(No Model.)

J. H. BOYLETT.

DETECTOR BAR FOR SWITCHES.

No. 523,702. Patented July 31, 1894.

Fig. 1.

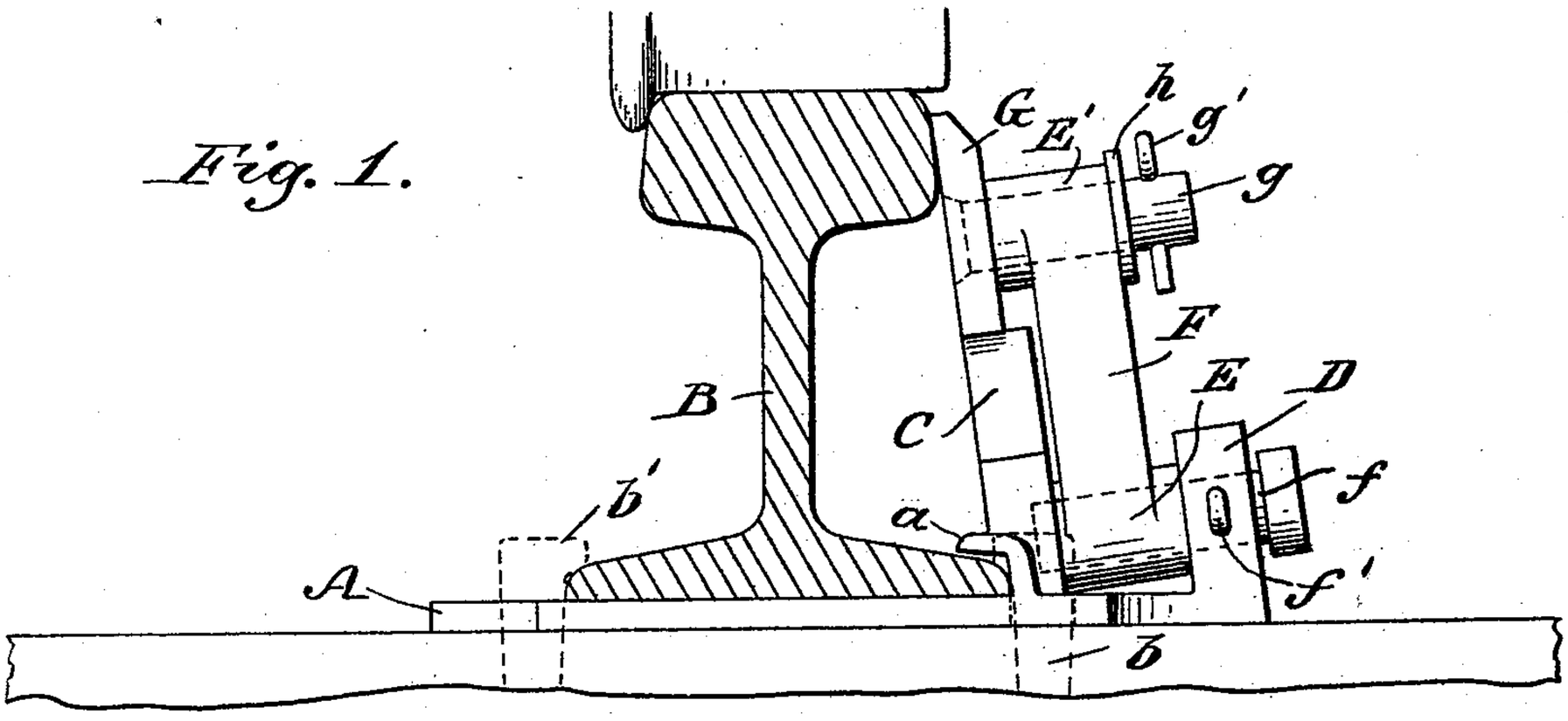


Fig. 2.

