(No Model.)

H. H. LIEMKE.

RAILWAY SIGNAL.

No. 346,485. Patented Aug. 3, 1886.

Fig. 1.

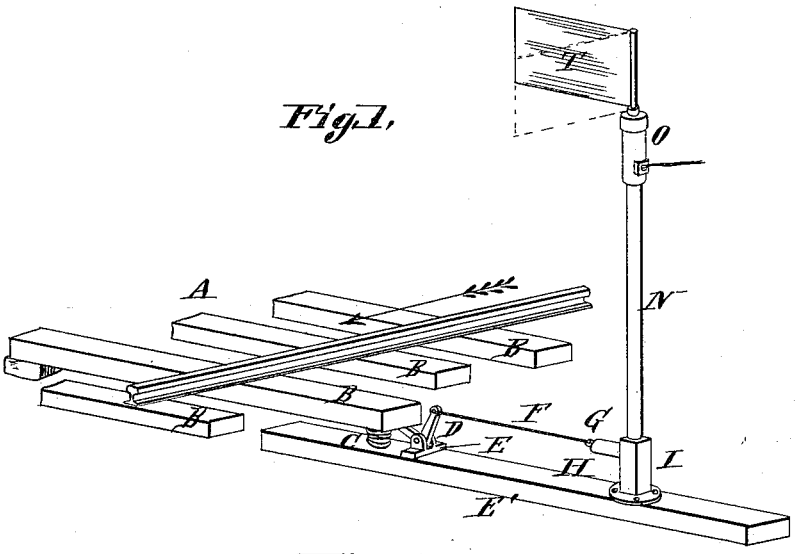


Fig. 2.

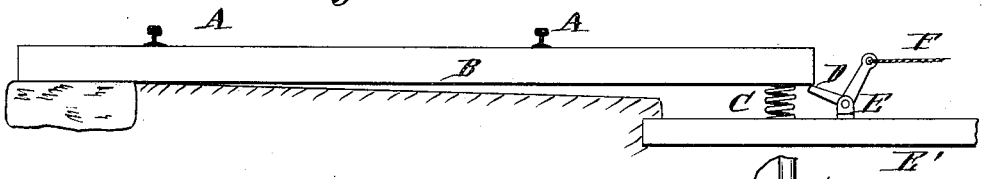


Fig. 3.

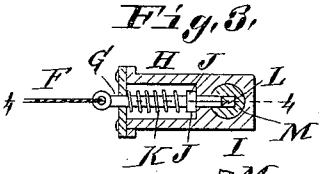


Fig. 4.

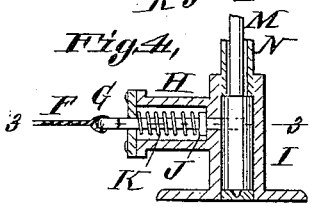


Fig. 5.

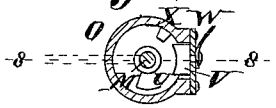


Fig. 6.

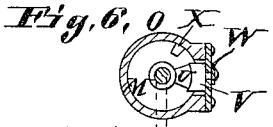


Fig. 7.

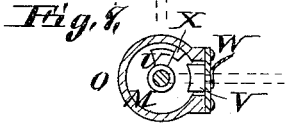
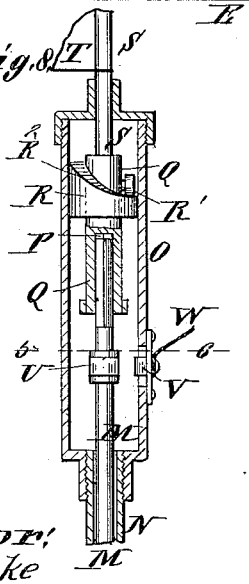


Fig. 8.



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UNITED STATES PATENT OFFICE.

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RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 346,485, dated August 3, 1886.

Application filed September 21, 1885. Serial No. 177,745. (No model.)

To all whom it may concern:

Be it known that I, HERMAN H. LIEMKE, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Railway-Signals, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a perspective view of my improved device, showing part of the railway-track. Fig. 2 is a vertical section of a track, showing part of the lever located at the track. Fig. 3 is a horizontal section taken on line 3 3, Fig. 4. Fig. 4 is a vertical section taken on line 4 4, Fig. 3. Fig. 5 is a horizontal section taken on line 5 6, Fig. 8. Fig. 6 is a similar view taken on same line as Fig. 5. Fig. 7 is a similar view taken on same lines as Figs. 5 and 6. Fig. 8 is a vertical section taken on line 8 8, Fig. 5.

