

(No Model.)

2 Sheets—Sheet 1.

W. W. LE GRANDE.

RAILWAY SWITCH STAND AND DISTANT SIGNAL.

No. 487,877.

Patented Dec. 13, 1892.

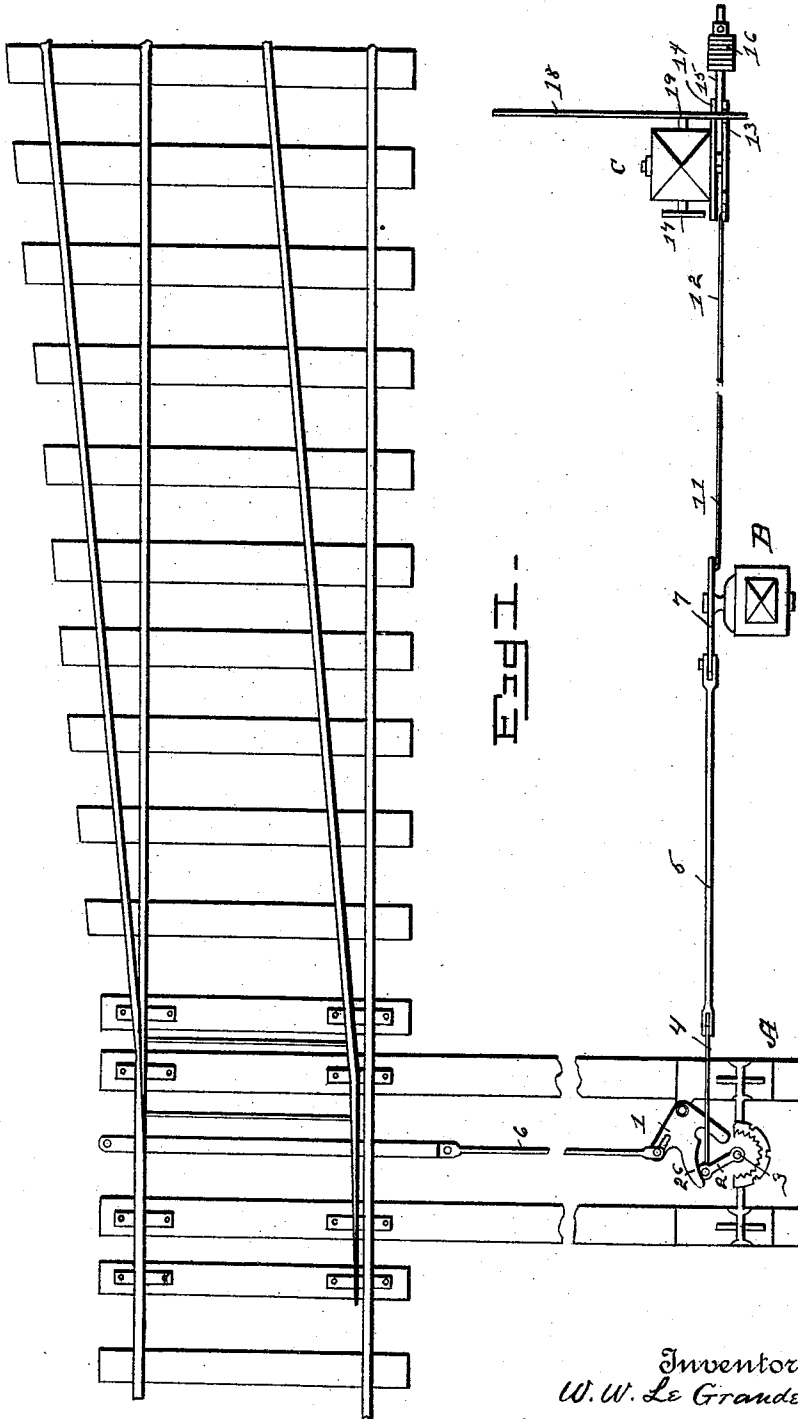


Fig. 1.

