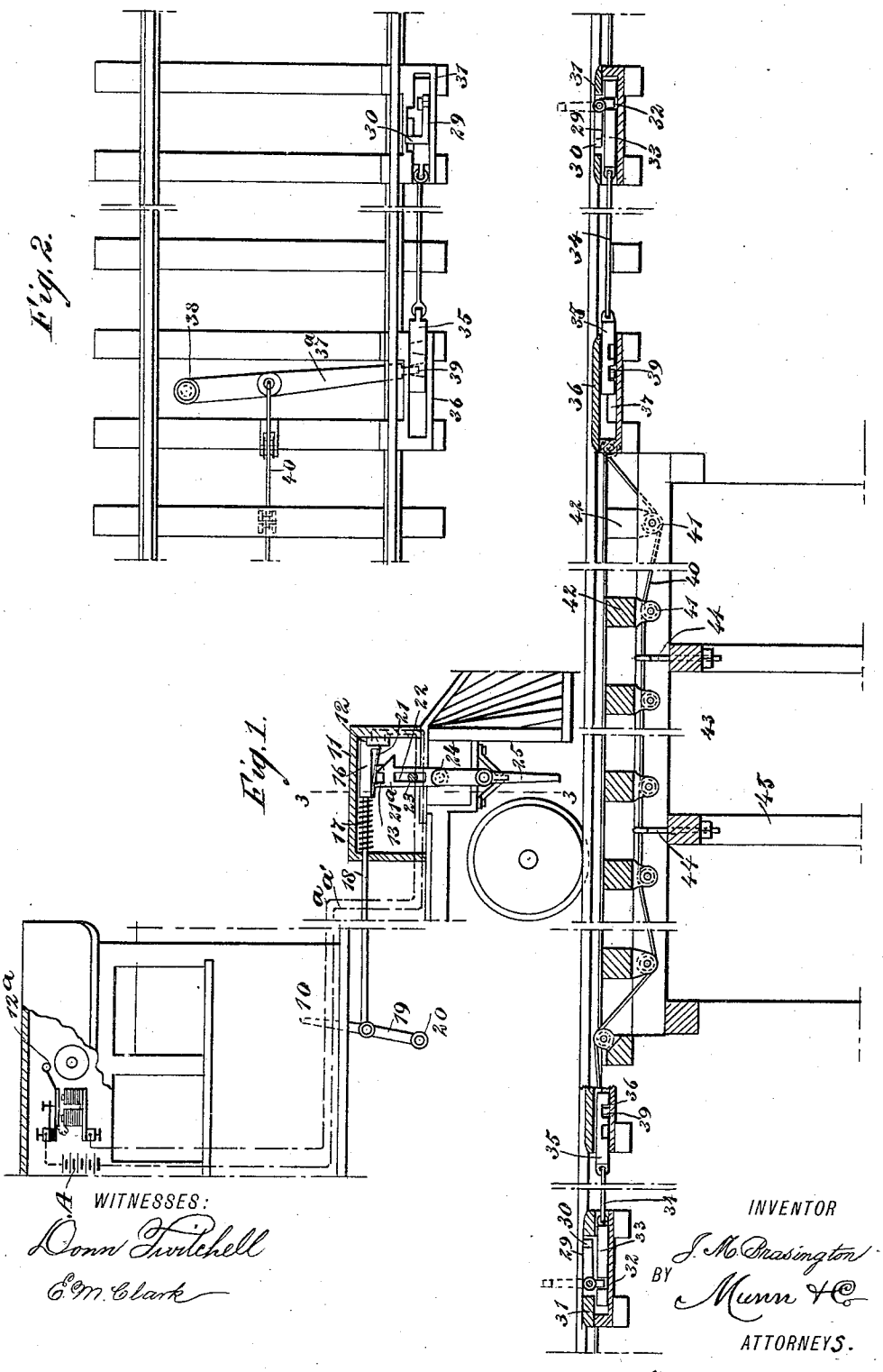
(No Model.) 2 Sheets—Sheet 1.

J. M. BRASINGTON.

ELECTRIC RAILWAY SIGNAL.

No. 473,288. Patented Apr. 19, 1892.



