

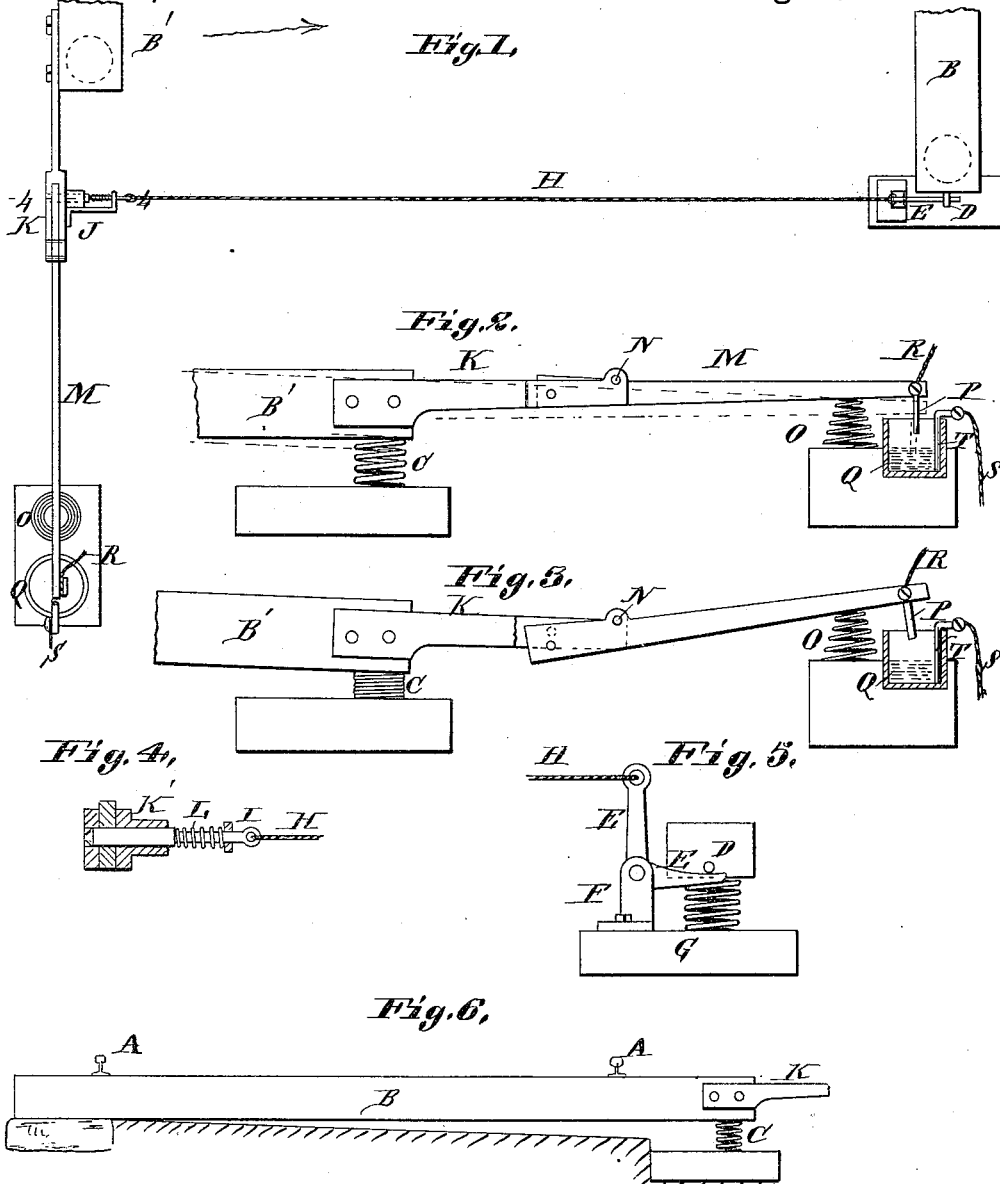
(No Model.)

H. H. LIEMKE.

RAILWAY SIGNAL.

No. 346,484.

Patented Aug. 3, 1886.



Attest:

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UNITED STATES PATENT OFFICE.

HERMAN H. LIEMKE, OF ST. LOUIS, MISSOURI.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 346,484, dated August 3, 1886.

