

J. A. SHINGLETON & C. H. ROBERTS.

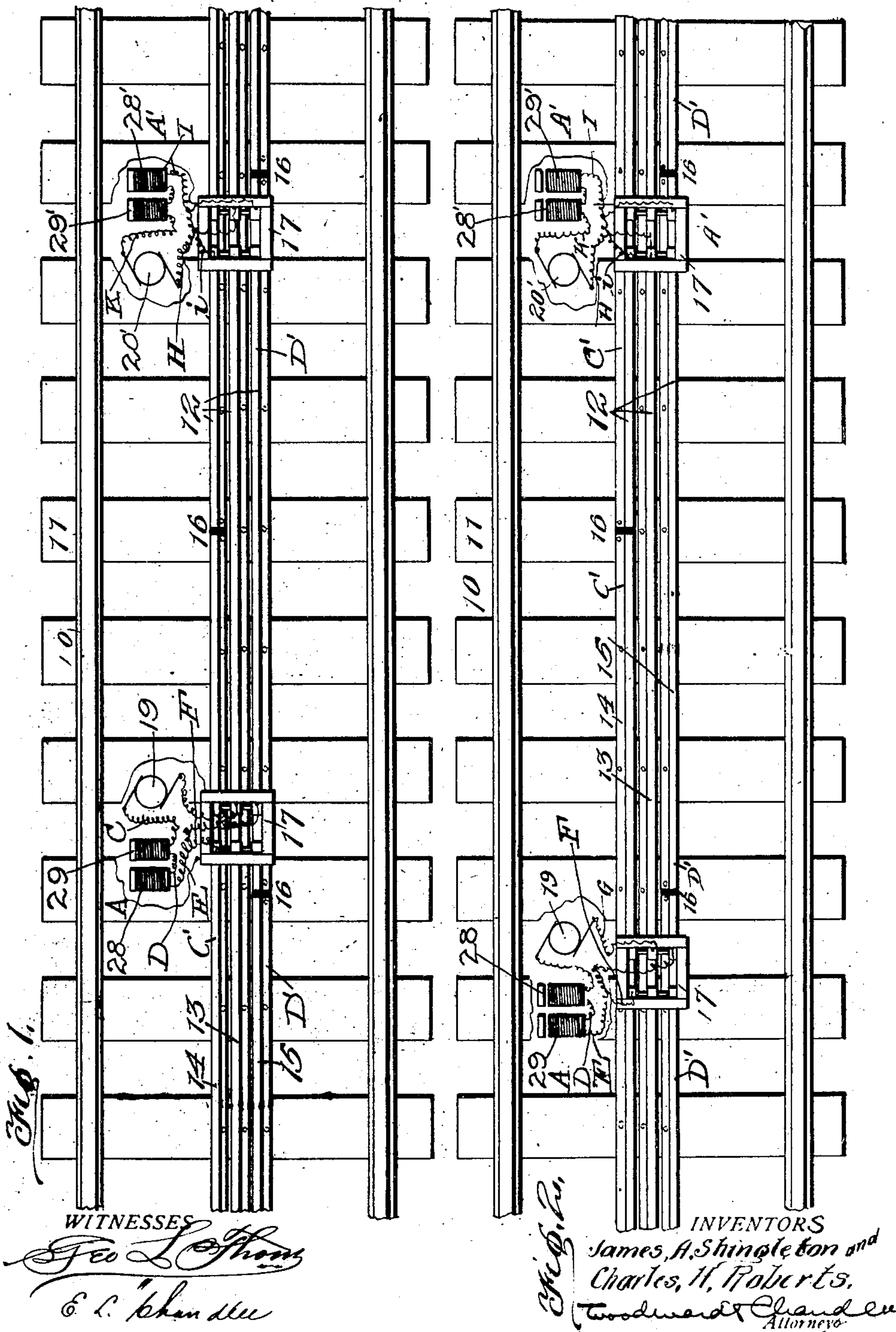
RAILWAY SIGNAL.

APPLICATION FILED OCT. 26, 1907.

Patented Dec. 29, 1908.

3 SHEETS—SHEET 1.

908,340.