WITNESSES:
Donn Twitchell
E. M. Clark

INVENTOR
J. M. Brasington
BY
Munn & Co
ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

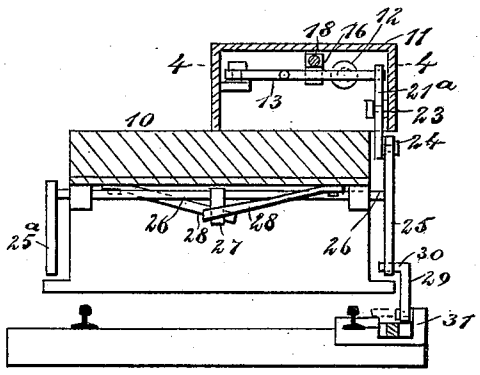


Fig. 6.

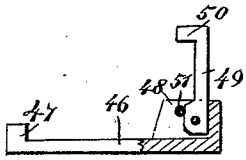


Fig. 4.

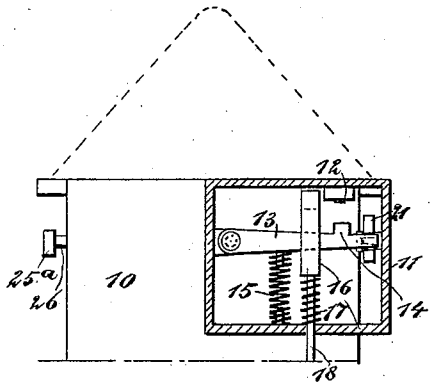


Fig. 8

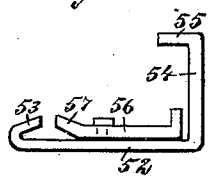


Fig. 7.

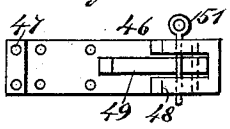


Fig. 9.

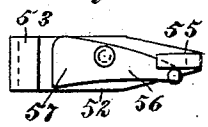
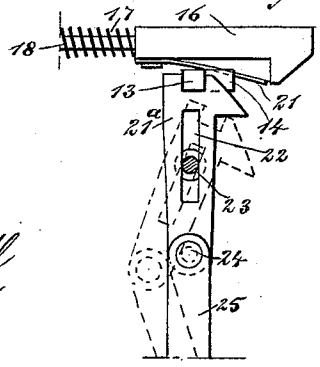


Fig. 5



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Dorm Twitchell

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INVENTOR

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN M. BRASINGTON, OF MORVEN, NORTH CAROLINA.

ELECTRIC RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 473,288, dated April 19, 1892.

Application filed July 24, 1891. Serial No. 400,553. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. BRASINGTON, of Morven, in the county of Anson and State of North Carolina, have invented a new and Improved Electric Railway-Signal, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of railway-signals which are adapted to warn an engineer of a break or obstruction in the track.

Where the engineer is signaled by means of lights or signal-boards he is liable to overlook the signals, and in case he does so an accident will most likely occur.

The object of my invention is to obviate difficulties of this kind by producing a signal which will automatically ring a bell in the cab of the locomotive and continue to ring the same until the engineer's attention is attracted and the electric current broken by him, and it will thus be seen that there will be no possibility of the engineer failing to notice the signal.

To this end my invention consists in certain features of construction and combinations of parts, which will be hereinafter described and claimed.

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

Figure 1 is a broken detail view, partly in section, showing a locomotive provided with my improved signal and showing the track mechanism for operating the mechanism in the locomotive. Fig. 2 is a detail plan view of the mechanism for setting the signal-post on the track by the falling of a bridge or viaduct. Fig. 3 is a vertical cross-section on the line 3 3 in Fig. 1, showing the main lever on the locomotive in contact with a signal-post. Fig. 4 is a sectional plan on the line 4 4 in Fig. 3. Fig. 5 is an enlarged detail view of the main lever and tilting plate, which are arranged on the side of the pilot. Fig. 6 is a detail view, partly in section, of a modified form of signal-post, showing the same in an elevated position. Fig. 7 is a plan view of the same, but with the signal-post turned down. Fig. 8 is a detail view of a portable signal-post adapted to be clamped to a rail, and Fig. 9 is a plan view of the same.

