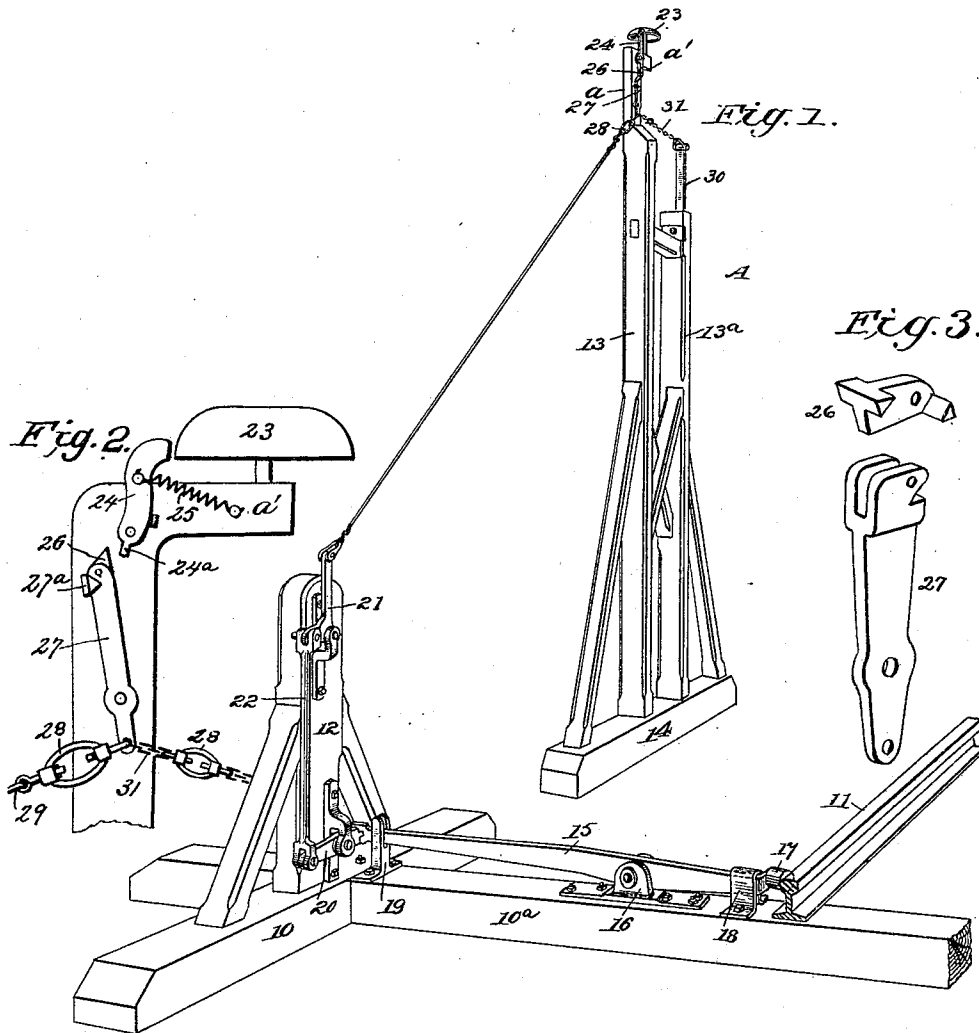


(No Model.)

W. J. BUTLER.  
RAILWAY CROSSING SIGNAL.

No. 466,155.

Patented Dec. 29, 1891.



WITNESSES:

J. B. Griswell.  
C. Sedgwick

INVENTOR:

W. J. Butler

BY

ATTORNEYS

# UNITED STATES PATENT OFFICE.

WILLIAM J. BUTLER, OF WOODSTOCK, CANADA, ASSIGNOR OF ONE-THIRD  
TO HENRY WARD BOGART, OF SAME PLACE.

## RAILWAY-CROSSING SIGNAL.

SPECIFICATION forming part of Letters Patent No. 466,155, dated December 29, 1891.

Application filed September 12, 1890. Serial No. 364,748. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. BUTLER, of Woodstock, in the Province of Ontario and Dominion of Canada, have invented a new and useful Improvement in Railway-Crossing Signals, of which the following is a full, clear, and exact description.

