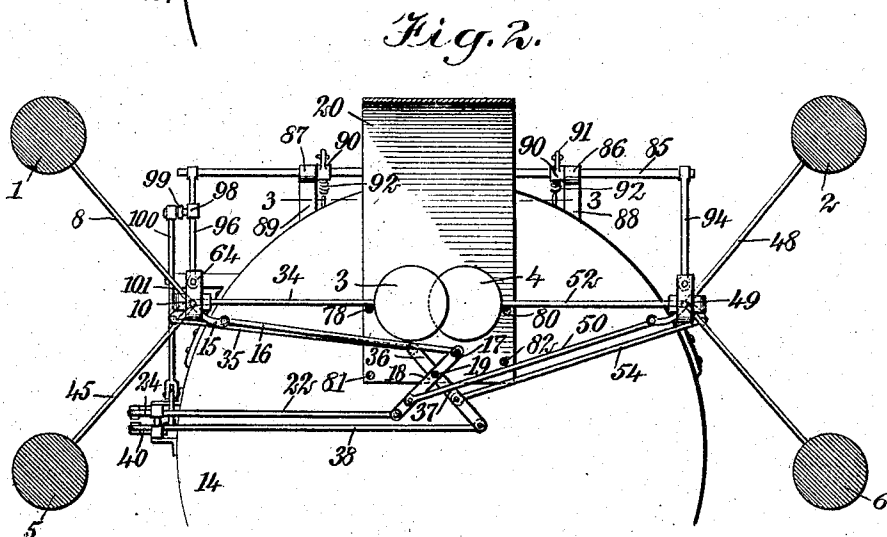
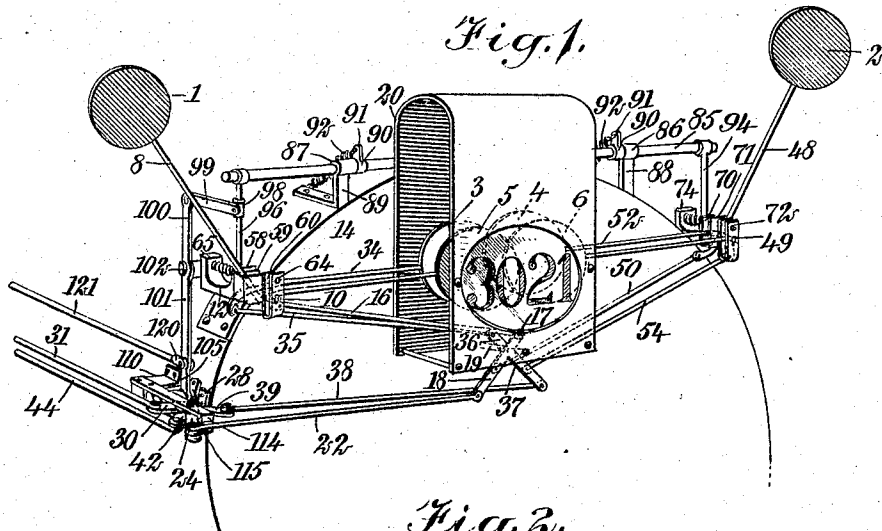


937,482.

2 SHEETS—SHEET 1.



WITNESSES

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 SIGNALING DEVICE.
 APPLICATION FILED DEC. 30, 1908.

937,482.

Patented Oct. 19, 1909.
 2 SHEETS—SHEET 2.

Fig. 4.

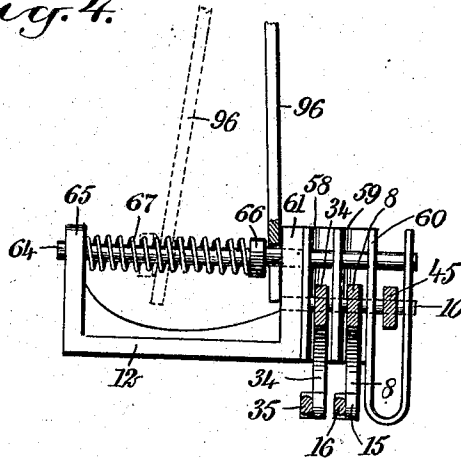
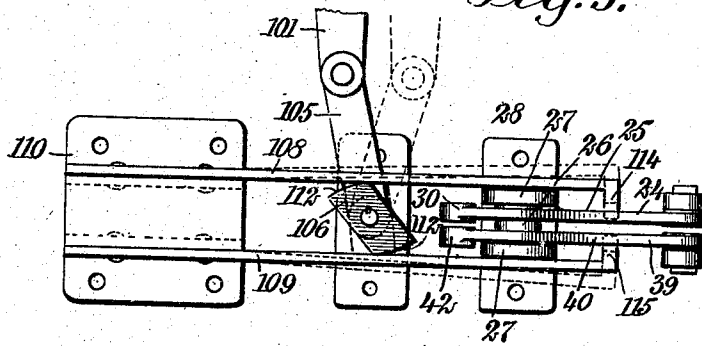


Fig. 5.



