

(No Model.)

2 Sheets—Sheet 1.

F. HARDY.
RAILWAY SIGNAL OPERATING DEVICE.

No. 539,128.

Patented May 14, 1895.

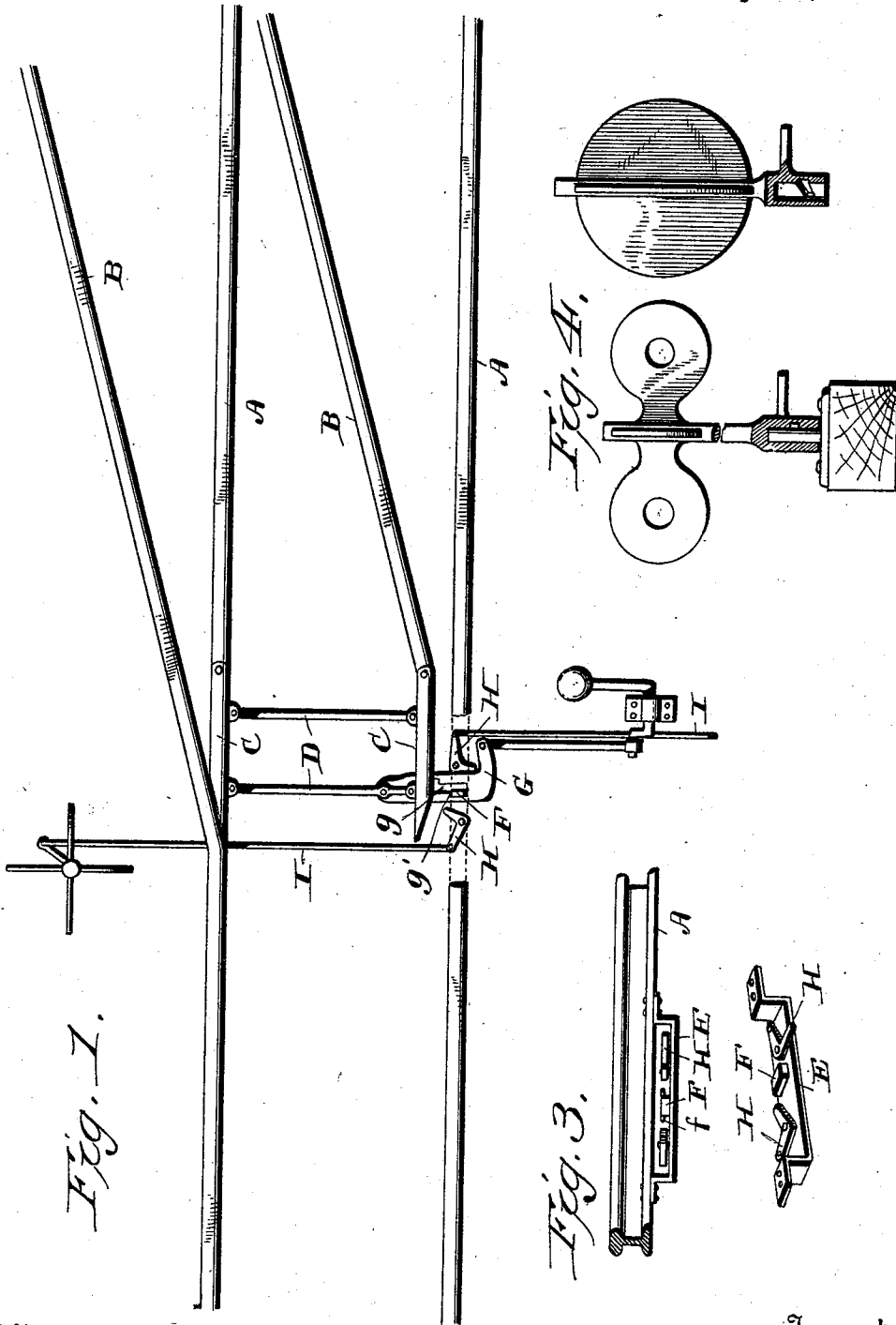


Fig. 1.

Fig. 3.

Fig. 4.

