

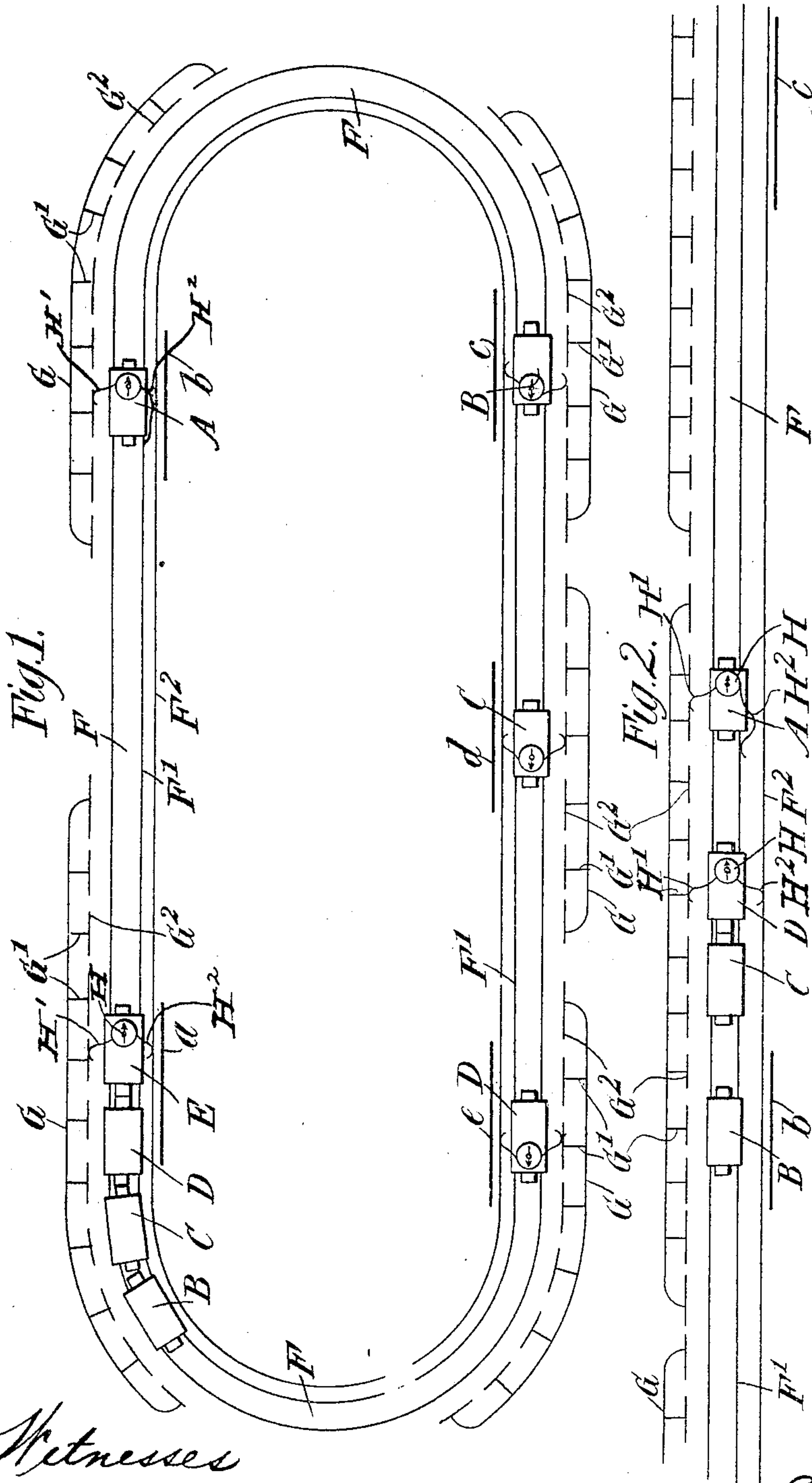
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PATENTED NOV. 7, 1905.

J. BROWN.

SIGNALING ON RAILWAYS, TRAMWAYS, &c.

APPLICATION FILED OCT. 4, 1901.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN BROWN, OF DUNMURRY, IRELAND.

SIGNALING ON RAILWAYS, TRAMWAYS, &c.

No. 803,872.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed October 4, 1901. Serial No. 77,557.

To all whom it may concern:

Be it known that I, JOHN BROWN, a subject of the King of England, residing at Dunmurry, Belfast, Ireland, have invented certain new and useful Improvements in or Relating to Signaling on Railways, Tramways, and the Like, of which the following is a specification.