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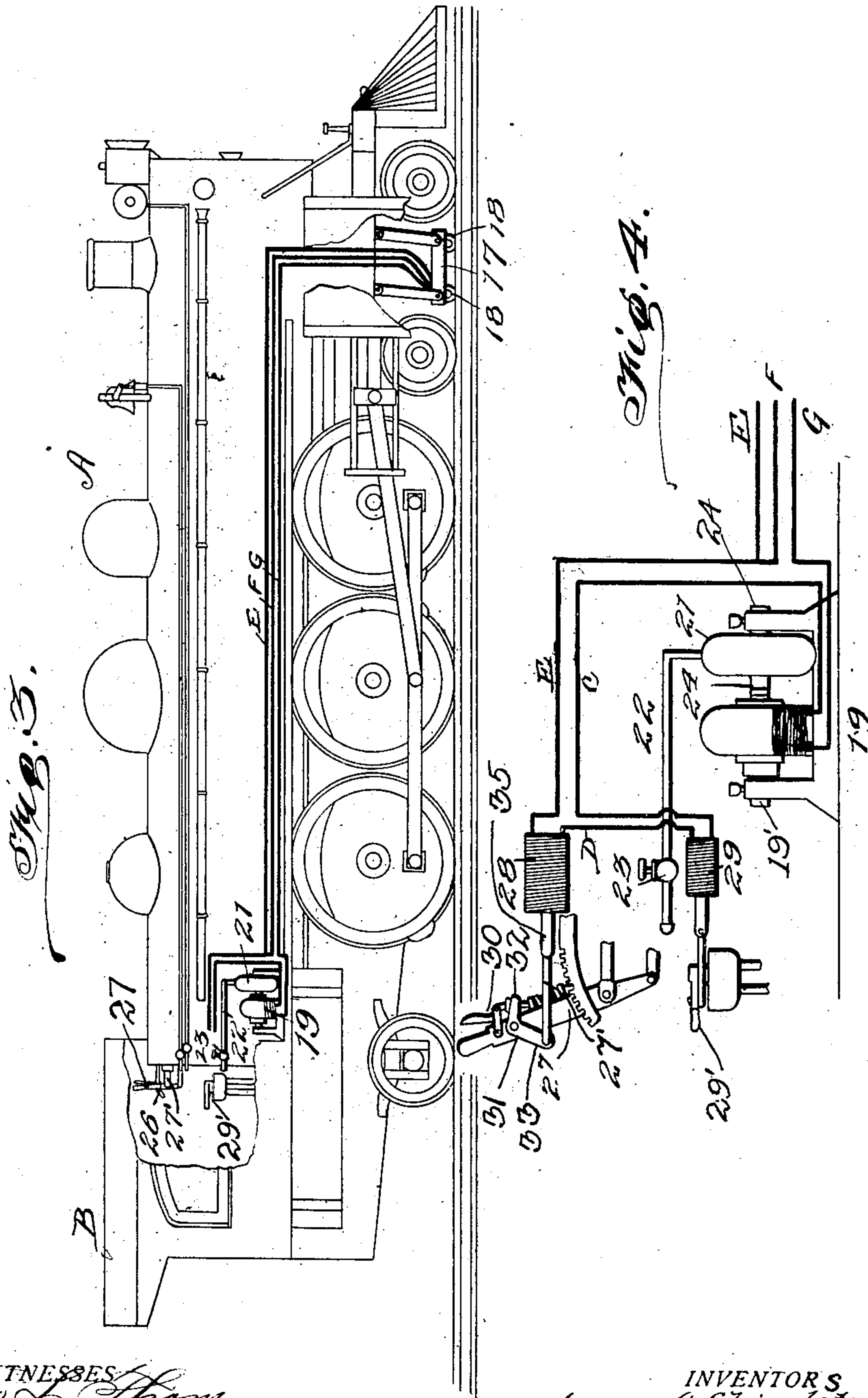
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WITNESSES  
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*E. L. Chandlee*