The locomotive 10 is provided with a casing 11, arranged, preferably, on the top of the pilot, and within the casing and on the front wall of the same is a common form of contact-button 12, having wires *a* and *a'* connecting it with the battery A in the locomotive-cab, and an electric bell 12^a is included in the circuit. Extending horizontally through the upper portion of the casing 11 and in the rear of the contact-button 12 is a swinging lever 13, which is provided on the front side with a lug 14, adapted to strike the contact-button and thus connect the wires and close the circuit in a common and well-known manner, and this lever 13 is normally pressed forward by a spring 15, which presses against the back side of the same.

Above the lever 13 and at right angles to the same is a hook 16, which is adapted to engage the lever and enable it to be pulled back, and this hook is normally pressed forward, so as not to operate the lever, by a spiral spring 17. A rod 18 is secured to the hook and extends rearward through the rear wall of the casing and connects with a lever 19 in the locomotive-cab, which lever is pivoted at its lower end, as shown at 20 in Fig. 1, and by pulling backward on the lever the rod 18, hook 16, and lever 13 may be retracted, so as to break the battery-circuit.

On the under side of the hook 16 is a flat spring 21, which presses upon the lever 13 and holds the free end of the lever in a recess in the top of the vertical plate 21^a, which plate has an inclined upper end to enable the lever to easily engage the recess therein, and the plate has a vertical slot 22 therein, which receives the pivot 23 of the plate, and thus permits the plate to slide up and down. The lower end of the plate 21 is pivoted at 24 to the main lever 25, which lever extends downward to a point adjacent to one of the track-rails and is adapted to contact with the signal-post, as hereinafter described.

A shaft 26 is secured to the lever 25 a little above the center of the latter, and the shaft extends through suitable bearings beneath the pilot and forms the fulcrum of the lever. The opposite end of the shaft is provided with

a depending lever 25^a, which also extends to a point adjacent to the track-rails and is adapted to engage a signal-post, and it will be seen that when the lever 25^a is struck it will tilt the shaft 26 and the lever 25 in the same manner as if the lever 25 was directly struck, and consequently the lever mechanism will operate when the locomotive is going in either direction.

On the center of the shaft 26 is a depending crank 27, which is pressed by springs 28 on opposite sides, the springs thus having a tendency to hold the crank in a central position, and by so doing they hold the levers 25 and 25^a in a vertical position. Adjacent to one of the track-rails is a vertically-swinging signal-post 29, which is arranged outside the rails and has an inwardly-bent end 30, adapted to extend over the edge of the pilot and into the path of the lever 25 or the lever 25^a, as the case may be. This signal-post is pivoted in a slotted case 31, which is secured to the cross-ties of the track, and the post is shaped somewhat like a bell-crank, it having a depending short end 32, which projects downward into the case 31 when the lever is tipped down and which enters a recess in the sliding block 33, which is held to move longitudinally in the case 31. This form of signal-post is adapted to be used in connection with a bridge or viaduct, and the sliding block 33 has one end secured to a cable 34, which is attached to another sliding block 35, arranged in a case 36 adjacent to the bridge, and this case 36 has a slot 37 in one side at a point a little below the track-rail.

A lever 37^a is pivoted transversely on the track-bed, as shown at 38 in Fig. 2, and the free end of this lever is reduced, as shown at 39, and made to enter a recess in the sliding block 35, so that the movement of the lever will move the block. A cable 40 is secured centrally to the lever 37^a and extends over suitable guide-pulleys on the railroad-sleepers and over guide-pulleys 41 on the hangers 42 of the bridge 43, and the cable crosses the bridge and connects with the sliding blocks and signal-posts on the opposite side of the bridge, the posts and the mechanism described for raising them being arranged at each end of the bridge and far enough therefrom so that when they operate the locomotive-signal the engineer will have ample time to stop his train before reaching the bridge.

The cable 40 at a point beneath the bridge is embraced by keepers 44 on the bridge-supports 45, and if these supports are washed away or break down for any reason they will pull downward on the cable 40 and the cable will operate the levers 37^a at each end of the bridge, and the movement will be transmitted by means of the sliding blocks 36 to the cables 34, and thence to the sliding blocks 33, which blocks when they slide will actuate the posts 29, thus raising the latter and bringing the bent ends 30 of the posts into the path of the levers 25 and 25^a on the locomotive.

