

(No Model.)

2 Sheets—Sheet 2.

E. D. BANGS.
RAILWAY SWITCH SIGNAL.

No. 469,927.

Patented Mar. 1, 1892.

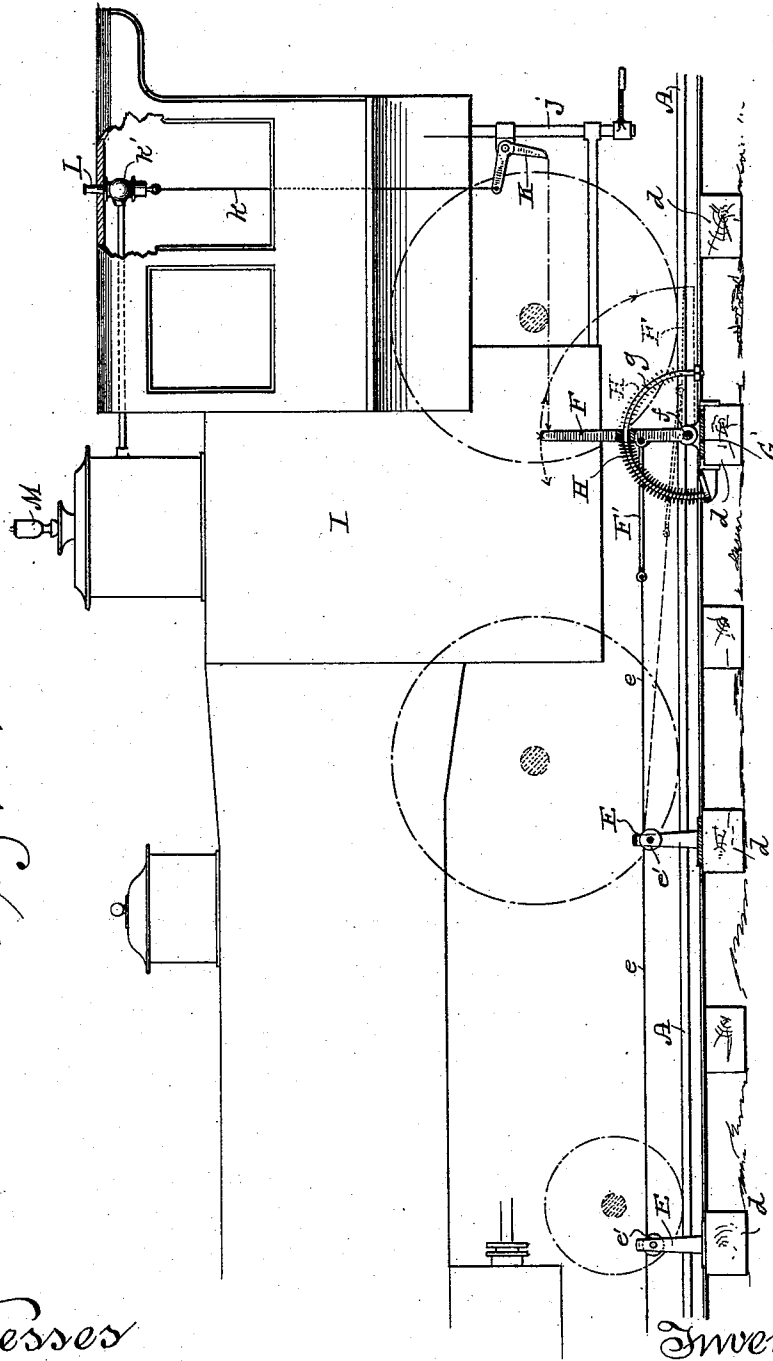


Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

EDWIN D. BANGS, OF MILWAUKEE, WISCONSIN.

RAILWAY-SWITCH SIGNAL.

SPECIFICATION forming part of Letters Patent No. 469,927, dated March 1, 1892.

Application filed January 2, 1891. Serial No. 376,474. (No model.)

To all whom it may concern:

Be it known that I, EDWIN D. BANGS, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Railway-Switch Signals; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to appliances for indicating the position of railway-switches; and it consists in certain peculiar and novel features of construction and arrangement, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of a main railway-track and switch with my improvements applied thereto. Fig. 2 is a side elevation of the same, a locomotive-engine being indicated in position to operate the signal. Fig. 3 is a detached detail view of the signal-operating lever and its support.

The object of my invention is to provide means whereby as a locomotive approaches a switch the position of the latter shall be automatically communicated to the engineer by a signal upon the engine, thus avoiding all liability of accidents from misplaced switches. This result I attain by virtue of the construction which I will now proceed to describe.

