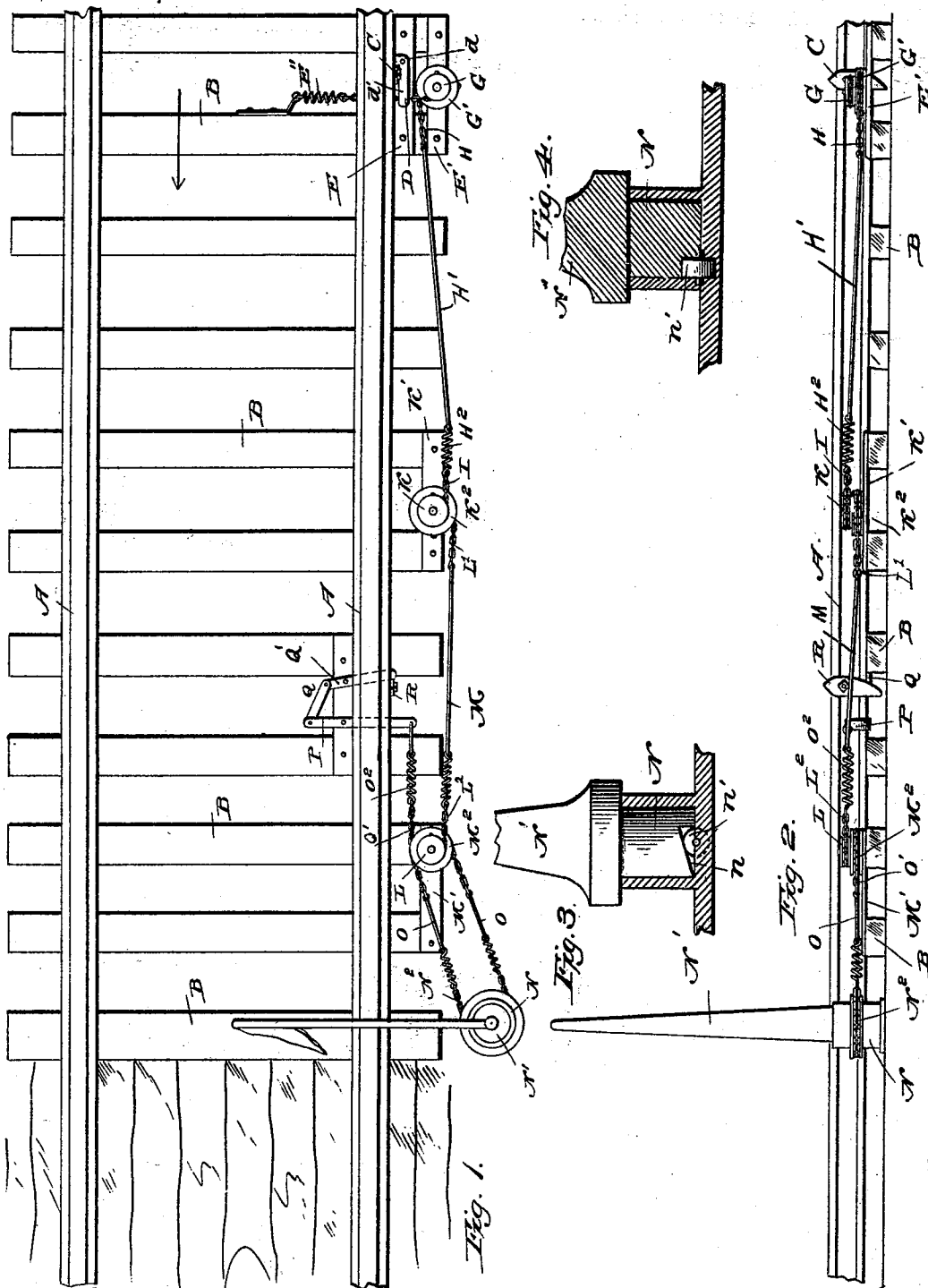


(No Model.)

D. M. BAILEY.
AUTOMATIC RAILWAY FLAG SIGNAL.

No. 517,111.

Patented Mar. 27, 1894.



Witnesses:

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DAVID M. BAILEY, OF CARLISLE, PENNSYLVANIA.

AUTOMATIC RAILWAY FLAG-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 517,111, dated March 27, 1894.

Application filed September 14, 1892. Serial No. 445,845. (No model.)

To all whom it may concern:

Be it known that I, DAVID M. BAILEY, a citizen of the United States, residing at Carlisle, in the county of Cumberland and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Railway Flag-Signals; 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.

My invention relates to improvements in automatic signals for railways over which trains are propelled at a high rate of speed and the objects of the invention are, first, to provide means whereby as a train approaches a point where the railway is intersected by a highway, a visible danger signal will be automatically displayed at such intersecting point; and, secondly, to provide means whereby, when the train reaches the crossing the signal will be automatically returned to its normal position.

With these ends in view, the first part of my invention consists in the combination of a lever fulcrumed on one of the rails of the track and having one end projecting above the rail into the path of the wheels of the engine or a suitable fender carried by an engine, a bell crank lever fulcrumed below the rail and having one arm arranged in the path of the lever fulcrumed on the rail, a signal mounted on a rotatable staff and connections between said staff and one arm of the bell crank lever whereby, when said lever is turned on its pivot by reason of an engine coming in contact with the upper projecting end of the lever fulcrumed on the rail, the staff carrying the signal will be rotated to bring the signal carried thereby into position across the highway and into plain view of any one passing thereon.