My invention relates to an apparatus for giving a signal at a railway-crossing; and it consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents part of a track, and B part of the ties. One of the ties is supported at one end by a spiral spring, C, and beneath it is one end of a bell-crank lever, D, pivoted by a bracket, E, to a support, E'. The other end of the lever is connected by means of a wire or cord, F, to a bolt, G, in a hollow projection, H, of a stand, I. Between the outer end of the projection and a nut or projection, J, on the bolt, is a spiral spring, K, surrounding the bolt, the tendency of which is to force the bolt inward. The inner end of the bolt fits in a socket, L, in the lower end of a vertical rock-shaft, M, around which fits a sleeve, N. To the upper end of the sleeve is secured a cylinder or barrel, O, into which the upper end of the shaft extends, as shown in Fig. 8. The other end of the shaft is made square and fits in a socket, P, of a short coupling, Q, around which loosely fits a cam, R, that is made fast to the barrel or cylinder O. Secured to the upper end of the coupling is a short shaft, S, that extends out to the upper end of the cylinder, and to which is secured a broad arm or flap, T, which, when in its normal position, presents toward the track, as shown in Fig. 1.

Within the cylinder O on shaft M is a contact or projection, U, and secured to the cylinder is a contact, V, with which connects a wire, W, in circuit with a battery.

The operation is as follows: Supposing a train is coming in the direction shown by arrow, Fig. 1. The weight of the train depresses the tie resting upon the spring and forces the upper end of the bell-crank lever toward the track. This retracts the bolt G, and then the current of air caused by the motion of the train acting upon the flap T will turn the shafts S and M, made fast by coupling Q, as stated, and as this takes place the contact U is brought around into contact with the contact V closing the electric circuit to ground through shaft M and supports. The current of electricity then passes through the wire W to any suitable alarm—as, for instance, that shown in my application filed June 8, 1885, No. 168,046. As the shafts are turned, the shaft S and coupling Q are raised by a roller, R', on the coupling Q, bearing against the inclined face R^2 of the cam R. As soon as the train has passed, the roller R' descends, this cam returning the flap T to its normal position. As this action takes place, the shaft M is also turned, of course, and the contact U removed from the contact V from the position shown in Fig. 6 to that shown in Fig. 5, and the electric circuit thus broken. When the train has passed, the spring C also raises or lifts the free end of the tie B resting upon it, and the spring K causes the bolt G to enter the socket again in the shaft M, so that the shaft is thus locked, so as not to allow the flap T to be operated by the wind, it being necessary to first unlock the shaft by retracting the bolt G, and this is done, as before stated, by the weight of the train.

This apparatus is placed on both sides of a railway-crossing, but the alarm is only sounded when the train is going toward the crossing. To avoid this alarm being sounded when the train is going in the other direction, I place a stop, X, on the barrel O, against which the contact projection U strikes when the shaft M is turned in the opposite direction to that above described. It is shown turned in this

direction in Fig. 7, with the contact-projection U against the stop. As soon as the train passes, the parts return to their normal position, as above described in speaking of their being operated in the other direction.

I claim as my invention—

1. In an electric railway-signal, a flap adapted to be operated by the current formed by the motion of the train to close an electric circuit, and means for returning said flap to its normal position, as set forth.

2. In an electric railway-signal, a flap adapted to be operated by the current formed by the motion of the train to close the circuit, in combination with means for locking the flap and means for returning the flap to its normal position, substantially as set forth.

3. In an electric railway-signal, a flap adapted to be operated by the current formed by the motion of the train, shaft supporting said flap, an electric circuit, a contact on said shaft, and a contact against which said contact on the shaft is turned when the flap is turned, substantially as shown and described.

4. The combination of a tie, B, spring beneath the tie-lever D, wire F, bolt G, stand I H, socket in the stand to receive the bolt, shaft M, sleeve N, cylinder O, contact V, secured to the cylinder, contact secured to the shaft, coupling Q, shaft S, flap T, cam R, roller R′, and spring K.

HERMAN H. LIEMKE.

In presence of—
GEO. H. KNIGHT,
SAML. KNIGHT.