In the said drawings, A A indicate the rails of a main track, and B B the switch-rails of a spur, siding, branch, or similar track leading from the main track.

C designates a switch-stand, which may be of any suitable or preferred form, and *c* designates the usual rod which connects the switch-rails with the switch-lever, so as to cause the latter to move the said switch-rails into open and closed position, as desired.

Upon one of the ties *d*, adjacent to the switch, is pivoted at one end a horizontal lever D, and just beyond this pivotal point the said lever is connected to one end of a rod *d'*, the opposite end of which is connected to the free end of one or the other of the movable switch-rails. To the opposite or free end of the lever D is connected one end of a chain, rope, or other flexible connection *e*. This chain or connection extends around and beneath a number of sheaves *e'*, which are preferably supported in standards E, located at

one side of the main track, and the opposite end of said flexible connection is attached, either directly or intermediately, to an operating-lever F above the lower end of the latter, substantially as shown in Fig. 2. This lever F is preferably pivoted at its lower end, as at *f*, upon a base-plate G, which is secured at one side of the main track, usually upon one of the ties *d*, at a considerable distance in advance of the switch, and the flexible connection is preferably attached to a bail F', which is connected to the lever F about midway of its length. A semicircular standard *g* rises from the base-plate G and is partially surrounded by a spiral spring H, as is best shown in Fig. 2. The upper end of this spring abuts against the lever F, and its lower end rests upon the base-plate G. Thus it will be seen that when the switch is thrown open the lever D and flexible connection *e* will move the lever F into erect or vertical position, as shown in Fig. 2, while when the switch is closed the spring will depress the lever into horizontal position.

Let I designate a locomotive-engine. Upon some fixed part of the engine, preferably one of the step-hangers *j*, is pivoted a bell-crank lever K, the upper arm of which is connected to the lower end of a rod *k*, the upper end of which rod is connected to a suitable valve *k'*, the opening of which admits steam to a whistle L on the cab. The lower arm of the bell-crank K occupies such a position as to strike the upper end of the lever F as the engine passes the latter, and is rocked by said lever, while also vibrating the same in one direction or the other, as indicated by the arrows in Fig. 2. Thus when approaching the switch should the latter be accidentally left open the whistle will be sounded, so as to warn the engineer to stop the train, and thus prevent accident, while if the switch is properly closed no signal will be sounded and the engineer will thus know that it is safe to proceed past the switch. There should be, of course, a second bell-crank K upon the opposite side of the engine, with a rod *k*, where the step-hangers are used as supports for the signal-operating devices upon the engine; but I do not confine myself to this precise location of these devices. It is also to be understood that I contemplate sounding the signal also from the

usual whistle M of the engine, and, furthermore, that I contemplate the use of a bell, gong, or visual signal, or both, in lieu of the aural signals previously mentioned. I wish it also to be further understood that the arrangement of the track connections may, if preferred, be so varied that the lever F will be raised when the switch is closed, which would be accomplished by changing the lever D from the first to the second order and arranging the rod and flexible connection accordingly.

Other changes in details of construction may be adopted without departing from the essential spirit of my invention.

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

1. An improved switch-signaling mechanism comprising a movable switch-rail, a vertically-movable arm pivotally supported adjacent to the track-rail, a semicircular standard or guide for said arm provided with a spring for normally depressing said arm, and a flexible connection between said arm and said movable switch-rail and operating in opposition to said spring, whereby a movement of said rail will set the lever in operative position, substantially as described.
2. An improved switch-signaling mechanism comprising a vertically-movable arm pivotally supported upon a base-plate or frame adjacent to the track-rail, a semicircular

standard or guide for said arm, a pivoted horizontal lever, a rod connecting said horizontal lever with a movable switch-rail, a spring on said standard for normally depressing said vertically-movable arm, and a flexible connection interposed between said vertically-movable arm and said horizontal lever and operating in opposition to said spring, whereby a movement of said switch-rail shall set the vertically-movable arm in operative position, substantially as set forth.

3. The combination, in a switch-signaling device, of a vertically-movable arm pivotally supported adjacent to the track-rail upon a base-plate or frame, a semicircular standard or guide on said base-plate or frame provided with a spring for normally depressing said arm, a flexible connection interposed between said arm and a movable switch-rail and operating in opposition to said spring, and a bell-crank lever located upon a locomotive in position to engage the vertically-movable arm and operatively connected with a signaling device upon the engine, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

EDWIN D. BANGS.

Witnesses:

H. G. UNDERWOOD,
WM. KLUG.