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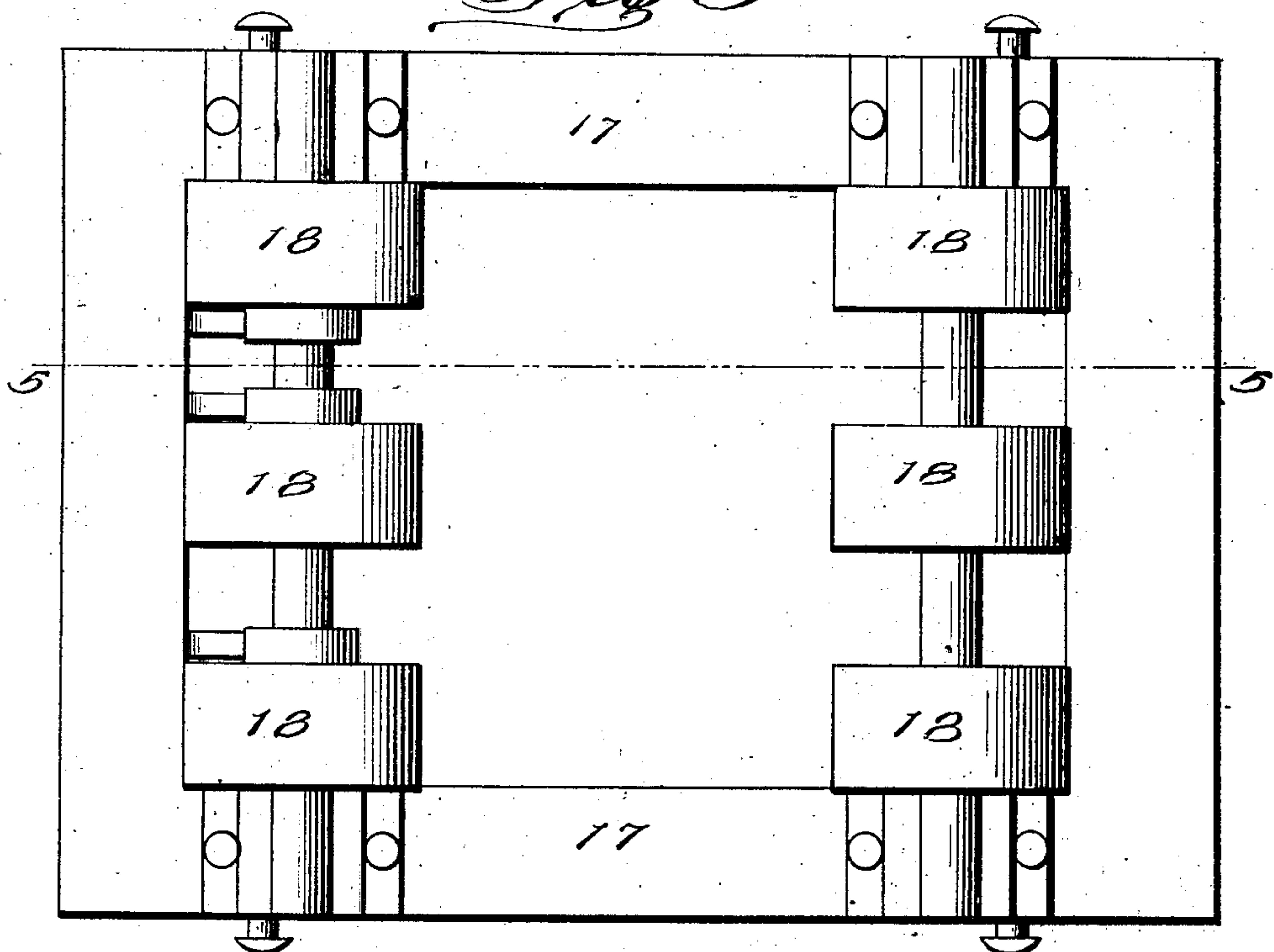
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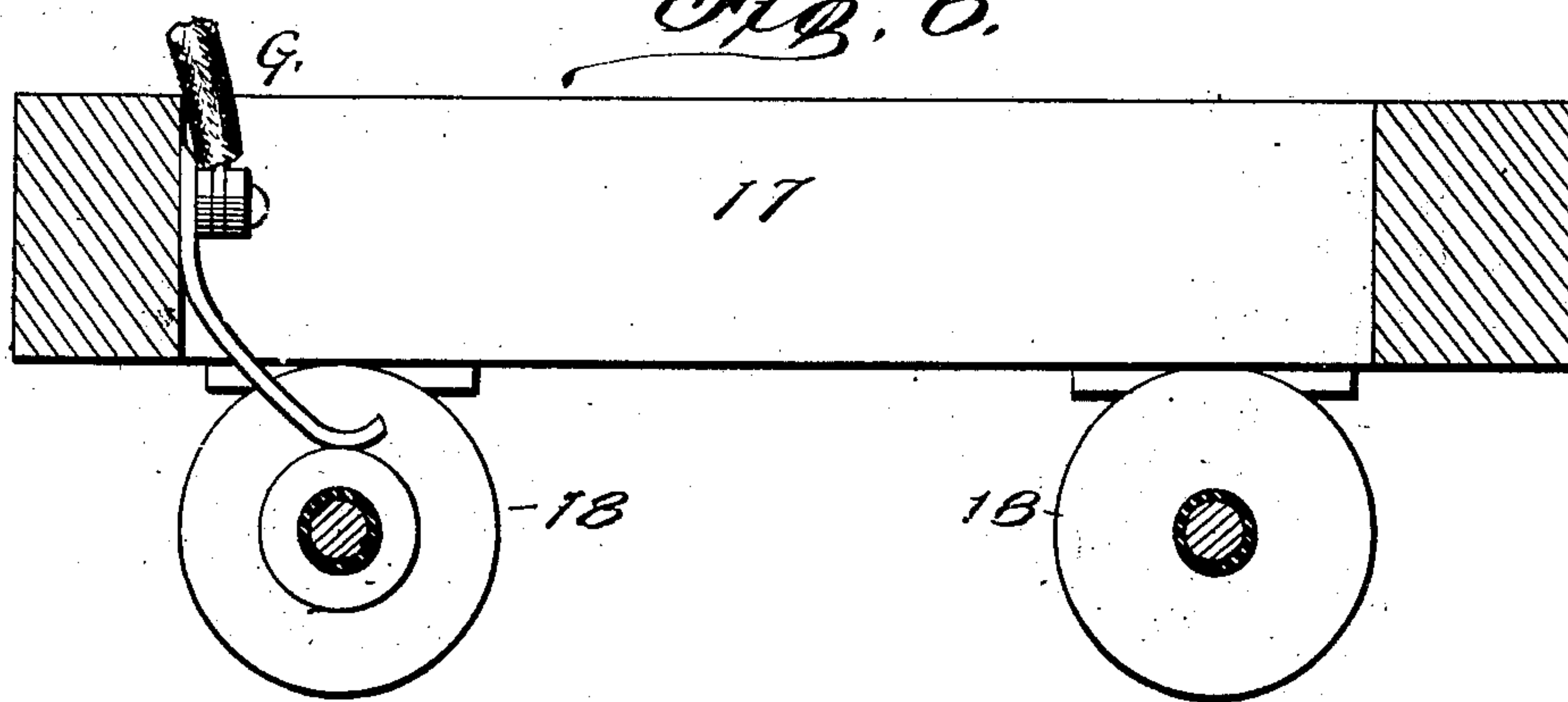
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3 SHEETS—SHEET 3.