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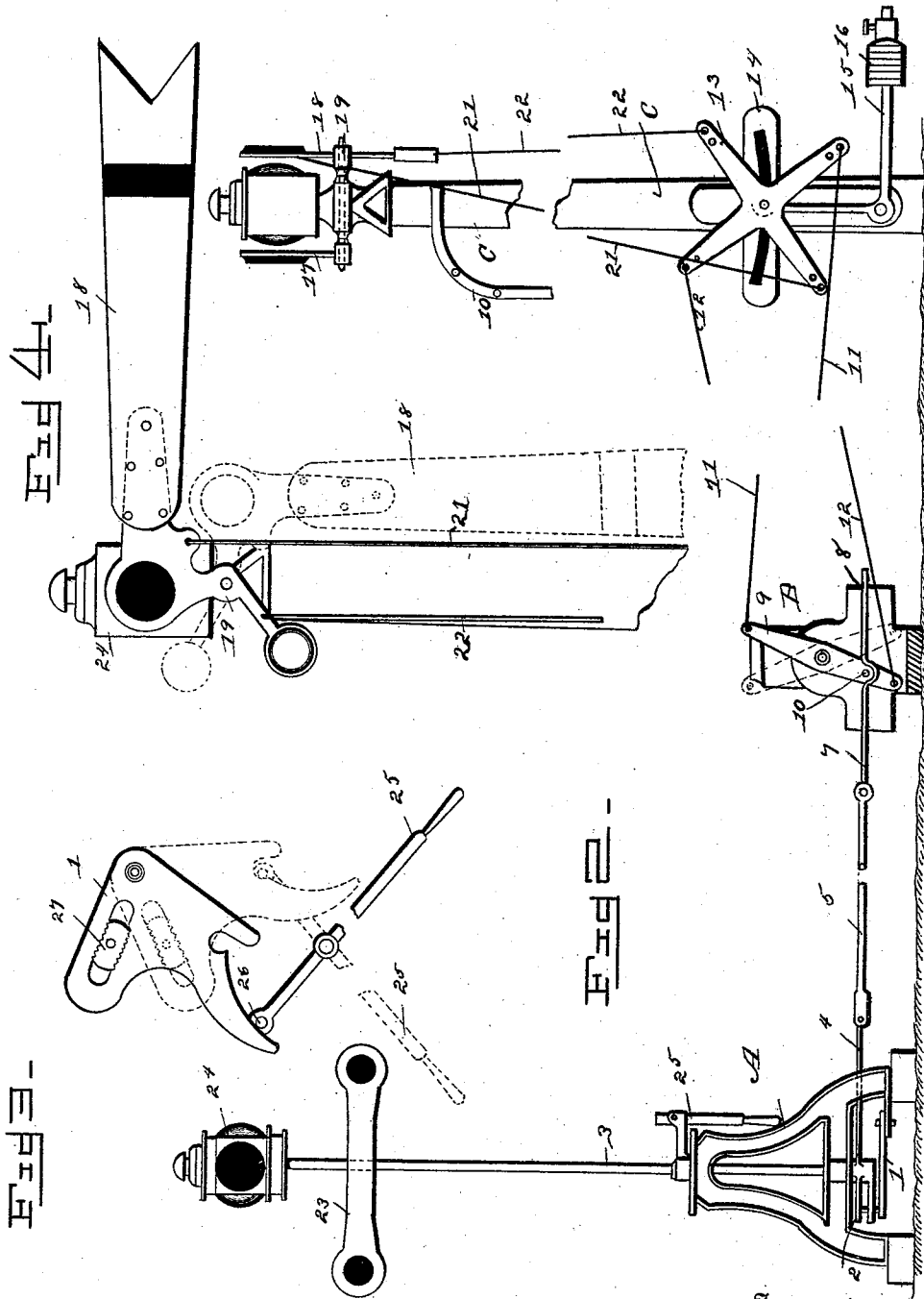
2 Sheets—Sheet 2.

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Witnesses
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Jesse Heller

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UNITED STATES PATENT OFFICE.

WILLIAM W. LE GRANDE, OF LOUISVILLE, KENTUCKY; T. W. MORAN ADMINISTRATOR OF SAID LE GRANDE, DECEASED.

RAILWAY-SWITCH STAND AND DISTANT SIGNAL.

SPECIFICATION forming part of Letters Patent No. 487,877, dated December 13, 1892.

Application filed January 2, 1892. Serial No. 416,888. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. LE GRANDE, a citizen of the United States, and a resident of Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in a Railroad-Switch Stand and Distant Switch-Signal; and I do 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, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to railroad-switches, switch-stands, distant switch-signals, and means for operating them, the object being an interlocking switch-stand constructed as nearly as possible after the idea of an ordinary switch-stand and having certain elements whose place, shape, and function will hereinafter be clearly shown and described, reference being had to the accompanying drawings, forming a part thereof, and in which like letters and figures of reference indicate corresponding parts.

Figure 1 is a plan view of a section of railroad-track with a left-hand turn-out or branch, showing the relative position of the switch-stand A, the wire-lever post B, and the distant semaphore-post C. Fig. 2 is a side elevation of the switch-stand A, the wire-lever post B, and the semaphore-post, showing the means of connecting the switch-stand mechanism with the wires for operating a distant signal and the connections with the signal. Fig. 3 is an enlarged detail plan view of the cam-crank 1, which constitutes an important feature of this invention, and shows its features and designed functions for moving alternately the switch-points and distant signal and also its means for adjustment to compensate for the wear in the connections between the mast 3 and the switch-points, as well as to increase its scope of application by adapting it to switches of different throws, as hereinafter pointed out in detail. Fig. 4 is a front elevation of the top of the semaphore-post as seen by the engineer on approaching the switch and shows the semaphore-arm in full

lines in the "danger" and in broken lines in the "safety" position and also the means of connecting wires 21 and 22 to arm 18.

