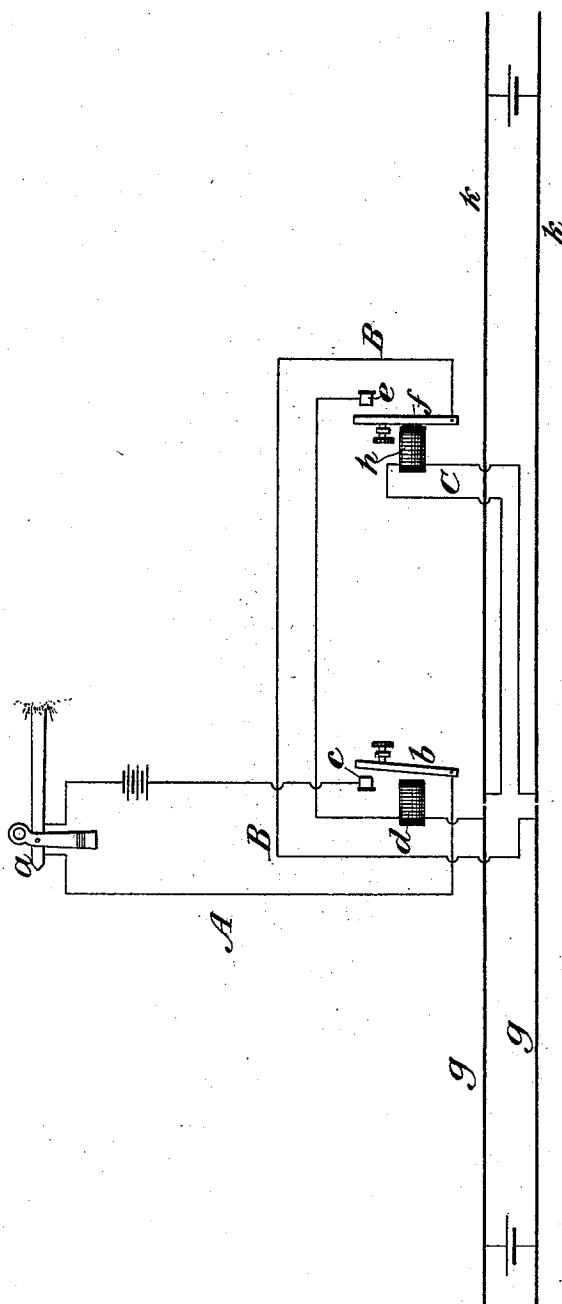


(No Model.)

W. DAVES.
ELECTRIC RAILWAY SIGNALING.

No. 530,093.

Patented Dec. 4, 1894.



Witnesses:-
George W. Hill
Oscar Mayer

Inventor:-
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by his attorneys
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UNITED STATES PATENT OFFICE.

WILLIAM DAVES, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE HALL
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ELECTRIC RAILWAY SIGNALING.

SPECIFICATION forming part of Letters Patent No. 530,093, dated December 4, 1894.

Application filed May 24, 1894. Serial No. 512,267. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM DAVES, of Jersey City, in the county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Electric Railway Signaling Systems, of which the following is a specification.

My invention relates to electrical signaling systems for railways and has for its object to simplify the arrangement of the circuits.

It consists of the arrangement hereinafter pointed out.

In the drawing, which represents a diagram of my invention, there is a signal circuit A which controls the operation of the signal *a*. This signal circuit A, as shown, is normally de-energized by a break at the circuit controller *b, c*. This circuit controller is operated by a track circuit, B, which may, as shown, include the rails *g g* of a section of the track.

The circuit B is provided with means for operating the circuit controller *a b*, which when the circuit includes the rails of the track is preferably a magnet *d*. The circuit B is normally de-energized, preferably by means of a break at the circuit controller *e f*, and this circuit controller is operated by means of a second track circuit C, which may include the rails *k k* of the track. When the rails of the track are included in this circuit C, it is preferably provided with a magnet *h*, for operating the circuit controller *e f*.

The track circuit C is preferably permanently closed and the magnet *h* energized so as to hold the circuit B normally open at *e f*. The circuit B being thus de-energized the magnet *d* permits the circuit A to be open at *b c*, thus de-energizing the signal circuit. The signal stands normally at danger as shown.

The operation of the system as shown in the drawing is as follows:—A train entering upon the section of the track formed by the rails *k k* shunts the magnet *h* and closes the track circuit B at *e f*. This energizes the magnet *d* and closes the signal circuit A at *b c*, putting the signal to safety before the train. The train then advances and as it enters upon the rails *g g* it shunts the magnet *d* and opens the signal circuit, putting the signal to danger behind the train. If a second train enters upon the rails *k k* before the first train has passed beyond the rails *g g*, it will

close the track B at *e f*, but will be unable to clear the signal *a* because the magnet *d* will be still energized. When the first train has passed beyond the rails *g g*, then the signal *a* will clear before the second train.

Various changes which will readily suggest themselves to any one skilled in the art may of course be made without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an electric signaling system for railways, the combination of a signal circuit, a normally de-energized track circuit controlling the signal circuit and including the rails of a section of the track, a second normally closed track circuit controlling the first mentioned track circuit and including the rails of a separate section of the track, substantially as set forth.

2. In an electrical signaling system, the combination of a signal, a signal circuit therefor, a normally de-energized track circuit extending in advance of the signal and provided with means for operating the signal circuit, a second track circuit extending in the rear of the signal and operating to energize the first mentioned track circuit, by the presence of a train at the rear of the signal, said first mentioned track circuit being arranged to be de-energized by the presence of a train in advance of the signal, substantially as set forth.

3. In an electrical signaling system for railways, the combination of a signal normally at danger, a normally open signal circuit, a normally open track circuit including the rails of a section of the track extending in advance of the signal and also including a magnet controlling the signal circuit, a second track circuit including the rails of a separate section of the track extending in the rear of the signal and also including a normally energized magnet operating to hold the first mentioned track circuit open, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM DAVES.

Witnesses:

DANIEL A. WARREN,
WILLIAM P. HALL.