*Fig 5*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

JAMES A. SHINGLETON AND CHARLES H. ROBERTS, OF NASHVILLE, TENNESSEE.

## RAILWAY-SIGNAL.

No. 908,340.

Specification of Letters Patent.

Patented Dec. 29, 1908.

Application filed October 26, 1907. Serial No. 399,338.

*To all whom it may concern:*

Be it known that we, JAMES A. SHINGLETON and CHARLES H. ROBERTS, citizens of the United States, residing at Nashville, in the county of Davidson and State of Tennessee, have invented certain new and useful Improvements in Railway-Signals, of which the following is a specification.

This invention relates to railway signals and more particularly to an electric signal, and has for its object to provide a train, car or locomotive with a simple and efficient railway signal that will notify the engineer or occupant of the locomotive when there is another train in the same block.

A further object of this invention is to provide an electric signal of this character adapted for use in connection with air-brake systems whereby the train brakes may be automatically applied, and to provide means for simultaneously closing the throttle valve.

A further object of this invention is to provide an electric signal whereby the electricity is produced by a generator which may be attached to a locomotive or other parts of a train and driven by a turbine or like engine which may be supplied with steam from the locomotive.

Other objects and advantages will be apparent from the following description and it will be understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a top plan view of a railway track showing in diagram the relative position of two locomotives in the same block, Fig. 2 is a similar view, the locomotives being shown in separate blocks, Fig. 3 is a side elevational view of a locomotive equipped with our invention, Fig. 4 is a detail plan view showing the arrangement of the turbine with the generator, Fig. 5 is a bottom plan view of the truck, Fig. 6 is a vertical sectional view on the line 5—5 of Fig. 5.

Referring to the drawings, there is shown a railway track 10 of ordinary construction, supported upon the usual cross ties 11. Arranged between the rails of the track 10 there are shown trolley rails 13, 14, and 15, which are arranged upon the ties in spaced relation. The center rail 13 is formed of a continuous section, and the rails 14 and 15 are each

formed of sections C' and D'. It may be stated that each of the sections C' and D' is to be made in lengths of one and one-half miles, longer or shorter, as circumstances may require. The rails 14 and 15 are arranged with their respective adjacent ends in spaced relation, and between these ends there may be placed insulating blocks 16. The ends of the rails 14 are arranged alternately of the ends of the rails 15, and it will thus be seen, that electrical communication is confined to a distance of one and one-half miles, or the length of one section of the broken rails.

A locomotive A is indicated as shown in the drawings, beneath the forward end of which there is mounted a truck 17, provided with trolley wheels 18, arranged to travel respectively upon the rails 13, 14, and 15.

A generator 19 is arranged upon the locomotive A, as shown, being operative by a turbine 21 connected with the boiler of the locomotive by way of a pipe 22, and a valve 23 for admission of steam to the turbine.