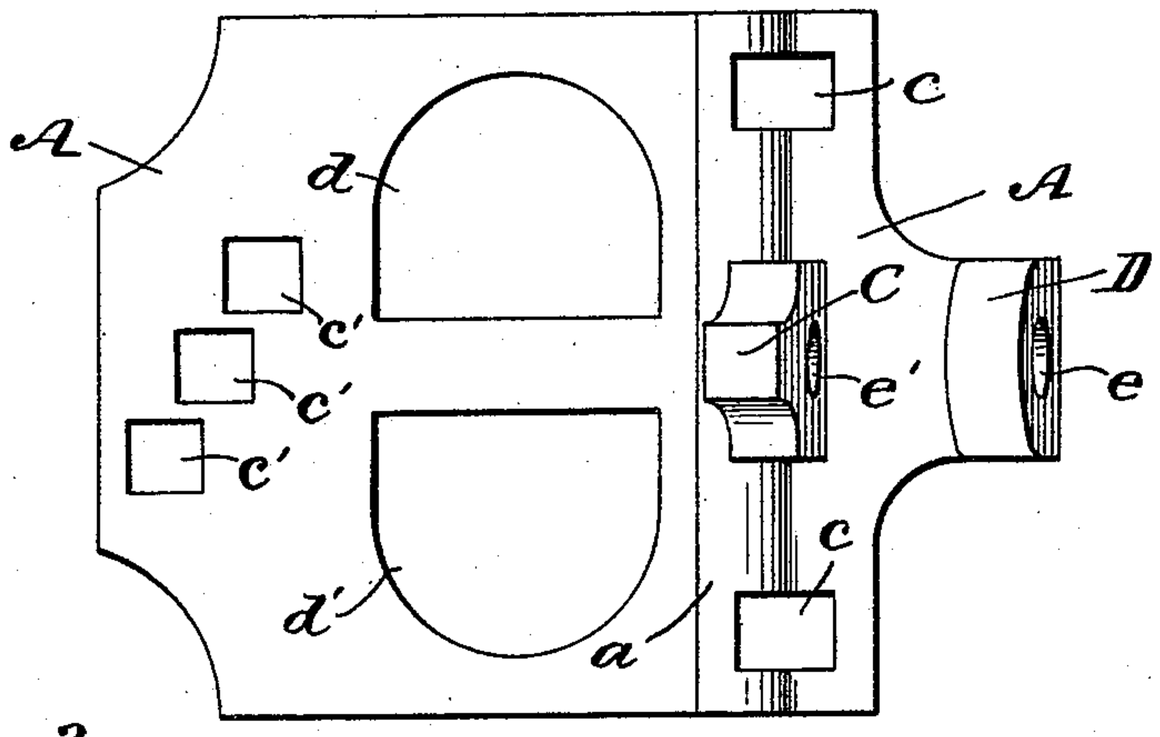
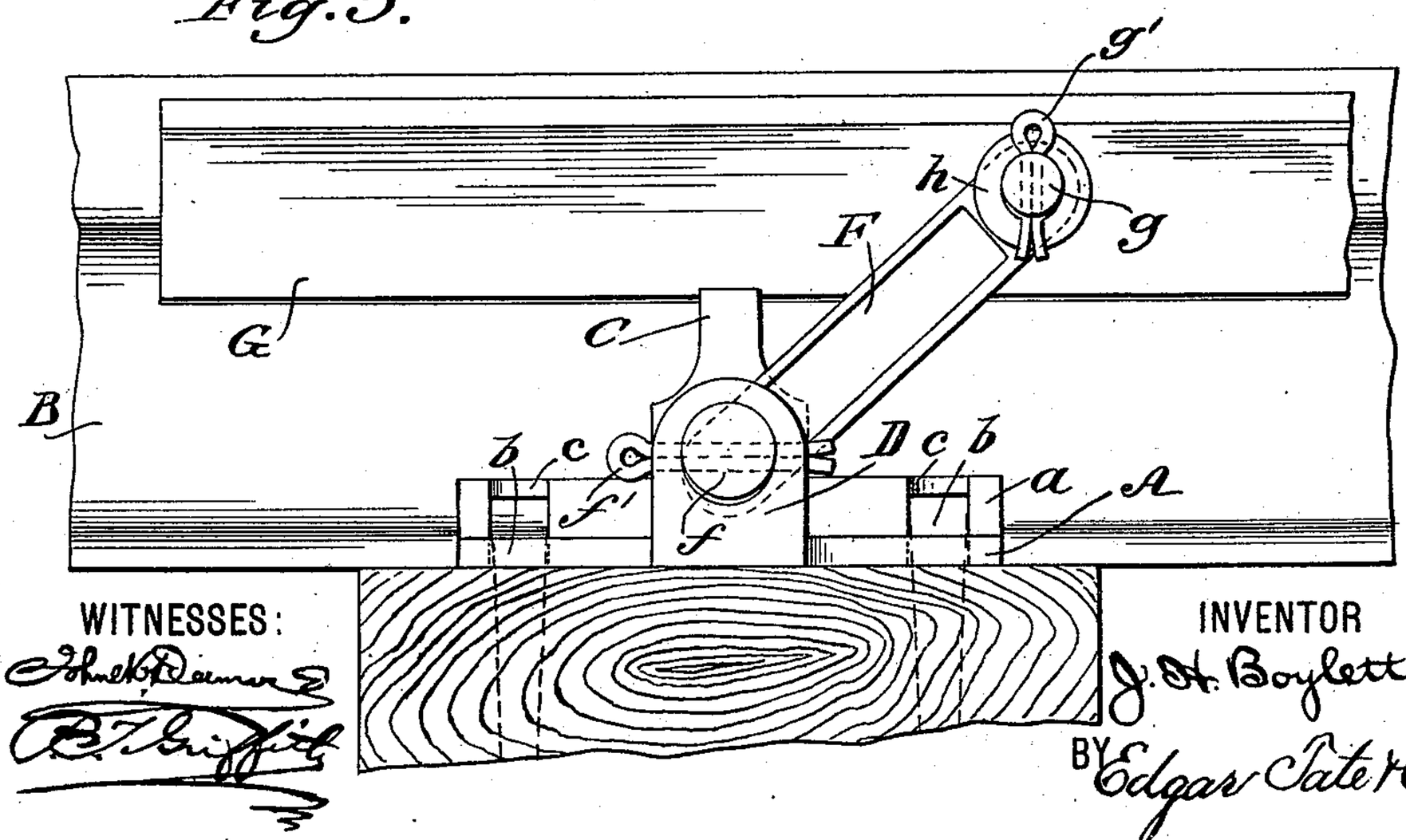


