

(No Model.)

W. H. BAKER.

ELECTRIC SIGNALING APPARATUS FOR RAILWAY TRAINS.

No. 523,847.

Patented July 31, 1894.

Fig: 1.

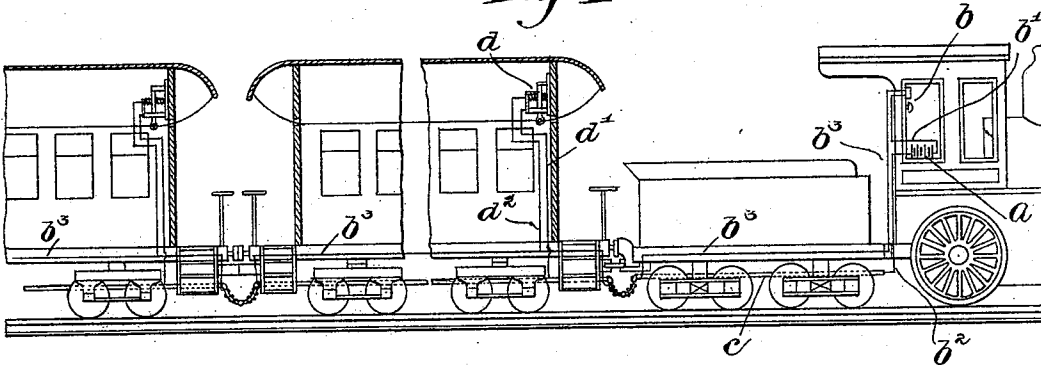


Fig: 2.

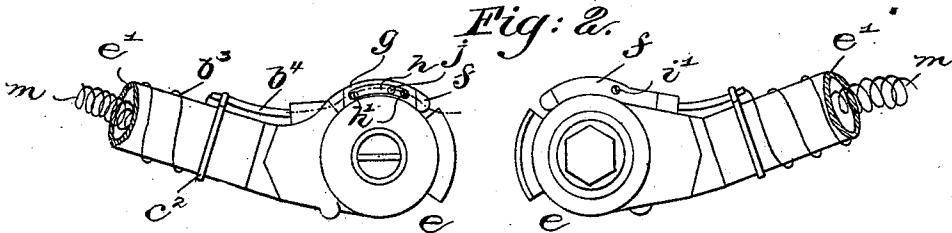


Fig: 3.

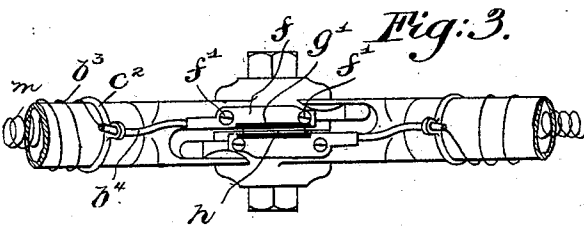


Fig: 5.

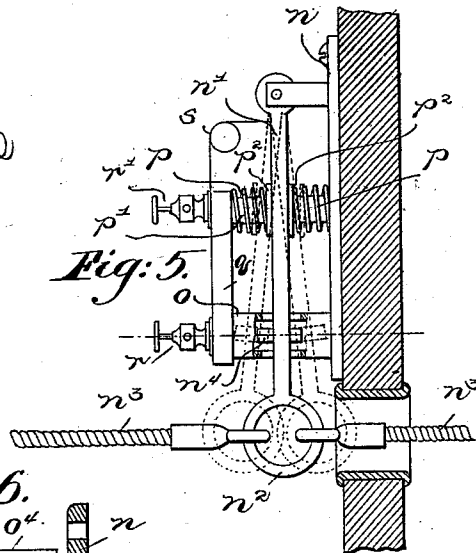


Fig: 4.