In Figs. 6 and 7 I have shown stationary signal-posts—that is, posts which are adapted to be held at certain points along the road and which may be turned up into the path of the levers 25 and 25^a when a train is to be stopped. For this purpose a base-plate 46 is adapted to be secured to a sleeper beneath the rail, and the base-plate is turned up at one end, as shown at 47, so as to abut with one edge of the rail-flange, and the opposite end of the base-plate is provided with vertical side flanges 48, between which the swinging post 49 is pivoted, and said post is bent inward at its upper end, as shown at 50, and is held in a vertical position by means of the pin 51, adapted to extend through a perforation in the flanges 48. The pin 51 also serves to hold the post down in position when it is not in use.

Figs. 8 and 9 represent a portable signal-post, which is adapted to be attached to one of the rails at any desired point. This apparatus comprises a plate 52, having one end 53 bent up to clasp a rail-flange and having the opposite end 54 formed into a signal-post bent inward at the top, as shown at 55. On the base-plate is pivoted a handled lever 56, having its short end 57 widened and turned up to fit a rail-flange and having its extreme end adapted to impinge on the web of a rail. It will be seen that this base-plate may be thrust beneath a rail at any point, and by manipulating the lever 56 it may be clamped to the rail, so that the post 54 will extend upward to engage the locomotive-lever.

I do not confine myself to the specific construction of these signal-posts, and it is obvious that the operating mechanism will need to be varied somewhat to adapt it to different makes of locomotives.

The operation of the apparatus is as follows: When the signal-post is turned into a vertical position, either by the falling of a bridge or viaduct or by the manipulation of some person, the locomotive as it passes along the track will bring a lever 25 or 25^a into a position to strike the post, and when the post strikes the lever the lever will be tilted, thus drawing downward the tilting plate 21^a, as indicated by dotted lines in Fig. 5, and the downward movement of the plate releases the lever 13, which will be immediately pushed forward by the spring 15, so that the lug 14 will strike the contact-button 12 and close the circuit through the electric bell. The spring 15 will hold the lever against the contact-button, so that the bell will continue to ring until the engineer, attracted by the sound, stops his engine and pulls back the lever 19, so as to release the lever 13 and break the electric circuit.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An electric railway-signal comprising a bell arranged in the cab of a locomotive and included in an electric circuit, a contact-block

mounted on the locomotive and having the wires of the bell connected therewith, a spring-pressed lever to contact with the contact-block, a tilting plate to engage the lever and hold it from the contact-block, a lever pivoted on the locomotive and to the tilting plate, said lever extending to a point adjacent to a track-rail, and a signal-post arranged adjacent to a track-rail and adapted to engage the lever, substantially as described.

2. An electric railway-signal comprising a bell arranged in the engine-cab, a battery to operate the bell, a contact-block having the bell-wires connected therewith, a spring-pressed lever to contact with the contact-block, a lever mechanism for pulling the lever from the contact-block, a locking device to secure the lever, main levers pivoted on the locomotive and extending to a point adjacent to the track, said levers being arranged to trip the locking device, and a signal-post arranged adjacent to a track-rail to contact with the main levers, substantially as described.

3. An electric railway-signal comprising an electric bell arranged in the locomotive-cab, a casing arranged on the pilot of the locomotive, a contact-block supported in the casing and connected with the wires of the bell, a spring-pressed lever mounted in the casing and adapted to engage the contact-block, a spring-pressed hook mounted above the lever and adapted to engage the same, a lever mechanism for moving the hook and contact-lever from the locomotive-cab, a tilting and sliding plate adapted to engage the contact-lever, a shaft extending transversely beneath the pilot and having depending levers at each end, one of which projects above the shaft and connects with the tilting plate, and a signal-post arranged upon the track in the path of the depending levers, substantially as described.

4. In an electric railway-signal, the combination, with the track and bridge, of the vertically-swinging signal-posts arranged at each end of said bridge, transverse levers pivoted on the track-bed, blocks 36, connected with the outer ends of such levers and adapted to slide lengthwise of the track, cables 34 and 40, connecting said blocks, levers, and bridge, and the cables 40, passing under the bridge on supports 45 and through hangers 44, as shown and described.

5. In an electric railway-signal, the combination, with the vertically-swinging bell-crank signal-post, of a sliding block arranged to engage the short arm of the post, a swinging lever pivoted on the track-bed and adapted to move the sliding block, and a cable secured to the track-lever and extending over suitable guide-pulleys to connect with the bridge, substantially as described.

JOHN M. BRASINGTON.

Witnesses:
C. S. BRASINGTON,
W. SCHMIDT.