Witnesses
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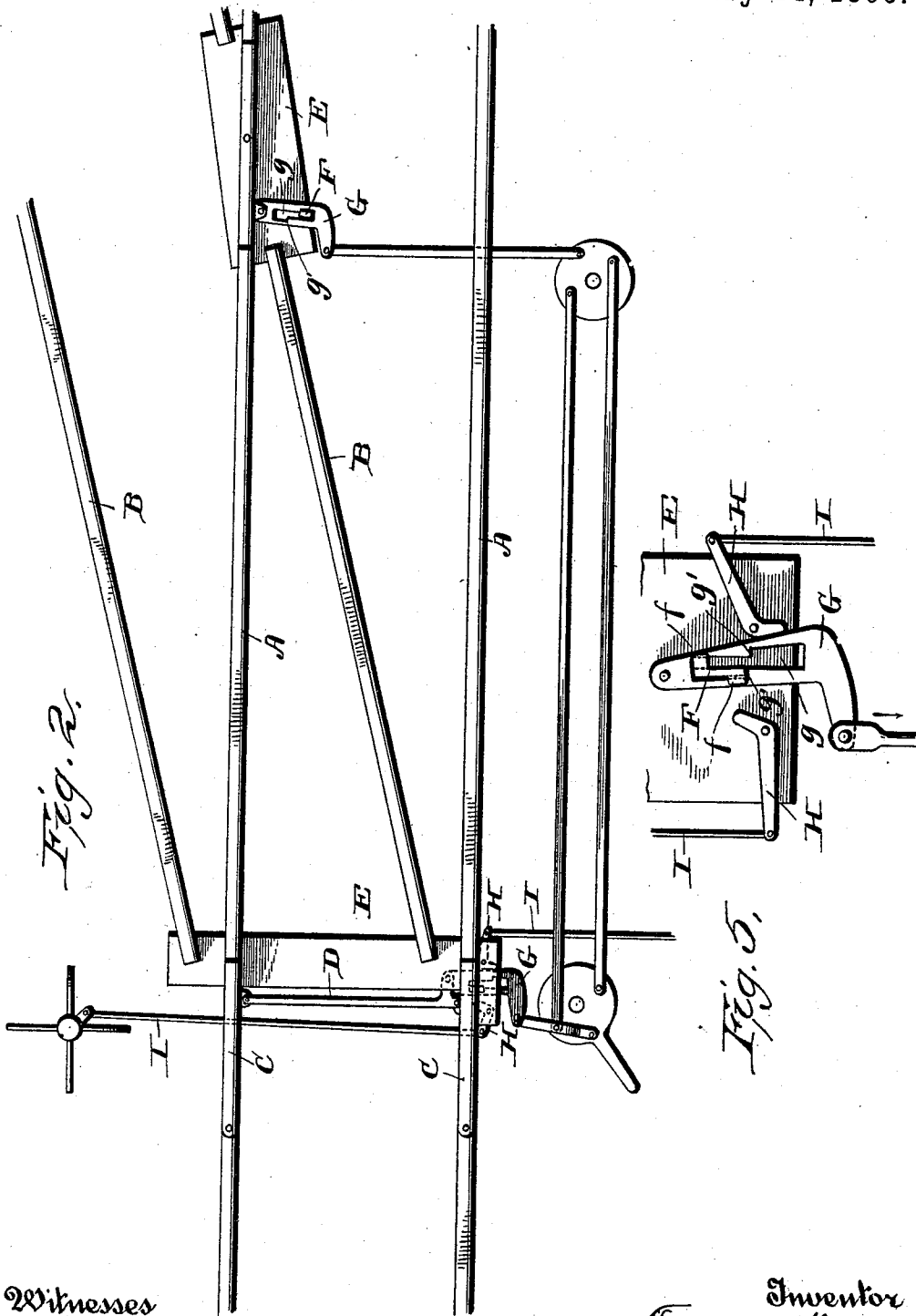
2 Sheets—Sheet 2.

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RAILWAY SIGNAL OPERATING DEVICE.

No. 539,128.

Patented May 14, 1895.



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UNITED STATES PATENT OFFICE.

FREDERICK HARDY, OF BIRMINGHAM, ALABAMA.

RAILWAY-SIGNAL-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 539,128, dated May 14, 1895.

Application filed June 21, 1894. Serial No. 515,260. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK HARDY, a citizen of the United States, residing at Birmingham, in the county of Jefferson, State of Alabama, have invented certain new and useful Improvements in Railway-Signal-Operating Devices; and I 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 is an improvement upon my improved frog and switch locking bar described and claimed in my application filed April 12, 1894, Serial No. 507,293, and the object of my present invention is to employ the lateral movement of the locking bar for operating a signal, so that when said switch is locked, open or closed, the proper signal will be displayed.

With these objects in view my invention consists broadly in arranging levers upon opposite sides of the locking bar so that at the final movement of said bar the levers will be operated and as said levers are connected by suitable means with a signal; said signal will be operated only when the locking bar has completed its movements and the switch safely locked.

My invention consists also in certain details of construction and combination of parts all of which will be fully described hereinafter and pointed out in the claims.

In the drawings, Figure 1 shows my invention applied to a split-rail switch. Fig. 2 shows its application to a stub-rail switch. Fig. 3 shows the details of the split rail attachment. Fig. 4 shows one form of signal to which my invention may be applied. Fig. 5 is an enlarged view of the signal-operating mechanism.

