signal. A common form of signal consists of a red screen placed behind an opening in a box, which is placed on a post. The interior of the box is painted white, so that when the screen is raised the signal shows white or "safety," and when down it shows red or "danger." At night a lamp is placed behind the screen and a glass is placed over the opening in the box. When the sun strikes the glass at certain angles, or

when the sun is shining in the observer's eyes, it is difficult to distinguish the color of the signal; hence we use an auxiliary signal placed at the top of the box, which consists of
 5 a target of any desired shape, made of sheet-iron and painted red. This is connected with the screen-frame in such a manner that when the screen is down, or at "danger," the target is in a transverse direction with the track, and
 10 when the screen is up, or at "safety," the disk is turned one-quarter round, or in a line with the track, as will hereinafter be fully described.

To the cable P, leading to the signal-box, is
 15 connected in any suitable manner a rope or wire cable, W', (see Figs. 2 and 3,) which extends upward through the bottom of the signal-box, and thence over a pair of small grooved wheels located at the upper end of
 20 the signal-box, and thence downward, forming a connection with the upper end of the red signal X. The frame carrying the red signal X is formed at its rear upper end with a loop, d, for the purpose hereinafter set forth. With-
 25 in the signal-box is arranged a transverse bar, e, having a suitable step, within which works the lower end of the vertical bar Z, provided at its upper end with a signal-target, the faces of which are painted red, to correspond with
 30 the color of the danger-screen within the box. This vertical bar Z, which is preferably made of flat metal and twisted, as seen in Figs. 2, 3, and 4 of the drawings, passes through the loop
 35 d, attached to the rear end of the frame carrying the screen-signal. Thus it will be seen that as the frame carrying the danger-screen is elevated, the loop d, embracing the rod Z as it ascends, will, on account of the twist or curve
 40 in the rod Z, cause the signal-target located at the upper end of the rod and outside of the box to be turned the distance of one-quarter of a circle, so as to present the edge of the signal-target in the direction of the length of the track, indicating "safety," or clear track.

45 In practice the signal-box or its equivalent, with the signal-target, will be arranged at a distance from five hundred to one thousand feet (more or less) from the switches, and the connections from the switches to the signal-
 50 boxes or their equivalents will be made by means of ropes or wire cables passing over the grooved pulleys, substantially as seen in Figs. 2 and 3 of the drawings.

Operation: By reference to Fig. 1 of the
 55 drawings it will be seen that the operating means of the signals are connected to two switches. When both switches are in proper position for clear tracks—"safety"—the curtain of the signal-box will be raised, and the
 60 signal-target be presented in the direction of the length of the track; but when either or both switches are wrong, the red screen or curtain will fall, to indicate "danger," and in its falling movement will actuate the rod carrying the target-signal, so as to present the
 65 target-signal in a direction transverse to the

track—"danger" position—so that the engineer of the approaching train can have a full view of the signal-target, and likewise a full view of the red screen within the sig- 70
 nal-box, if the sun is not shining upon the glass to obstruct the view; but under no circumstances does the sun affect the view of the signal-target, which we consider a very im- 75
 portant and essential improvement in the system of displaying danger and safety signals to engineers of railroad-trains.

It is obvious to those skilled in the art that the coacting signals may be connected and operated by electrical apparatus. 80

We are aware of the Patent No. 224,692, granted to R. B. Ireland and W. H. McDonald, dated February 17, 1880, which shows, in connection with railroad tracks and switches, a mounted box with a night-signal and a side 85
 swinging day-signal, arranged to move simultaneously, connected to a slide working in a frame at the side of the track, and operated by the switch mechanism; but our invention differs from this, essentially, in the omission of 90
 side guides and cross-head, with pulleys, which necessarily causes considerable friction, and these parts are liable to become clogged or choked from dirt, rain, or other matter, thereby requiring lubrication, and 95
 more or less attention to keep the cross-head in condition for operating, and in the mechanical means in carrying out the invention; and, therefore,

What we claim as our invention, and desire 100
 to secure by Letters Patent, is—

1. The combination, with one or more tracks having one or more switches corresponding with the number of tracks, and an elevated box or house, of a danger-signal or 105
 screen-frame formed with a loop, and a signal-target arranged above the box or house, and provided with a twisted downward arm to engage loosely with the loop of the danger-signal, in connection with operating mech- 110
 anism, so that whenever the danger-signal is changed the signal-target will be shifted, substantially as hereinbefore described.

2. The combination, with a railroad track and switch, of a crank-lever attached to the 115
 switch-bar, having connected thereto a rope or cable, and the loosely-arranged lever N, connected to the cable of the crank-lever, and said lever being provided with a weighted rope or wire cable passing under and over pul- 120
 leys, and a rope or wire cable passing through the signal house or box over a pulley or pulleys, and extending down, making a connection with the danger-screen signal, substan- 125
 tially as described.

3. The combination, with a railroad track, switch, and means for shifting the switch, of a screen-frame formed with a loop, and a twisted bar engaging with the loop of the screen-frame, and a signal-target with con- 130
 necting means extending to the switch, substantially as described.

4. The combination, with a plurality of
switches, and a distant signal connected by
one wire, of a movable horizontal lever loosely
arranged on supports, to the ends and near
5 the middle of which are attached the wires
leading to the signal and switches, substan-
tially as described.

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

WILLIAM H. PEDDLE.
SAMUEL P. THORNTON.

Witnesses:

SAMUEL S. MOORE,
HARRY L. PEEPLES.