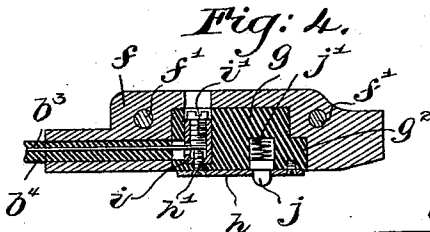
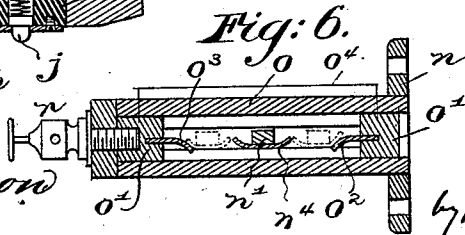


Fig: 6.



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UNITED STATES PATENT OFFICE.

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ELECTRIC SIGNALING APPARATUS FOR RAILWAY-TRAINS.

SPECIFICATION forming part of Letters Patent No. 523,847, dated July 31, 1894.

Application filed May 31, 1894. Serial No. 512,951. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BAKER, of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain
5 new and useful Improvements in Electric Signaling Apparatus for Railway-Trains, of which the following is a specification.

The present invention relates to certain improvements in electric signaling apparatus
10 for railway trains in which the air-brake connections are utilized to form an electrical circuit and each car is provided with a switch-device whereby the circuit may be closed.

The principal object of the invention is to
15 provide a contact-device applicable to the exterior of an air-brake hose-coupling without changing the construction of the same, and which will make a thorough connection with its mate on the interlocking coupling. Extreme simplicity of construction and great durability of parts are also duly provided for, and
20 there is no such complication of parts as to in any way hinder the coupling and uncoupling of the hose, and moreover by the acts of coupling and uncoupling the hose the electrical
25 connection is made and broken and no additional performance on the part of the brakeman or other attendant is required.

The accompanying drawings which form
30 part of this specification, illustrate an embodiment of the invention.

Figure 1 shows a sectionized side elevation of a portion of a train of cars with a diagrammatic illustration of the electrical connections. Fig. 2 shows the hose-couplings in side
35 elevation and disconnected. Fig. 3 shows a top plan view of the couplings interlocked. Fig. 4 shows a section on line 4—4 of Fig. 2, the parts appearing on an enlarged scale. Fig.
40 5 shows a side elevation of one of the switch-devices which are located in the cars, the frame-work being represented as broken away at one part. Fig. 6 shows a section on line 6—6 of Fig. 5, the parts appearing on an enlarged scale.
45

The letter, *a*, in Fig. 1, designates a source of electricity which is preferably a dynamo located at a convenient point on the locomotive, and driven by power received therefrom.
50 An electric bell, *b*, is located in the locomotive cab and is connected with one pole of the generator by a wire, *b'*. A wire, *b''*, leading

from the other pole of the generator connects with the air-brake-pipe, *c*, on the tender, and electrical connections are made through the
55 air-brake-pipes and couplings to the end of the train. Electrical connections from the bell, *b*, to the end of the train are represented as made by wires, *b''*, contacts being effected between the cars by the novel attachments
60 on the couplings to be presently described. The two lines of electrical connections which have been mentioned, are normally disconnected and the system is an open circuit one. In each car a switch-device, *d*, is arranged and
65 is connected by wires, *d'*, and, *d''*, with the two lines, respectively, so that upon operating this switch-device in any car the circuit will be closed and the bell caused to ring in the locomotive cab. The details of the switch-
70 device will be given hereinafter.

The castings, *e*, by which the brake-hose, *e'*, is coupled together between the cars, are of the form commonly employed and no
75 change in their construction is required to adapt them for receiving the electrical attachments, other than boring and screw-threading holes to receive attaching screws. As the attachments on two interlocking couplings are of the same construction, a detailed
80 description of but one will suffice. The attachment, then, comprises an elongated piece or bar, *f*, of brass or any other suitable material of durable quality, which bar is curved to conform to the curving upper side of the
85 casting so that it snugly fits the same. The bar is shown as secured to the casting by two screws, *f'*, and one side of the bar is flush with the inner face of the casting, and it is formed with a recess in the side against the
90 casting and also issuing out of the side which is flush with the inner face of the casting. This recess receives a block, *g*, of suitable insulating material, one side of which is concaved to lie closely against the exterior of
95 the casting and one side of which is flush with the inner face of the casting. This side of the insulating block extends over the full width of the bar, *e*, the latter being cut away to receive a flange, *g'*, of the block, and the
100 bar is further cut away at one end of the recess to form a ledge for an end-flange, *g''*, of the block to bear against. A strip or plate, *h*, of brass or other suitable conducting ma-