My invention relates to railway-crossing signals, and has for its object to provide a simple and durable device through the medium of which an alarm will be sounded by a train passing the crossing, whether the train be moving rapidly or slowly; and it consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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

Figure 1 is a perspective view of the device. Fig. 2 is a side elevation of the upper portion of the structure, to which the gong or bell is attached; and Fig. 3 is a detail perspective view of the upper end of the trip-lever and its tongue detached.

The base of the device consists of two sleepers 10 and 10<sup>a</sup>, preferably united to form a T or cross, as may be found most desirable. The longitudinal sleeper 10<sup>a</sup> is the longer and is carried beneath the outer rail 11 of the track. In fact, the sleeper 10<sup>a</sup> may constitute one of the railway-ties.

Upon the base, usually at the junction of the sleepers, a standard 12 is erected, and adjacent to the base, at one side thereof, any suitable form of an upright A is located. The upright A in the drawings is represented as constructed of two parallel vertical beams 13 and 13<sup>a</sup>, suitably braced and having their lower ends secured to a base 14. The beam 13 is longer than the opposed beam 13<sup>a</sup>, and its upper end is preferably made thinner than the other portion, as illustrated at *a* in Fig. 1, and the said upper reduced portion of the beam is provided with an integral or attached horizontal arm *a'*.

Upon the sleeper 10<sup>a</sup> the main lever 15 of the device is fulcrumed, the said lever 15 being pivoted in suitable bearings 16, between its center and the end adjacent to the rail.

The end of the main lever 15 next to the rail is bent, preferably, to form a crank-arm 17, which arm normally extends some little distance above the tread of the rail and is adapted to be engaged and pressed downward by the outer peripheral surface of the wheels of a passing train or engine. The end of the lever 15 adjacent to the track is spanned by an inverted-U-shaped guide-clip 18, which clip serves to prevent any side movement of the lever, and the said lever near its opposite end rests in a slotted guide-block 19, which block limits the downward movement of the lever at its outer end. The guide-clip and block 18 and 19 are secured in any suitable or approved manner to the sleeper 10<sup>a</sup>.

Upon the face of the standard 12, opposite the rail, a short lever 20 is fulcrumed, the said lever being located near the base of the standard. One end of the lever 20 is connected in any suitable or approved manner with the outer end of the main lever 15. Thus the two united levers 15 and 20 constitute an angle-lever having two fulcrums.

At or near the upper end of the standard 12, and also upon the face thereof opposed to the track, an elbow-lever 21 is fulcrumed, the horizontal member of which elbow-lever is connected with the short lever 20, by means of a pitman 22.

Upon the arm *a'* of the upright A a gong or bell 23, preferably the latter, is mounted in any suitable or approved manner, and upon the upper reduced portion of the said upright a striking-lever 24 is fulcrumed, the upper end whereof is adapted for engagement with the gong or bell, the said striking-lever having connected with it a spring 25, which normally retains the upper end of the lever in close proximity to the bell or gong. The lower end of the striking-lever 24 is provided with a projection 24<sup>a</sup>.

Below the striking-lever 24 a trip-lever 27 is fulcrumed between its center and lower end, the upper end of which trip-lever has a recess formed therein, and in said recess a tongue 26 is pivoted. The tongue 26 is provided with lateral projections at each end, forming heads, and one face of the trip-lever 27 is provided with a transverse recess to receive one of the heads of the said tongue. The tongue 26 is brought into its normal po-

sition, engaging with the striking-lever by contact with a stop 27<sup>a</sup>, placed at the left of the upper end of the lever 27. The lower end of the trip-lever has connected therewith a turn-buckle 28, and a cable 29 unites the upper end of the vertical member of the elbow-lever 21 with the turn-buckle, as shown in Fig. 1, the turn-buckle being adapted to take up any slack that may occur in the cable.