The usual throttle valve is arranged within the cab B of the locomotive A, and is provided with the usual operating lever 27, connected thereto by means of a link 26. This lever is arranged for operation by a rod 27' connected to the armature of an electromagnet 28 disposed adjacent the rod and arranged to close the throttle valve when energized through the agency of the link 26. It may be stated that this magnet receives current from the rails 19 through the wire E. A second wire D connects the magnet 28 and a second magnet 29 for operation of the air brake valve 29' from which extends a lead wire C to the generator 19. The wire E is tapped by the wire F which leads to the rail 14. A wire G connects the rail 13 with the generator 19. It will be noted that the wire I is tapped by a wire i leading to the rail 14 just as the wire E is tapped by the wire F.

Upon reference to Fig. 2 of the drawings, it will be seen that current running through the generator 19 will flow through the wire G to the rail 13, through which the current will travel to a wire H connected to a generator 20', carried by a locomotive A'. This locomotive is provided with a magnet 28' which receives current from the generator 20' through the wire K and is connected in series with the magnet 29'. It will thus be seen, that the current flowing through the wire K will be delivered to the magnets 28' and 29'



respectively which operate the throttle and air brake valves, as previously described, and the current will thence be delivered by a wire I to the rail 15, after which the current will  
 5 be carried to the respective magnets 28 and 29, for operation of the throttle and air brake valves carried by the car A. It may thus be seen that the device will also operate over the rails 14 and 13 when the two engines A and  
 10 A' are upon one section of the rail 14 at the same time.

In Fig. 4, there is shown a throttle lever 27 having the usual rack segment adjacent thereto for coöperation with the usual locking pawl and release 30. Pivoted upon the  
 15 side of the lever 27, there is a supplementary releasing member 31 comprising a pawl raising arm 32 and an operating arm 33 integral therewith. The arm 32 is disposed in engagement with the pawl for lifting movement thereof when oscillated, and the rod 27' is  
 20 secured pivotally to the outer end of the arm 33. It will be noted that the rod 27' extends at an angle from the arm 33 and is provided with an armature 35 which may be an integral continuation of the rod, if desired. The  
 25 armature is disposed in the tubular magnet 28 and adapted to be drawn thereinto for operation of the throttle as will be understood.  
 30 stood.

What is claimed is:

1. In a railway safety appliance of the class described, the combination with a locomotive of a three railed electrical conductor,  
 35 the outer of said rails being alternately divided into sections, a trolley truck carried by the locomotive and having insulated contact members bearing respectively upon said three rails, an electrical source carried by the  
 40 locomotive, connections between the center rail and the source, a throttle operating magnet and a brake operating magnet, series connections between said magnets, the electrical source and the outer of said conducting rails,  
 45 a locomotive throttle having a rack bar engaged thereto and a pawl carried by the lever to hold the lever yieldably at various points in its movement, a pivoted pawl releasing member carried by the lever, said member

comprising an adjacent arm disposed in engagement with the pawl, for lifting engagement therewith when oscillated, and an operating arm connected therewith, an armature engaged within the throttle operating magnet, said armature carrying an extension  
 55 engaged pivotally with the operating arm, for operation thereof when the throttle is energized, a brake operating lever, a connecting rod engaged therewith and an armature pivotally engaged with the connecting  
 60 rod and disposed in the brake operating magnet, for operation of the brake when said magnet is energized.

2. In a railway safety appliance of the character described, the combination with a  
 65 locomotive throttle of a rod adapted for operation to release the locking means of the throttle and to throw it into closed position, a cylindrical armature carried by the rod, a tubular magnet engaged around the arma-  
 70 ture and adapted to operate the throttle when energized, an electrical source, an interrupted trolley track, a series circuit between said magnet source and track, said circuit being constructed and adapted to be  
 75 closed by a similarly equipped unit of rolling stock, when within a predetermined distance of the locomotive on the same track.

3. In an electrical safety appliance for railways of the class described, the combina-  
 80 tion with a unit of rolling stock of a throttle lever and a brake lever connected thereto and adapted to operate the levers, cylindrical armatures carried longitudinally by the rods, tubular magnets engaged around the arma-  
 85 tures and adapted to operate the levers when energized, and open circuit connections between said magnets and a distant unit of rolling stock, said circuit being constructed and adapted to be closed when said units are  
 90 within a predetermined distance.

In testimony whereof we affix our signatures, in presence of two witnesses.

JAMES A. SHINGLETON.  
 CHARLES H. ROBERTS.

Witnesses:

J. G. CASON,  
 W. H. FICKLEEEING.