The second part of the invention consists in the combination with a rotatable signal staff, of a horizontal lever connected with the signal staff, a returning lever fulcrumed on the side of one rail of the track and having its upper end extending above said rail and its lower arm connected with the horizontal lever.

My invention further consists in the peculiar construction and arrangement of parts as

will be hereinafter more fully pointed out and claimed.

In the accompanying drawings:—Figure 1 is a plan view of a section of a railway track provided with my improvements. Fig. 2 is a side elevation thereof. Fig. 3, is a detail view of the signal staff support. Fig. 4 is a vertical sectional view of the same.

Like letters of reference denote corresponding parts in the several figures of the drawings, referring to which—

A designates the rails of a railway track over which trains are adapted to be propelled at a high rate of speed and said rails are connected and supported on suitable cross ties B in the ordinary manner.

To the outer side of one of the rails A is fulcrumed a setting trip lever C, the upper end of which extends or projects upwardly above the top of said rail into the path of the wheels or a suitable fender carried by a locomotive passing over the track. The lower end of the lever C extends down a short distance below the base of the rail A and into the path of one arm *d* of a bell crank lever D which is fulcrumed below the track on a plate E attached to two adjacent ties or said lever may be fulcrumed on one of the ties if desired. To the other arm *d'* of the bell crank lever D is attached one end of a coiled tension spring E'', the other end of which is firmly attached to one of the cross-ties B. To said arm *d'* is also attached one end of a short chain or cable F which extends partially around and is connected at its outer end to a small drum or pulley G rigidly mounted on a short vertical shaft journaled in a suitable bearing formed in a plate E' secured on two adjacent ties B. On the shaft of the drum or pulley G, below said drum, is rigidly secured another and larger drum or pulley G' to which is attached one end of a chain or cable H. The chain or cable H extends partially around the lower drum G' in a reverse direction to that of the cable F around the smaller upper drum G, and is connected at its outer free end to one end of a connecting rod or link H'. To the other end of the rod H' is attached one end of a coiled tension spring H² which is in turn connected to one end of a chain or cable I which extends partially around and has its other end firmly at-

tached to a drum K rigidly mounted on a suitable shaft fitted in a bearing in a plate K'. Below the drum K on the same shaft is rigidly secured another and larger drum K² which drum is connected with another drum L by means of chains or cables L', L², and an intermediate connecting rod M. The drum L is mounted on a shaft fitted in a bearing on a plate M' and below said drum is arranged another drum M² similar to the drums K² and G' hereinbefore described.

At one side of the track, within a suitable casing, is pivotally mounted a support or holder, N, adapted to support a signal staff, N', and said holder or support is connected with the drum M² by means of chains or cables, N², and connecting links O. To the drum M² is attached one end of a short chain O' the other end of which is connected to one end of a tension spring O² and said spring is in turn attached to the outer end of a lever P fulcrumed between the rails of the track on a plate secured on two adjacent ties B. To the inner end of the lever P is connected one end of a link Q, the other end of said link being attached to one end of a lever Q' which lever projects or extends beyond the rail A into the path of a return lever R fulcrumed on the side of said rail.

In the under side of the support or holder N is formed an inclined way *n* which rides on a guide roller *n'* journaled in suitable bearings preferably formed in or supported by the base plate of the inclosing case of the signal stand.

On the staff N' is supported a flag or other suitable signal adapted to be brought into view across a highway intersecting or crossing the railway track as a train approaches said highway to warn the public of the approach thereof. In the drawings I have shown a flag attached to the signal standard but a lantern or any other form of signal may be substituted for the flag, if desired.

The operation of my improvements may be briefly stated as follows:—A train passing over the track in the direction indicated by the arrow will strike the upper projecting end of the setting lever C and force said upper end forwardly and downwardly. This movement of the setting lever operates the bell crank lever D which in turn rotates the drums G, G', and they in turn rotate the drums K, K², the drums L, M², and the support or holder N to bring the signal carried by the staff N' into proper position to indicate the approach of a train to persons passing on the highway. As the train moves on, the engine contacts with the upper end of the return lever R and

operates the lever Q' and lever P to rotate the drum M² to return the staff holder N to its original position. The return of the holder or support N to its normal position is aided by reason of the guide roller *n'* working in the inclined way *n* on the bottom of said support.

In applying my improvements to double track lines the mechanism hereinbefore described will be duplicated.

To enable my improvements to indicate the approach of a train returning over the same track, the drums G, G', and K, K², are duplicated on the opposite side of the highway and connected with the signal staff in the manner hereinbefore described.

I am aware that changes in the form and proportion of parts and details of construction of the devices herein shown and described as an embodiment of my invention can be made without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes and alterations as fairly fall within the scope of the same.

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

1. In an automatic railway signal, the combination with a trip C arranged at one side of the track, and adapted to be operated by a passing locomotive, and drums, G, G', K and K² connected together and to the trip C, two drums M², L, mounted on a common shaft and connected with a horizontal lever, P, and the drum K² respectively, another horizontal lever, Q', connected at one end to the lever, P, by a link Q, and having its other end extending into the path of a trip R, fulcrumed at one side of the track, and a signal staff connected to the drum, M², by chains or other suitable means, substantially as and for the purpose described.

2. The staff-holder, N, mounted in a suitable casing and provided in its lower edge with an inclined cam way, a friction roller mounted in a stationary bearing within the casing of the staff holder and arranged to ride against the inclined cam way in the lower edge of the staff holder, in combination with a drum, connections between the drum and the staff holder, and positive trip mechanism having connection with said staff operating drum, as and for the purpose described.

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

DAVID M. BAILEY.

Witnesses:

JNO. B. LANDIS,
JOHN R. MILLER.