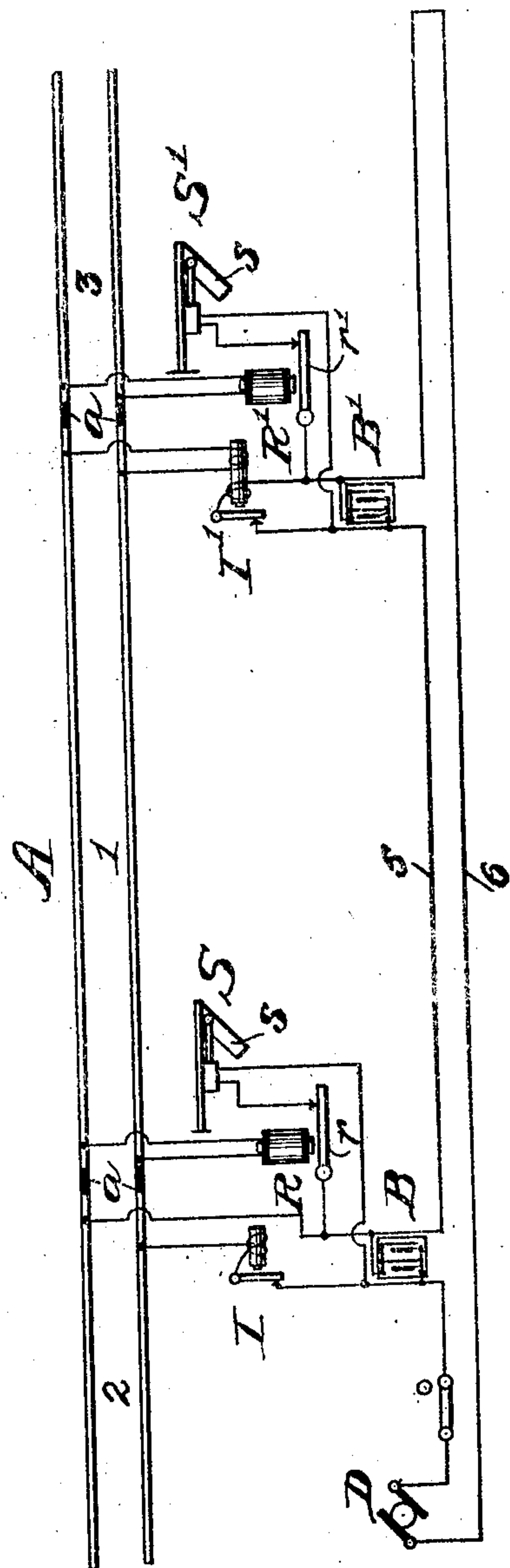


No. 822,314.

PATENTED JUNE 5, 1906.

J. B. STRUBLE.
RAILWAY SIGNALING SYSTEM.
APPLICATION FILED JULY 13, 1904.



WITNESSES:

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JACOB B. STRUBLE, OF NEW YORK, N. Y., ASSIGNOR TO THE UNION SWITCH AND SIGNAL COMPANY, OF SWISSVALE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

RAILWAY SIGNALING SYSTEM.

No. 822,314.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed July 13, 1904. Serial No. 216,334.

To all whom it may concern:

Be it known that I, JACOB B. STRUBLE, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Railway Signaling Systems, of which the following is a specification.

My invention relates to railway signaling systems, and especially to the supply of current for track-circuits involved in such systems.

I will describe a railway signaling system embodying my invention and then point out the novel features thereof in claims.

The accompanying drawing is a diagrammatical representation of a portion of a railway-track and a signaling system therefor embodying my invention.