Upon the beam 13<sup>a</sup> of the upright A a stout spring 30 is secured, which spring extends upward beyond the beam, and to its upper end is connected a take-up of any approved form, to which take-up one end of a chain 31 is connected, the other end of the chain being connected to the lower end of the trip-lever 27. The spring 30 is powerful enough to restore all the levers to their normal positions after having been manipulated to strike the gong or bell.

In operation the wheels of a passing train press downward the crank-arm 17 of the main lever 15, thereby elevating its upper end and so manipulating the lever 20 and the pitman 22 that the vertical member of the elbow-lever 21 is carried in a direction away from the upright A, thereby exerting tension upon the cable 29, and through the medium of the cable 29 the lower end of the trip-lever 27 is drawn in the direction of the main portion of the device, and the lower end of the striking-lever 24 is carried in the opposite direction by the tongue 26 engaging the projection 24<sup>a</sup> of the striking-lever 24, thus taking the head of the latter lever away from the gong or bell. The moment the trip-lever disengages from the striking-lever the spring 25 acts to draw the head of the striking-lever in engagement with the gong or bell, thereby sounding an alarm, and such an alarm is sounded by each wheel as it passes over the lever 15. As soon as the mechanism has acted to sound the alarm the spring 30, which is flexed during such operation, straightens itself, and by drawing the trip-lever to its normal position restores each and every part likewise to the same position. The trip-lever is enabled to pass backward to its normal position without interfering with the striking-lever by the aid of the tongue 26. The said tongue moves with the striking-lever and permits it to pass without exerting any pressure whatever upon the latter.

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

1. In a railway-signal, the combination, with a lever adapted to be engaged by the wheels of a passing train, of a gong or bell, a pivoted and spring-actuated striking-lever, a pivoted and spring-actuated trip-lever provided with a pivoted dog, a stop for returning the dog to its normal position, and intermediate mechanism between the trip-lever and the lever operated by a passing train, substantially as described.

2. In a railway-signal, the combination, with a lever adapted to be engaged by the wheels

of a passing train, of a gong carried by a support at one side of the track, a spring-actuated striking-lever having a projection, a pivoted tripping-lever provided with a pivoted dog at its upper end for engaging the projection of the striking-lever, a spring for returning the tripping-lever to its normal position, a stop returning the dog to its normal position after passing under the striking-lever, and mechanism for operating the tripping-lever from the lever operated by a passing train, substantially as herein shown and described.

3. In a device of the character described, the combination, with an upper and lower angle-lever and a connecting-rod uniting the same, one extremity of the lower lever being adapted for engagement with the wheels of a passing train, and guide devices connected with the lower lever, of a bell or gong, a spring-controlled striking-lever, a trip-lever engaging the striking-lever at one end, a cable provided with a take-up attached to the opposite end of the trip-lever and the upper angle-lever, and a return-spring connected with the trip-lever at a point opposite its connection with the cable, substantially as and for the purpose specified.

4. In a device of the character described, the combination, with an upper and lower angle-lever, and a connecting-rod uniting the same, one extremity of the lower lever being adapted for engagement with the wheels of a passing train, and guide devices connected with the lower lever, of a bell or gong, a spring-controlled striking-lever, a trip-lever the tongue of which engages with the striking-lever at one end, a cable provided with a take-up attached to the opposite end of the trip-lever and the upper angle-lever, and a return-spring connected with the trip-lever at a point opposite its connection with the cable by a chain and a take-up, substantially as and for the purpose specified.

5. In a device of the character described, the combination, with a main lever, one end of which is adapted for engagement with the wheels of a passing train, guide devices engaging with the lever, a shorter lever arranged at a right angle to the main lever and connected with one extremity thereof, and an elbow-lever the horizontal member whereof is connected with the shorter lever, of a gong or bell, a spring-controlled striking-lever fulcrumed near the gong or bell, a trip-lever fulcrumed below the striking-lever and adapted for engagement therewith, a cable provided with a turn-buckle connecting one end of the trip-lever with the elbow-lever, and a return-spring connected with the trip-lever at a point opposite to its connection with the cable by a chain and take-up, as and for the purpose specified.

WILLIAM J. BUTLER.

Witnesses:

R. W. SAWTELL,  
P. C. SAWTELL.