The switch-stand A is constructed, as shown, after any approved design and is provided with a mast 3, (either high or low, as may be desired,) carrying any suitable target 23 and lamp 24, and is operated by a jointed lever 25 in the usual way. A crank 2, secured to the bottom of mast 3, constitutes a means for imparting motion to the cam-crank 1, which under movement gives a longitudinal movement to signal-bar 4 and connecting-pipe 5, and also a transverse movement to switch-rod 6 for operating the switch. It will readily be seen by reference to drawings, Figs. 1 and 3, that the first half of travel of crank 2 will give motion only to signal-bar 4 and connecting-pipe 5, thence to sliding bar 7 in post-plate 8 and to wire-lever 9, which, being thus thrown into position indicated by its broken contour, operates the distant signal, bringing it to the "danger" position, (shown by full lines in Fig. 4,) by means of wires 11 and 22, Figs. 2 and 4. It will also be seen that the wire-lever 9 becomes inoperative in this position as the stud 10 passes out of the recess in sliding bar 7 and rests on its upper surface during the remainder of its travel, thus releasing the application of power from the distant signal, leaving it at the "danger" position. It will also be seen by reference to drawings, Figs. 1 and 3, that in the last half of movement of mast 3 and crank 2 the stud or wrist-pin 26 in crank 2 will engage with cam-crank 1, moving it sufficiently to set the switch-points to siding or branch rails by means of switch-rod 6. The reverse movement of lever 25 and mast 3 reverses the order of movement of the elements hereinbefore described. In this movement the distant-signal arm 18 remains in the "danger" position until the switch-points are set back to the main track. Then the stud or wrist-pin 10 engages with shoulder in sliding bar 7, setting the wire-lever 9 to the position shown by full lines and the distant-signal arm 18 to the position shown by broken lines by means of wires 12 and 21.

The cam-crank 1, Fig. 3, is provided with a radial slot with its sides formed with vertical V-shaped grooves, into which the box 27,

having corresponding grooves, fits. This box is provided with a central hole for the reception of the connecting-bolt for connecting the switch-rod 6 therewith. It will readily be seen that the travel of the switch-rod 6 is determined by the position of the box 27 in slotted crank 1, and that simple and reliable means are thus provided for readily adjusting the "throw" of this stand to any switch and avoiding the usual and dangerous method of "shimming out" the points to bring them to main or side rails that have changed their relative positions to switch-stand mast from any cause. As this switch-stand, with its distant signal, is designed for the protection of exposed switches where the ordinary switch-target and light may be obscured by intervening cuts, curves, buildings, &c., and as it is necessary to locate the distant signal at a sufficient distance from the switch to give the engineer timely signals of the position of the switch, the great length of wire between the wire-bar and distant signal requires means for compensating for the expansion and contraction of such wires. I have provided means therefor, as shown in Fig. 2, consisting of a bed or post plate 14, mounted on signal-post C and provided with a longitudinal slot constructed on an arc of a circle, with the distance between it and the vane-journal 19 as its radius. This slot receives a movable wrist-pin with suitable heads and roller-washers and supports the spider-shaped wire-bearer 13, which receives the terminals of wires 11 and 12 from wire-lever 9 near the switch-stand and also the terminals of wires 21 and 22, that operate the vane 18. The L-shaped weight-bar 15, with its weight 16, holds the wires 11 and 12 taut. It will readily be seen that as the wires 11 and 12 expand the weight 16 will fall, thus taking up the expansion, and that should they contract the weight 16 will be raised, allowing the spider-shaped wire-bearer 13 to travel back and forth in obedience thereto, and as the slot is constructed on an arc of a circle the length of the wires 21 and 22 is not affected. It is obvious that I may vary somewhat the mechanical features of the invention without departing from the spirit and scope thereof. Having described this invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a switch and distant-signal operating

mechanism, the combination, with the switch-stand, its cranked mast, and the distant signal having an operating connection with the mast-crank, of the cam-crank adjacent to said mast-crank and operated by the engagement therewith of a pin or stud on said mast-crank, the switch-rod, and the box 27, adjustably carried by said cam-crank and to which one end of said switch-rod is connected, substantially as specified.

2. A cam-crank forming a connection between the crank of the switch-stand mast and the switch-rod, said crank having a radial slot therein, said slot having corrugated or grooved side walls designed to receive a box provided with similar grooves or corrugations and to which the switch-rod is connected, substantially as specified.

3. The combination, with the switch-stand and the switch-operating mechanism, of the distant signal and its operating mechanism, said latter mechanism comprising crank 2 of the switch-stand mast, the bar 4, connected at one end to said crank, the sliding bar 7, having the notch or shoulder therein, the connection 5 between said bar and the bar 4, the pivoted wire-lever 9, having a stud or projection designed to be engaged by said notch or shoulder during a portion of the movement of said sliding bar, and the wires connecting the signal with said lever, substantially as specified.

4. The combination, with the switch-stand, the mast 3, its crank 2, and the switch-operating mechanism, of the distant signal and its operating mechanism, said mechanism comprising the bar 4, connected at one end to the crank 3, the sliding bar 7, the connection between said bars 5 and 7, the wire-lever 9, having a stud or projection thereon designed to be engaged by a notch or shoulder on the sliding bar during a part of the movement of said bar and disengaged from said notch the remainder of each movement, the signal-operating wires connected to opposite extremities of said lever, and the slack-compensator for said wires, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM W. LE GRANDE.

Witnesses:

THOS. W. MORAN,
J. M. REED.