Fig. 3.



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DETECTOR-BAR FOR SWITCHES.

SPECIFICATION forming part of Letters Patent No. 523,702, dated July 31, 1894.

Application filed May 19, 1894. Serial No. 511,745. (No model.)

To all whom it may concern:

Be it known that I, JAMES HENRY BOYLETT, a subject of the Queen of Great Britain, and a resident of Poughkeepsie, in the county of Dutchess and State of New York, have invented certain new and useful Improvements in Detector-Bars for Switches, of which the following is a specification.

This invention relates to that class of railway track appliances known as detector bars for switch and lock movements which said switches are so constructed and actuated as to be inoperative until after the detector bars have been reciprocated.

The class of devices to which my invention appertains is of such a nature as to be incapable of reciprocation when the car-wheel or other obstruction rests upon the rail adjacent thereto, whereby the opening or closing of the switch, when the car is upon the section immediately in front thereof, will be prevented.

The object of my invention is to provide a simple, cheap, easily constructed and perfectly operating device of this character which may be secured to the cross-tie by the same spikes that are used in fastening the rail thereto. Furthermore to render the detector bar capable of being adjusted, or of itself to be automatically adjustable, to any width of rail.

The invention consists in the novel construction, arrangement, and combination of parts hereinafter fully described.

In the accompanying drawings forming part of this specification, in which like letters of reference designate corresponding parts throughout, Figure 1 is a front elevation of a device embodying my invention, secured adjacent to a rail upon a tie, the said rail being illustrated in section. Fig. 2 is a plan view of the main plate forming part of the invention. Fig. 3 is a side elevation of the device complete, as in Fig. 1.

In the practice of my invention, I construct a plate A, which, with the auxiliary appendages illustrated in Fig. 2, is preferably cast in one piece either of iron or steel. This plate A has formed thereon near one side thereof an upwardly ranging angular shoulder or lip *a*, beneath which the flange or foot of the rail rests when in use, the said rail and the plate A being secured to the tie by spikes *b* passing through holes *c*, which extend through the side of the lip *a* and through the plate. At the opposite side of the plate, approximately midway between its ends, and ranging parallel with the lip *a*, are three spike-holes *c'*, graduated with reference to the said lip to correspond to different widths of rail flanges, through one of which spike-holes a spike *b'* is inserted. The plate may also if desired be cut out at the center as shown at *d d'* to lighten the same, and to economize in material.

Near the center of the plate, rearward of and upon the lip *a* is secured a standard C, which projects upwardly from the said plate in a slightly oblique direction to about half way to the top of the rail B thereon. Adjacent to this standard and ranging parallel therewith is a bearing D provided with a central aperture *e* extending through the same at right angles thereto, the standard C having a like aperture *e'* in the lower end thereof facing the bearing D and aligning with the direction of the aperture *e* therein. In these apertures *e* and *e'* is inserted a pin *f* secured in place by means of a key *f'* passing through the bearing D and through the said pin, and upon this pin is journaled a tubular hub E, having mounted thereon a radial arm or link F, formed integrally therewith, and when raised extending parallel with the standard C. The said arm F has at the top thereof a similar hub E'.

The detector bar G, which may be of any desired construction, is usually of such a length as to extend across ties provided with ten of the plates before described, such devices being usually secured upon every third tie, and I therefore secure to one of the said detector bars, a plurality of pins *g* equal in number to the plates covered by the said bar, which said pins are preferably secured by riveting, and the said bar is mounted upon the several arms F by passing one of the said pins *g* through the hub E' upon the top of each arm, the said pin being secured by means of a key *g'* which however is inserted near the end thereof, space being left between the same and the outer edge of the hub to permit lateral movement of the detector bar upon the pins. These spaces may be occupied by one or more washers *h*.

The operation of the device will be readily

perspicuous from the foregoing description taken in connection with the accompanying drawings, particularly to such as are conversant with the class of appliances to which my invention relates.