terial is fastened to the exposed face of the insulating block and one of the screws, h' , securing said strip to the block enters a binding post, i , which is fitted to a recess in the block. The line wire, b^3 , is introduced through an opening in the bar, e , and a registering opening in the block, g , and is fastened in the said binding post by means of a screw, i' , which is accessible through an opening, i^2 , in the bar, e . Where the said wire passes through the bar it is incased in an insulating jacket, b^4 , and this jacket covers the wire through a sufficient distance to prevent contact between it and the casting and is supported in a ring, c^2 , embracing the hose.

Attachments of the above description being applied to mating couplings, when the latter are interlocked the plates, h , come into contact and electrical connection is made between the wires on the cars. To doubly insure such connection, a pin, j , is arranged in an opening in each plate, h , and is advanced by a spiral spring, j' , contained in a recess of the block, g , and bearing against a head on the pin. The two spring-pressed pins, constantly press against the opposed plates and hence maintain an electrical connection, each pin being in electrical connection with the plate through which it slides. The connections for the other line are made through the castings themselves and it is to be observed that the latter are thoroughly insulated from the parts employed to connect the wires, b^3 .

The wires, m , which connect with the castings are preferably carried through the hose. The switch-device hereinbefore referred to as being located in each car, is of the following described construction and arrangement.

A bracket, n , is fastened to a convenient part of the frame-work of the car and a lever, n' , depends from an arm of said bracket and has an eye, n^2 , at the lower end in which the operating cords, n^3 , are attached, said cords being connected with opposite sides of the eye and designed to swing the lever in opposite directions. Said lever vibrates in the slot of a hollow post, o , projecting from the bracket, n , and has affixed to it in said post a contact piece, n^4 , projecting on each side of the post. Blocks, o' , fastened in opposite ends of said post carry contact-pieces, o^2 , and,

o^3 , which are arranged for contact with opposite ends of the piece, n^4 , on the lever under vibrations of said lever. The lever is normally held in an intermediate position where its contact-piece, n^4 , connects with neither of the pieces, o^2 , or o^3 , by means of spiral springs, p , surrounding a post, p' , which projects from the bracket, n , and bearing against collars, p^2 , between which the lever passes. The two posts, o and p' are connected by a bar, q , which supports binding-posts, r , and, r' . The binding post, r , receives the wire, d' , and is in electrical connection with the two blocks, o' , the latter being here shown as connected together by a wire, o^4 . The other binding-post, r' , receives the wire, d^2 , and is in electrical connection with the lever, n' , a wire, s , being here shown as connecting said post and lever.

Insulation is provided wherever necessary to prevent short circuiting.

It will be observed that whichever way the lever is swung the circuit will be closed, and when the cord is released the lever will be returned to central position and the circuit broken.

It will now be seen that all the objects primarily stated are accomplished by the apparatus described.

Having thus described a way of embodying the invention, what I claim is—

In an electric signaling system for railway trains, an attachment for the air-brake hose-couplings, the same comprising a supporting block formed to fit the side of a coupling member and having a cavity in the side toward the latter, a block of insulation filling said cavity and having one side exposed substantially in the plane of the inner face of the coupling, a binding-post in said insulation and a contact-plate on the exposed face of the same and in electrical connection with the said binding-post.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 26th day of May, A. D. 1894.

WILLIAM H. BAKER.

Witnesses:

C. F. BROWN,
F. P. DAVIS.