Referring to Fig. 1, A indicates the main rail, B the siding, C C the switch points, and D the stringer connecting the points, all of said parts being of the usual and well known construction.

At one side of the track and beneath the rail or spiked to the ties is arranged a base plate E. This plate may be flat as shown in Fig. 1 or it may be made angular as shown in Fig. 3. In Fig. 1 this plate is attached to the cross ties while in Fig. 3 it is attached to the under

side of the rail or may be secured to the ties, outside the rail.

Mounted upon or placed beneath the plate E, about its center, is a block or post F, and sliding thereon is the locking bar G said bar having a longitudinal opening *g* and shoulder *g'* upon the opposite sides of the said opening. These shoulders are intended for engagement with the block F and hold the bar locked in its final position. The block or post F is provided with over or under-lapping flanges or lips *f* which hold the locking bar against the base plate and prevent any misplacement. At one end the locking bar is connected with the movable rail or switch point, and at its other end said bar is connected with the operating rod or pitman. This bar is angular or curved in shape as shown, and during its locking movements has a certain lateral movement, and to utilize this motion I arrange the elbow levers H H upon opposite sides of said bar, said levers being pivoted to the base plate also. The short arms of said levers are adapted to be engaged by the bar, and to their long arms are connected the signal operating rods I I which may be connected with any suitable form of switch signal. It will thus be seen that as the switch is opened or closed its locking bar is rocked from side to side and one of the levers H is operated, but the bar G does not complete its movement until after the switch is locked so that the signal is not completely operated until the switch is safely locked; and it is also obvious that should the switch be partly thrown it will be impossible to hold the signal at safety, as said signals are only set at safety when the lock is closed, and when one is at safety, the other is at danger; one lever H, being in contact with the bar G, while the other is not.

In Fig. 2 I have shown my invention applied to a stub rail switch and in this case as in Fig. 1 the bar and levers are attached to a flat bed plate and it will also be noted that they are attached to the under side of said plate.

In Fig. 3 I have shown an angled plate which is attached to the under side of the rail. This plate may be spiked upon the ties.

The signal may be of any usual construction and the pitman I is connected to an arm upon the standard so that as the bell crank levers are operated the signal will be turned,

raised or lowered, to show the white or red as required. I have also shown the switches and frogs connected to operate simultaneously but this is not essential as I may employ my invention upon switches and frogs independent of each other.

Two rods I, are employed to set signals upon opposite sides of the track, one of said signals being for the main line and the other for the siding. The levers H, only contact with the bar G, alternately when the lock is closed, and the signals are only set at safety when the lock is closed. The moment it is open, both of the signals operate by gravity and come to danger. When one signal shows safety, the other shows danger.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a flat, rigid plate having a post, of an angular bar, slotted longitudinally and sliding upon said plate and having shoulders upon opposite sides of said slot, said bar being connected at one end with an object to be moved and an operating rod connected with the other end, substantially as shown and described.

2. The combination with a plate having a block rigid thereon, of a locking bar having a longitudinal opening provided with shoulders upon opposite sides to engage the rigid block, a rail pivoted upon a plate and connected with the bar, and a rod or pitman for operating the bar, substantially as shown and described.

3. The combination with a plate having a block rigid thereon, of an angular or curved locking bar having a longitudinal opening provided with shoulders upon the opposite sides, a rail pivoted upon the plate and connected with the bar and a rod or pitman for operating said bar substantially as shown and described.

4. The combination with a plate of a locking bar sliding thereon, said bar having also a certain amount of lateral movement, and the angled signal operating levers arranged upon opposite sides of the said locking bar and adapted to be operated by the lateral movement of said bar, substantially as shown and described.

5. The combination with a plate, having a rigid block of a locking bar sliding thereon and having a longitudinal opening provided with shoulders upon its opposite sides, said bar being angular in shape and having a limited lateral movement preceding and following its longitudinal movement, the operating rod connected with said bar, and the angled signal operating levers pivoted upon opposite sides of the said locking bar and adapted to be operated thereby, substantially as shown and described.

6. The combination with the fixed and switch rails, and switch signals of the rods extending from said signals, the angular levers connected with said rods, the locking bar arranged between said levers, said bar having a longitudinal opening provided with shoulders upon opposite sides, and said bar being angular or curved in shape, connected at one end with the movable rail or switch points and at the other with a switch operating rod or pitman, a base plate and a block rigid thereon or thereunder, said block being located in the longitudinal opening of the locking bar and adapted to engage the shoulders, said block having overlapping or underlapping flanges to hold the bar against the plate, substantially as shown and described.

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

FREDERICK HARDY.

Witnesses:

M. D. ORCUTT,
GEO. GILBERT.