Application filed September 21, 1885. Serial No. 177,742. (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 detail top view illustrating my improved device. Fig. 2 is a side elevation. Fig. 3 is a similar view to Fig. 2, showing the parts in different positions. Fig. 4 is a detail vertical section taken on line 4-4, Fig. 1. Fig. 5 is an enlarged detail view, showing the connection between the bell-crank lever and the end of the tie. Fig. 6 is an elevation of the tie and a cross-section of the rails of the track.

This invention relates to an improvement in electric railway-signals, intended more particularly for crossings; and it consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents part of the rails of a railway-track, and B one of the ties, one end of which is supported by a spiral or other spring, C. To this end of the tie is secured a short arm or pin, D, that bears upon one member of a bell-crank lever, E, pivoted by a bracket, F, to a support, G. The other end of the bell-crank lever is connected by a wire, H, to a bolt, I, that is supported by a bracket, J, and that passes through an arm, K, secured to another tie, B', of the track. It is also supported at one end upon a spiral spring, C. The bolt I is surrounded by a spiral spring, L, the tendency of which is to hold the bolt in its inward position, as shown in Fig. 4. The arm K has a projection, K', in which the bolt fits and works, and it is slotted to receive the inner end of a bar or lever, M, pivoted to it by a pin, N, and connected to it by the bolt, and having a hole or socket to receive the bolt I when the bolt is in its inward position. Thus when the bolt is in its inward position this bar M is rigidly secured to the arm K by the bolt and the pivot-pin N.

Under the outer end of the bar M is a spiral spring, O, which tends to hold this bar in its upper position, as shown in Fig. 2. On the outer end of the arm M is a metallic pin, P,

which extends downward into a pot, Q, partly filled with mercury, and connected to this pin is one wire of the electric circuit R, the other wire being connected to the mercury-cup and extending into the mercury by means of an arm, T. The wire S or R extends to an electric-alarm device—such as, for instance, the one shown in my application filed June 8, 1885, No. 168,046.

The operation is as follows: Supposing a train would be going in the direction shown by the arrow, Fig. 1, it first depresses the tie B' and forces the arm K and bar M downward, causing the pin P to enter the mercury in the cup, and thus closes the electric circuit and sounds the alarm. As the train passes on, it depresses the tie B and retracts the bolt I from the bar M, through means of the described connection E H between the bolt and the tie. The upward movement of the arm K will not cause the upward movement of the bar M, as the bar will turn on its pivot N. The outer end of the bar M will be gradually raised or lifted to its normal position by the spring O from the position shown by dotted lines, Fig. 2, to that shown by full lines, and when it is thus raised the electric circuit is broken. The relatively slow rising of the bar M is in the form of the invention here shown, owing to the fact that the spring O is of less strength in proportion to the weight to be lifted than the spring C. The ties B B' may be adjacent or within a few feet one from the other. The object of forming this connection between the arm K and bar M is to allow the latter to be raised slowly and the pin P to be raised as slowly from the mercury, so that the electric circuit is not broken so quickly and the alarm is sounded much longer than would otherwise be the case. As soon as the bar is raised to its normal position, the bolt I is caused to recede again by the spring L, and enters the hole in the bar M, so the bar is depressed the next time the train comes along, the same as already described. When the train is going in the opposite direction to that shown by the arrow, Fig. 1, the tie B being first run over causes the pin I to be retracted from the arm M, so that when the tie B' is run over the depressing of this latter tie will not force the pin P into the mercury, but the parts will assume the position shown in

Fig. 3. When the train has passed, the spring C raises the tie B again, and the pin J re-enters the recess in arm M.

I claim as my invention—

- 5 1. In combination with a spring-tie, a bar pivoted to the tie and a contact-cup located under the outer end of the bar, and means for locking the bar to the tie, substantially as set forth.
- 10 2. The combination of the tie B, arm K, bar M, pivoted to the arm, pin P, bar R, contact-

cup Q, wires S and R, spring O, substantially as described, for the purpose set forth.

3. The combination of tie B, arm K, bar M, pivoted to the arm, spring O, contact-cup Q, 15 pin P, wires S and R, bolt I, wire H, bell-crank lever E, and spring above the bell-crank lever, substantially as and for the purpose set forth.

HERMAN H. LIEMKE.

In presence of—

GEO. H. KNIGHT,
SAML. KNIGHT.