The device having been mounted and secured upon the tie as hereinbefore described, and it being desired to reciprocate and raise the detector bar prior to operating the switch, motion is imparted to one of the radial arms F by the usual or by any other approved means, in such manner that all of the said arms will make a quarter revolution upon the pins *f*, thereby forcing the bar G backward or forward as the case may be, the same taking an arched or segmental direction, whereby the upper edge thereof will gradually rise until above the level of the rail when the arm stands in a vertical position, and as the said arm passes such position will fall as in Fig. 3. Of course as with all devices of this character, should a car be present upon that portion of the track occupied by the mechanism, the bar will abut against the lower side or tread of the car-wheels, and being unable to reach the vertical position cannot unlock the switch.

When in the locked or unlocked positions, as in Figs. 1 and 3, the lower end of the bar will rest upon the top of the standards C, thereby preventing any further downward lowering thereof upon either backward or forward movement of the bar. The bar being laterally movable by reason of the length of the pins *g* and the position of the keys *g'*, the same will of its own weight adjust itself to any width of rail-head, or if desired this may be made more certain by placing one or more of the washers *h* between the hub E' and the key *g'* or between the said hub and the bar G, as required. The radial arm F, by reason of my improved construction may also be reversed so that the hubs E and E' change positions relatively to the pins *f* and *g*.

The advantages resultant from the use of my invention will be manifest, since the whole device is secured by no more complicated means than that ordinarily used in fastening rails to ties and requires no auxiliary attachments, is all comprised in one compact body adjacent to the rail, does not project downwardly beyond the level of the tie as with many prior devices, is adjustable with respect to rail-heads of different widths, is readily transposable, and provides a rest or series of rests for the bar when not in action.

I do not confine myself to the exact details of construction herein set forth and illustrated.

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

1. A detector bar for switches, comprising a plate adapted to be secured to the tie, an arm obliquely journaled in bearings thereon, and a bar pivoted to the said arm and laterally movable thereon, substantially as shown and described.

2. In a detector bar for switches, a securing plate having a longitudinal lip with spike-holes passing therethrough, a plurality of holes opposite thereto, and bearings mounted upon the plate obliquely thereto and having aligning apertures therein, substantially as shown and described.

3. A detector bar for switches, comprising a plate having a lip thereon and spike-holes therein, bearings rearward of the lip ranging obliquely to the plate, a pin extending through the said bearings, a hub journaled on the said pin, a radial arm mounted on the said hub at one side thereof and having a similar hub at the top thereof, and a pin passing through the upper hub and secured to the detector bar, substantially as shown and described.

4. A detector bar for switches, comprising a plate having a lip thereon, and adapted to be secured to the tie by means of spikes, bearings rearward of the said lip projecting upwardly obliquely to the said plate, the inner bearing extending upward to the lowest level of the detector bar, a removable pin passing through the bearings, a tubular hub journaled thereon, a radial arm formed in one piece with the said hub and secured at the top to a similar hub, a pin passing through the upper hub and secured to the bar, the said pin being of such a length as to render the bar laterally movable, and a key secured in the end of the said pin, substantially as shown and described.

5. A detector bar for switches, comprising a plate having a lip thereon, and adapted to be secured to the tie by means of spikes, bearings rearward of the lip projecting upwardly, obliquely to the plate, the inner of the said bearings rising to the lowest level of the detector bar, a pin passing through the bearings and secured thereto by a key, a tubular hub journaled on the said pin, a radial arm secured thereto, a similar hub mounted upon the upper end of the arm, a pin passing through the said upper hub and secured to the bar, the said pin being of such length as to render the bar laterally adjustable, a key passing through the said pin near the end thereof, and one or more washers mounted upon the said pin at one side of the hub, substantially as shown and described.

6. In a detector bar for switches, the combination, with a plate having a longitudinal lip near one side thereof, spike-holes extending through the said lip and the plate, a plurality of graduated spike-holes at the opposite end thereof, two bearings rearward of the said lip projecting upwardly obliquely to the said plate and toward the rail, the inner bearings extending upwardly approximately midway to the top of the rail to bear against the under side of the detector bar, apertures in the bearings, a removable pin

inserted therein, a key passing through the outer bearing and through the pin to secure the same, a tubular hub mounted upon the pin, a radial arm secured upon one side of the said hub and formed in one piece therewith, a similar hub mounted upon the top of the arm, a pin passing through the said upper hub and riveted to the bar, the said pin being of such length as to permit of lateral movement of the said bar according to the width of the rail-head, a key inserted through the said pin near the outer end thereof, and one or more washers mounted upon the said pin at one side of the hub, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 18th day of May, 1894.

JAMES HENRY BOYLETT.

Witnesses:
PERCY T. GRIFFITHS,
C. GERST.