

UNITED STATES PATENT OFFICE.

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LOCOMOTIVE-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 460,130, dated September 29, 1891.

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To all whom it may concern:

Be it known that I, MOSES M. GREENWADE, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Signals for Locomotive-Engines, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use, conjointly or otherwise, will be apparent from the following description and claims.

In the accompanying drawings, making a part of this specification, and to which reference is hereby made, Figure 1 is a front elevation of signals embodying my invention and of the center portion of the front of a railway locomotive-engine, showing the mode in which the signals are applied to the engine. Fig. 2 is a detail view in perspective of the frame for holding the signal and of one description of socket attached to the locomotive and to which the frame may be connected and by which it may be upheld. In this view the exterior edges or outlines of the signal are indicated by dotted lines to illustrate the mode in which the signal is secured to the frame. Fig. 3 is a view in perspective of the said socket.

A indicates the front end or smoke-box of a locomotive-engine.

B points out the upper middle portion of the front cross-beam or bumper which supports the pilot, frequently named the "cow-catcher."

C C respectively indicate the inner portions of the valve-chests respectively belonging to the respective cylinders, a view of which latter, being unnecessary, is omitted.

D D each show one of the braces commonly present extending from a side of the engine-body to the supporting-frame beneath.

The ends of the hand-railings are seen over the body, one at one side and the other at the other side of the engine, and are respectively indicated by the letters E E. The usual platform F for supporting the head-light is present.

At each side of the front portion of the body of the engine, and preferably at about the mid-height of said body, is located a bracket socket or holder H. This holder has

an arm or ledge K, extending outward horizontally from its lower portion. In this holder a narrow vertical opening or slit J' is present in said arm K, extending from the top of the ledge down part way through the latter. The main portion of the holder has a flat broad vertical opening I, extending down as far as opening J' extends. In the front part of the holder proper is a narrow slit J, also extending down as far as does the slit J'. The slit J above connects the opening I with the space in front of the holder and farther down connects the said opening I with the slit J'. The latter and slit J are preferably of the same width.

The preferred means for the attachment of the holder H to the engine are the flanges H' H', attached to and respectively located at the respective sides of the holder, and each having perforations H² H² for the passage of screws or bolts or rivets, whereby the holder is secured to the engine.

The signal-frame consists of a stiff frame, of which the preferred construction is as follows: The pieces M and N are united in the form of a cross, and in the illustration the part M is vertical and the part N is horizontal. The lower end of the part M is provided with a short upturned flange M', leaving a space M² between the part M and the flange a trifle wider than the thickness of the edge portion of the signal-plate. The upper end of the part M is provided with a ledge or short flange M³, extending forward a very short distance—viz., about the thickness of the edge portion of the signal-plate. Each end of the part N is provided with a flange N', bent back toward the transverse center of the said part N, and between each flange N' and part N is a space N², a trifle wider than the thickness of the edge portion of the signal-plate.

The frame M N is provided with an arm, as P, preferably connected rigidly thereto, and where this arm is to be adjustably connected to a suitable holder, of which H is one description, of a suitable kind the free end of the arm P is formed to properly connect therewith. For example, this end of the arm P is provided with a plate R, extending laterally at each side of the arm. This plate R is nearly as wide as the opening I of the holder. The frame M N is connected to the holder by

passing the plate R down into the opening I, the arm P passing down in the slot J until the lower edge of the arm rests in the slit J'. The signal-frame M N is now locked securely to the holder and the arm N is firmly held in a horizontal position.

The signal-plate S is a piece of sheet material. For such a plate tin or thin sheet-iron is preferred on account of the lightness, flexibility, and cheapness of these metals. The edge S' of this plate may be stiffened in any desired manner. The signal-plate is of such a shape, preferably rectangular, and is of such a size as to fit closely within the embrace of the frame.

In introducing the signal-plate S into the frame the lower edge of the plate is slipped down against the front side of the frame and through the space N², formed by the flanges N' and part N, and thence moved down until the lower edge of the signal-plate has entered the space M² and rests on the bottom of the hook or flanged part M'. The upper edge of the signal-plate is now in position to come under the flange M³ at the top of part M, and will usually do so by its own elasticity without extraneous assistance. Thus located, it will be securely held.

The signal-plate is preferably formed with perforations, as S². These allow the air to pass through the signal-plate when the locomotive is under motion, and hence diminish the resistance which said plate offers to the air.

The signal-plate is to be of any desired color.

The position of the signal-plates with relation to the engine is such that they do not project so far out as to be struck by anything on the side of the track which would not come in contact with the side of the train. They are in a conspicuous position and will be readily seen by the operatives of the locomotive either on a passing train or on the track side. In fact the signals are at such a conspicuous point on the engine as to force their attention upon the railroad employes. Their rigid position flatwise to the direction in which the train is going is one of the principal reasons why they are of necessity seen by any ordinary observer, and especially by the railroad engineer or other employes, whose duty

it is to watch for such signals. Where stations and meeting trains are all on only one side of the track, only one signal need be used.

In the ordinary flag-signals heretofore employed the wind caused by the onrushing locomotive usually carries them straight behind the flag-staff and often renders them invisible to the engineer of another train approaching or being approached. After the engine carrying the flag or flags has passed, the flag-signal, if stretched behind the staff, is difficult to see, as it is speedily hidden by the projecting side of the rear portion of the engine, and besides presents a fluttering edge to the eye of the observer.

My improved signal is always flatwise to the length of the track and no amount of air can turn it parallel to the length of the track. It is at all times in a conspicuous location, and itself is a remarkably conspicuous object.

The holder H is not of my invention, as it has been employed in connection with railroad-lanterns.

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

1. A railroad-signal consisting of a frame having returning flanges N² N² M' and ledge or straight flange M³, and having the arm P, provided with means for attachment to the locomotive-engine, and a plate-signal consisting of the sheet or plate S, slid between flanges N² N² M' and the frame and locked beneath flange M³, substantially as and for the purposes specified.

2. In combination with the holder H K, having opening I and slit J J', the arm P, having plate R received into opening I, the frame connected to said arm and having edge hooks or flanges, and the movable signal-plate received into said frame, substantially as and for the purposes specified.

3. In combination with the holder H K, having opening I and slit J J', the arm P, having plate R received into opening I, and the frame connected to said arm and carrying the signal-plate, substantially as and for the purposes specified.

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Attest:

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