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UNITED STATES PATENT OFFICE.

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SIGNALING DEVICE.

937,482.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed December 30, 1908. Serial No. 470,094.

To all whom it may concern:

Be it known that I, WILLIAM PHILIP SMITH, a citizen of the United States, and a resident of El Paso, in the county of El Paso and State of Texas, have invented a new and Improved Signaling Device, of which the following is a full, clear, and exact description.

This invention relates to signaling devices for use on engines, railroad or trolley cars.

The object of the invention is to provide an improved device which may be operated from the cab of an engine or by the operator of a car.

In its present embodiment, it comprises a plurality of levers arranged to display signals or be housed within a casing, and mechanism whereby the levers may be locked in either position, and also means for locking the operating mechanism. Said locking mechanism may be controlled from the cab or other locality occupied by the operator.

The invention consists in the construction and combination of parts, to be more fully described hereinafter and particularly set forth in the claims.

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

Figure 1 is a perspective view, showing the device applied to a locomotive boiler; Fig. 2 is a front elevation, partly in section, showing the device applied to a boiler, and having additional signals displayed; Fig. 3 is a horizontal section, taken on the line 3—3 in Fig. 2; Fig. 4 is an enlarged detail view, partly in section, of the mechanism for locking the levers against movement; and Fig. 5 is a detail view, on an enlarged scale, showing the means for locking the operating mechanism.

As at present shown, the mechanism is arranged to display four green signals, 1, 2, 5 and 6, and two white signals, 3 and 4. It is to be understood that the number and colors of the signals may be varied to suit various requirements.

Although the mechanism is shown mounted upon the front end of a locomotive boiler, it will be understood that said mechanism may be mounted upon a car or in any other suitable locality, without departing from the spirit of the invention.

The signal 1 may comprise a disk mounted

upon one end of a lever 8. Said lever is pivoted about a rod 10 mounted in a bracket 12 which is secured to the outside of the boiler 14 of the engine. The lower end 15 of the lever 8 is pivotally connected to one end of a link 16. The other end of the link 16 is pivotally connected to the upper end 17 of a lever 18. Said lever is pivoted about a rod 19, which may be supported at its ends in a casing or housing 20. The lower end of the lever 18 is pivotally connected to one end of a link 22. The other end of the link 22 is pivotally connected to one arm 24 of a bell-crank lever 25. Said bell-crank lever is pivoted about a vertical stud 26 mounted in lugs 27 extending laterally from a bracket 28, which is bolted to the outside of the boiler 14. The arm 30 of the bell-crank lever 25 is connected to a rod or other operating instrumentality 31, which extends to the cab of the engine.

The signal 3 comprises a disk mounted on one end of a lever 34, also pivoted about the rod 10. The other end of the lever 34 is pivotally connected to one end of a link 35, the other end of which is pivotally connected to the upper end 36 of a lever 37, which is also pivoted about the rod 19. The lower end of the lever 37 is pivotally connected to one end of a link 38, the other end of which is pivotally connected to one arm 39 of a bell-crank 40, which is also pivoted about the stud 26. The arm 42 of the bell-crank lever 40 is connected to a rod or other instrumentality 44 also extending to the cab of the engine.

The signal 5 comprises a disk secured to one end of a lever 45 pivoted about the rod 10. Said signal 5 and also the signal 6 are markers, which are used when the engine is to be backed up. As these signals are seldom displayed as compared with the signals intended to be operated by the engineer, they may be operated by hand from the front of the engine.

The signal 2 comprises a disk mounted upon one end of a lever 48, pivoted about a rod 49 suitably supported in a manner similar to the rod 10. The lower end of the lever 48 is pivotally connected to one end of a link 50, which has its other end pivoted to the lever 18.

The signal 4 comprises a disk mounted on one end of a lever 52, which is also pivoted about the rod 49. The other end of the lever 50 is pivotally connected to one end of a

link 54, having its other end pivotally connected to the lever 37.

In order to support the signal levers when displaying the signals, a series of yokes 58, 59 and 60 are secured together and mounted upon an upwardly-projecting arm 61 of the bracket 12. A locking bolt 64 is slidably mounted in the arms 61 and 65 of the bracket 12 and extends through the yokes 58, 59 and 60 above the point where the levers are fulcrumed about the rod 10. Said bolt 64 is provided with a collar 66 and a coiled spring 67 surrounding said bolt and extending between the collar 66 and the arm 65 on the bracket 12. A similar set of yokes 70, 71 and 72 are secured together and mounted upon one arm 73 of a bracket 74 fastened upon the boiler 14. A locking bolt 75 is mounted to slide in the bracket 74, and extends through the yokes above the rod 49 in a manner similar to that of the locking bolt 64.

The casing or housing 20 is provided with bolts 78 and 80, which extend through the same and connect both sides thereof, to form supports for the levers of the signals which are obscured from view. Said casing may also be utilized to display the number plate of the engine. Said casing also protects the signals from the heat of the boiler and from rain and dirt. Said casing is suitably supported from the front of the boiler by rods 81 and 82.