Referring now to the drawing, A designates a portion of a line of railway-track which is divided into insulated sections by means of insulation *a*, placed at suitable points in the railway in any desired manner. In the drawing I have shown both lines of rail-sections as being provided with insulation; but it will be understood that only one of the rails may be so divided. The portion of the railway extending between two adjacent signaling-points is what is generally termed a "block-section." In the drawing I have shown one such block-section, (designated 1 and portions of two others designated 2 and 3.) Each block-section is provided with a track-circuit and with one or more railway-signals, which are controlled from a translating device comprised in a track-circuit. Each railway-signal comprises a signal device, here shown as being a semaphore, which by its color or position, relatively to its support gives indications of the service condition of the block section or sections which it controls, and an operating mechanism which may be automatically operated or controlled or both automatically operated and controlled. S S' designate two such signals located at the entrance ends of block-sections 1 and 3.

Each track-circuit of a block-section comprises a source of current-supply, a translating device or relay, and the opposite line of rails or portions of them included between

insulation-points. The translating device or relay through its movable member or armature controls a local circuit, which includes a source of current-supply and an electrically-operated device in the mechanism of the railway-signal. B designates a source of current-supply for the track-circuit of block-section 2, and B' a source of current-supply for the track-circuit of block-section 1.

R designates a translating device for the track-circuit of block-section 1, and its movable member, and R' a translating device for the track-circuit of block-section 3, and *r* its movable member.

The sources of supply B B', &c., are preferably storage batteries, and, as here shown, they supply current for the electrically-operated devices of the mechanisms of the railway-signals, as well as for the track-circuits. They are included in a charging-circuit, which comprises the charging-mains 5 6 and a charging-dynamo D. The charging-circuit may be opened and closed by suitable switch devices, which may be located at the charging-station or at the storage-battery points.

The storage batteries B B', &c., are not directly connected to the track-rails of their track-circuits, so that they will supply a current flowing constantly in one direction, as is usual, but are connected through means which alter one or more characteristics of the current, and by "characteristics" I mean either direction, continuity, or magnetic effect. In the drawing I have shown the storage batteries as being connected through interrupters, the coils of which are energized from the storage batteries, so that intermittent, pulsating, or fluctuating currents are delivered to the track-circuits. The magnetic effect of such currents is to a degree the same as the magnetic effect of an alternating current.

I I' designate two different forms of interrupters. One, I', may conveniently be in the form of a Ruhmkorff coil, while the other, I, may be in the form of an interrupter commonly employed in electric bells.

The translating devices R R', &c., are preferably constructed so that they will respond only to the intermittent, pulsating, or fluctuating currents or their equivalents in magnetic effects, and when so constructed

they need not respond to unidirectional or direct currents. An example of such a translating device is illustrated and described in my application for patent filed February 13, 1903, Serial No. 143,219. The use of such a current for track-circuit purposes and a translating device which will respond only to that character of currents has especial advantages on railroads, either steam or electric, where the translating devices of the track-circuits are likely to be affected by stray currents or, if used on electric railroads, by the propulsion-current.

By employing storage batteries and a charging-circuit therefor an advantage is gained, in that the current-supply for the track-circuits is localized and is not dependent upon a continuous working circuit and the necessary transformers.

What I claim as my invention is—

1. In a railway signaling system, the combination of a plurality of track-circuits, a railway-signal controlled from each track-circuit and each comprising in its mechanism an electrically-operated device, a plurality of storage batteries for supplying current to the track-circuits and the electrically-operated devices, and means in each track-circuit for

altering a characteristic of the current supplied it from a storage battery.

2. In a railway signaling system, the combination of a plurality of track-circuits, a railway-signal controlled from each track-circuit and each comprising in its mechanism an electrically-operated device, a plurality of storage batteries for supplying current to the track-circuits and the electrically-operated devices, means in each track-circuit for altering a characteristic of the current supplied it from a storage battery, and a charging-circuit for the plurality of storage batteries.

3. The combination with a plurality of railway-signals, track-circuits for controlling the railway-signals, storage batteries for supplying current to the railway-signals and track-circuits, and means for altering a characteristic of the current from the storage batteries to the track-circuits.

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

JACOB B. STRUBLE.

Witnesses:

A. HERMAN WEGNER

C. W. VAN NOSTRAND.