This invention relates to signaling on railways, tramways, and the like, and refers chiefly, though not exclusively, to railway or other systems in which a continuously-running train or group of cars is employed to carry the goods or passengers and arranged to deposit and take up at their respective stations the goods and passengers without requiring to stop or reduce its speed for that purpose.

The chief object of this invention is to provide means or apparatus whereby the approach of the main or continuously-running train to a station or detached car or group of cars at that station is indicated both on the main train and on the detached car or the station.

I will describe my invention as applied to a "circular" railway system in which a continuously-running train is employed and "local" cars are disposed along the route, one or more being located at each station or depot at which it is desired to take up or deposit passengers or goods; but I wish it to be understood that I do not limit my invention to this or to any particular system, as it is obvious that the invention is applicable whether the local cars after being picked up form part of train or only accompanying it for a sufficient time to permit the goods or passengers to be transferred to the main part of the train.

Referring to the drawings, Figure 1 is a diagrammatic plan of a railway system having signaling apparatus arranged in accordance with my invention. Fig. 2 is a diagrammatic plan of part of the route, showing the relative position of the various parts after the main train has left a station.

The main train B C D E is supposed to start from station *a* with the passengers, who distribute themselves in the cars according to their various destinations. As the train approaches station *b* the last car B is slipped or detached and brought to a standstill at the station. Meanwhile the approach of the train to the station has been signaled to the car standing at the station in the manner

about to be described. In order to prevent the train running into a car standing at the station to which the train is approaching and to enable the attendants to regulate the speeds of the train and vehicle so that these may come together without serious shock, I provide each car with an electric indicating instrument, such as a galvanometer, arranged so that the instrument on the leading car of the train is in electrical circuit with the instrument of the car to be taken up at or beyond the station.

As will be seen more clearly at Fig. 2, I place parallel with the track a conductor having a high resistance and consisting, preferably, of a main conductor G, having contact-shoes G² connected to it by branches G'. The vehicle A, which has started from the station *b*, has its indicating instrument H connected by a brush H' with the shoes G² of the conductor G and with the main-track rail F' through the brush H². The indicating instrument H of the leading vehicle D of the train is connected to the shoes G² of the conductor G by a brush H' and with main F², which is itself a trolley-wire, by a brush H². An electric means of communication is thus established between the vehicle A and the train by means of the circuit including the indicating instruments of the train and the vehicle A—i. e., through the brush H², indicator H, and brush H' of the leading car on the train, conductor G and its contact-shoes G' and G², and brush H', indicator H, and brush H² of car A—and the deflection of the needle on these indicating instruments will be inversely proportional to the resistance of the whole circuit, including the part of the conductor G included in this circuit—that is to say, as the distance between the vehicle A and the train becomes less the deflection of the pointer of each of the galvanometers will be increased, and the dials of these instruments may be so graduated as to show directly the distance in yards or other units between the trains and the vehicles.

The conductor G extends a sufficient distance beyond each end of the station to allow a train to be warned or stopped if the car at the station has not left or if the ordinary signals have not acted in the proper manner to inform the driver of the fact. If anything goes wrong with the working of the system, the drivers or attendants would be warned to proceed cautiously by the moving of the pointers of the instruments to a po-

sition indicating "no current," the car being on a part of the line where a current should be indicated.

As will be seen from the foregoing description, F' being a continuous-supply conductor extending along the track, and $G G$ constituting a series of high-resistance conductors adjacent to the stations and each extending in both directions from the adjacent station, the circuit is completed from F' through an indicator on a car, thence through $G' G$, through the station-car and its indicator to the return track-rail.

When the vehicle A has been caught up and coupled to the train, the galvanometer on the vehicle D is cut out of circuit and a connection H^2 of the galvanometer on the vehicle A transferred from the main F' to the main F^2 , thereby providing for a circuit between the galvanometer on the train and the vehicle at station c .

Although I have described the invention as applied to a railway system on which a continuously-running train is employed, I wish it to be understood that I do not confine its application to such a system, as the invention is equally applicable to ordinary railway systems for indicating on a train or car its approach to a station or for indicat-

ing at a station the approach of a train or for similar purposes.

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

In a system of working railways, tramways and the like, the combination with a train traveling between the stations of the system and a station to which the train is approaching, of an indicating device on each car of the train, an indicating device on a car standing at the station which the train is approaching, a main electrical supply-conductor, a conductor of high resistance arranged adjacent to each station and extending in both directions, as described, a series of contact-shoes electrically connected with each of said high-resistance conductors, a return conductor or rail and brushes connecting the indicating device on each car with the high-resistance conductors and the main supply-conductor.

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

JOHN BROWN.

Witnesses:

NICHOLAS T. BRICE,
EDWARD HARVEY.