A rod 85 is journaled in bearings 86 and 87 formed upon brackets 88 and 89 respectively, which are bolted to the upper side of the boiler 14. Sleeves 90 are secured to the rod 85 and provided with ears 91, to which the upper ends of springs 92 may be fastened. The lower ends of said springs are secured to the boiler. An arm 94 is secured to one end of the shaft 85 and spans the locking bolt 75 at its lower end. Said arm 94 is arranged to engage a collar on the locking bolt 75 similar to the collar 66 on the locking bolt 64. An arm 96 is secured to the other end of the shaft 85, and has its lower end spanning the locking bolt 64 and engaging the collar 66. A sleeve 98 is secured to the arm 96. A link 99 is pivotally connected at one end to the sleeve 98 and at its other end to the upper end 100 of a lever 101, fulcrumed about a pin 102 mounted upon the bracket 12, or upon the outside of the boiler 14. The lower end of the lever 101 is pivotally connected to the upper end of a link 105, which has a cam 106 secured thereto. Said cam lies between the spring-arms 108 and 109, which are mounted on a bracket 110 secured to the boiler 14. The opposite curved faces 112 of the cam 106 are arranged to engage the inner faces of the spring-arms 108 and 109, in order to force the outer ends of said spring-arms apart. The spring-arm 108 is formed on its free

end with a depending projection 114, which is adapted to lie in the path of the arm 24 of the bell-crank lever 25. The free end of the spring-arm 109 is provided with an upwardly-extending projection 115, which is adapted to lie in the path of the arm 39 of the bell-crank lever 40. When the cam 106 is turned so that the spring-arms 108 and 109 assume the dotted-line position shown in Fig. 5, the bell-crank levers 25 and 40 are free to be moved by their operating connections 31 and 44. Until these spring-arms are thus moved, said bell-cranks cannot be moved to operate the signals. The junction of the lower end of the lever 101 with the link 105 is connected to a yoke 120, which is also connected to a rod 121 extending to the cab of the engine.

The operation of the device is as follows: In order to operate the signals, the rod 121 is pushed forward, so that the joint between the lever 101 and the link 105 may assume the dotted-line position shown in Fig. 5. Simultaneously therewith the upper end 100 of said lever 101 is moved toward the left, as viewed in Fig. 1, thereby drawing the arms 94 and 96 in the same direction, which act upon the collars which are mounted upon the locking bolts 75 and 64 respectively. This frees any signals which may be supported in the yokes 58, 59, 70 and 71, but if the signals are all housed within the casing, it prepares the yokes to receive the signals. At the same time the cam 106 forces the spring arms 108 and 109 apart, so that their projections 114 and 115 are moved out of the paths of the bell-crank levers 25 and 40. Thereupon the rods or connections 31 and 44 may be operated from the cab, in order to move the signals as desired. When the signals have been moved, the rod 121 is drawn toward the left, as viewed in Fig. 1, thereby moving the lever 101 and the link 105 into the full-line position shown in Fig. 5. Under the action of the springs 92 and the springs 67 and 74, the mechanism for moving the locking bolts 75 and 64 is operated. These springs may be so designed as to automatically restore the locking mechanism as soon as the rod 121 is released from the hands of the operator after the signals have been operated.

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

1. In a signaling device, a lever provided at one end with a signal, a shield, means for swinging the signal behind the shield or away therefrom, a yoke between whose arms the lever is mounted and a spring actuated locking pin traversing the arms of the yoke for locking the lever in adjusted position.

2. In a signaling device, a plurality of levers, each having on one end thereof a signal, a shield, means for moving the levers to

swing the signals into and out of the shield, a yoke for each lever and between whose arms the levers are mounted, a spring pressed locking pin traversing the arms of the yokes for locking the levers in adjusted position, and means for releasing the pin.

3. In a signaling device, the combination of a plurality of signals, means for locking said signals against operation, means for operating said signals, means for locking said operating mechanism, and means for simultaneously unlocking said signals and operating mechanism.

4. In a signaling device, a plurality of signals, levers for operating said signals, a locking means for the levers, locking means for the operating means, and a common means for releasing the levers and the operating means from their respective locking means.

5. In a signaling device, the combination of a signal mounted on a lever and arranged to be displayed or obscured, means for operating said signal, means for locking said operating mechanism, means for locking said lever in either its displayed or obscured position, and means for simultaneously unlock-

ing said operating mechanism and said lever, in order to allow the lever to be moved by said operating mechanism.

6. In a signaling device, the combination with a plurality of levers each being provided with a signal, of a yoke for receiving each lever, a locking bolt passing through said yoke for locking the levers, means for operating the levers, means for locking the operating means, and a common means for releasing the locking bolt and the locking device of the operating means.

7. In a signaling device, the combination with a plurality of levers, a locking bolt for locking said levers against movement, means for moving said levers, means for locking said moving mechanism, and means for simultaneously freeing said levers and said moving mechanism.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM PHILIP SMITH.

Witnesses:

VOLNEY M. BROWN,
ALBERT E. HALE.