

No. 768,547.

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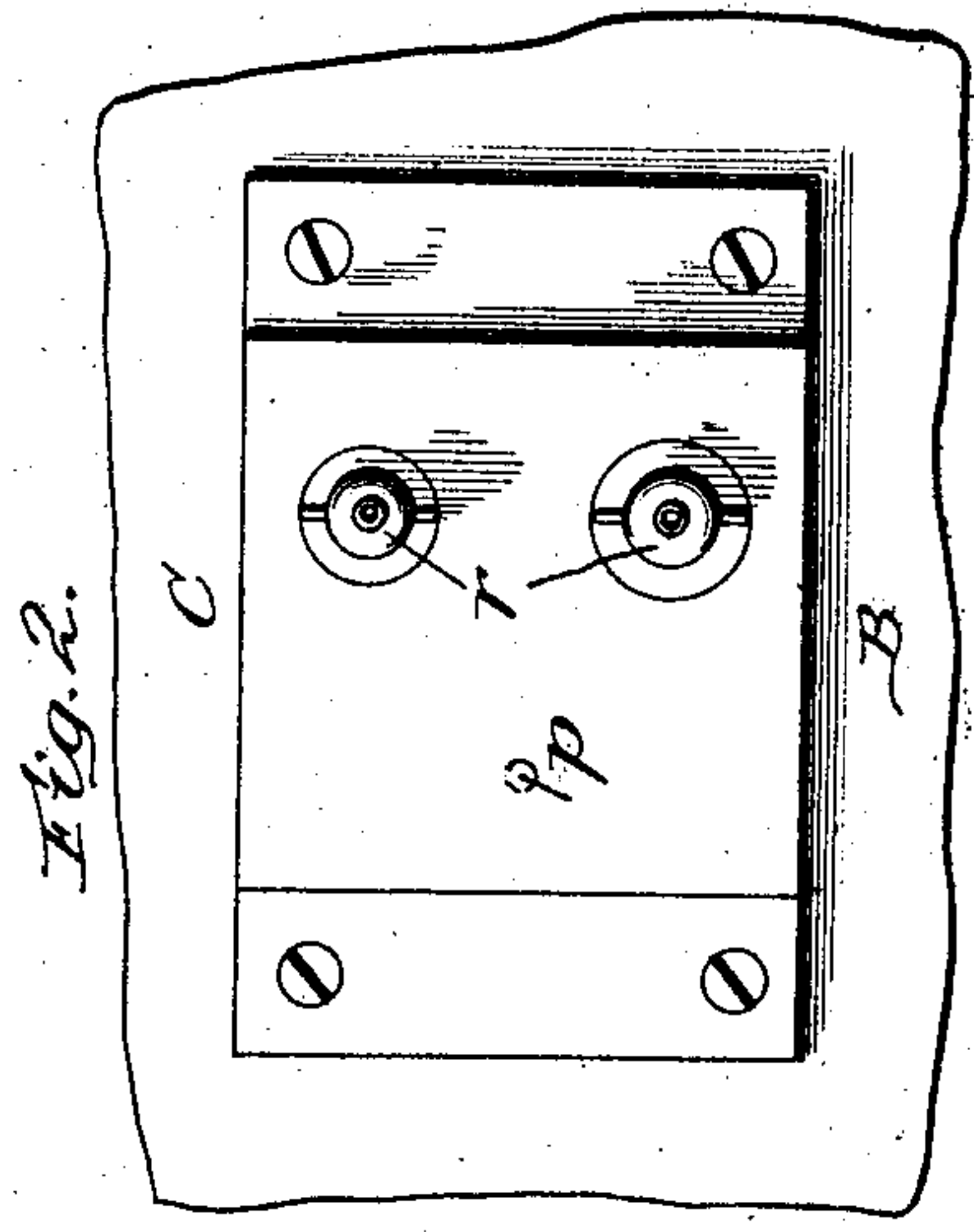
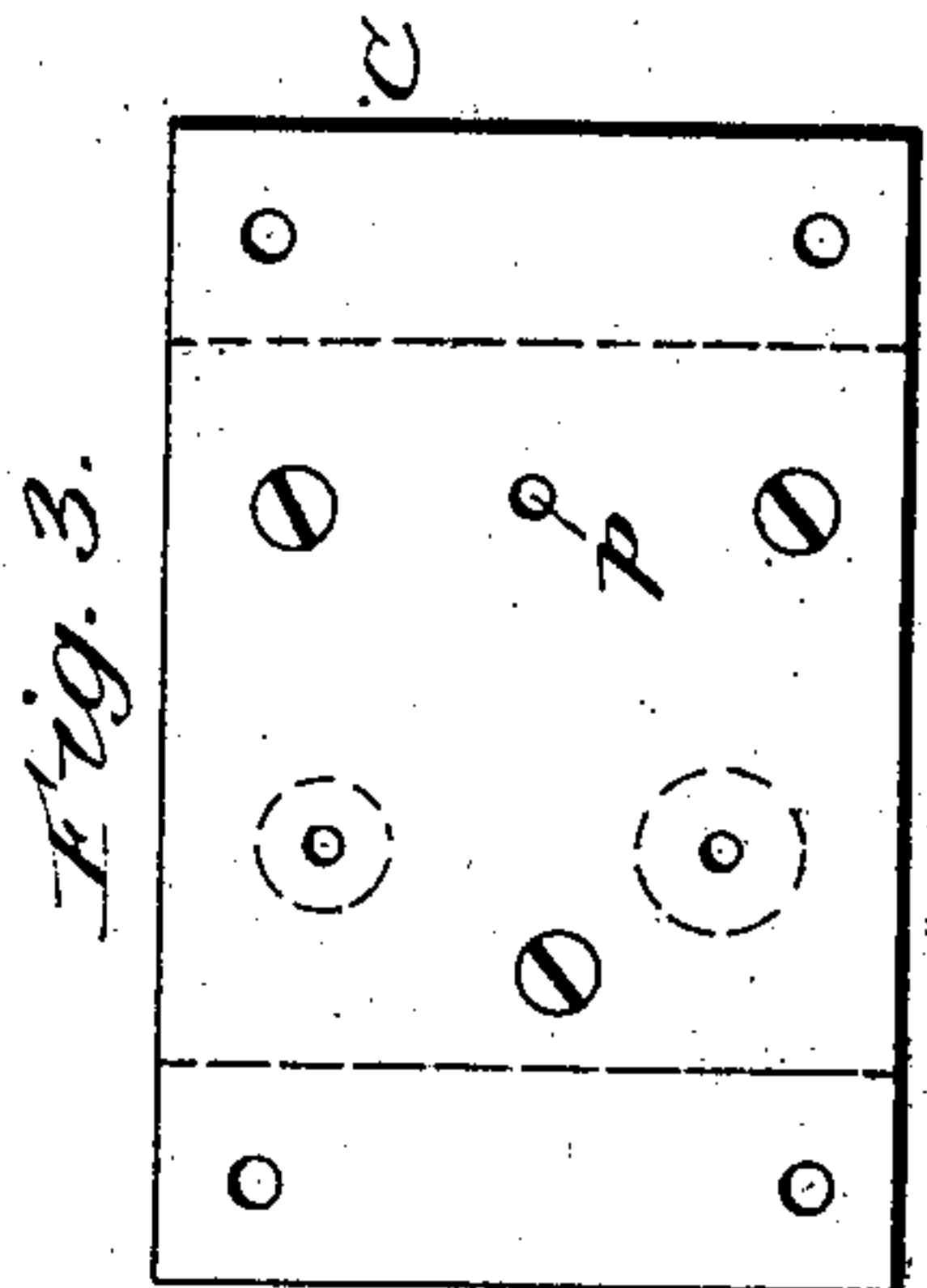
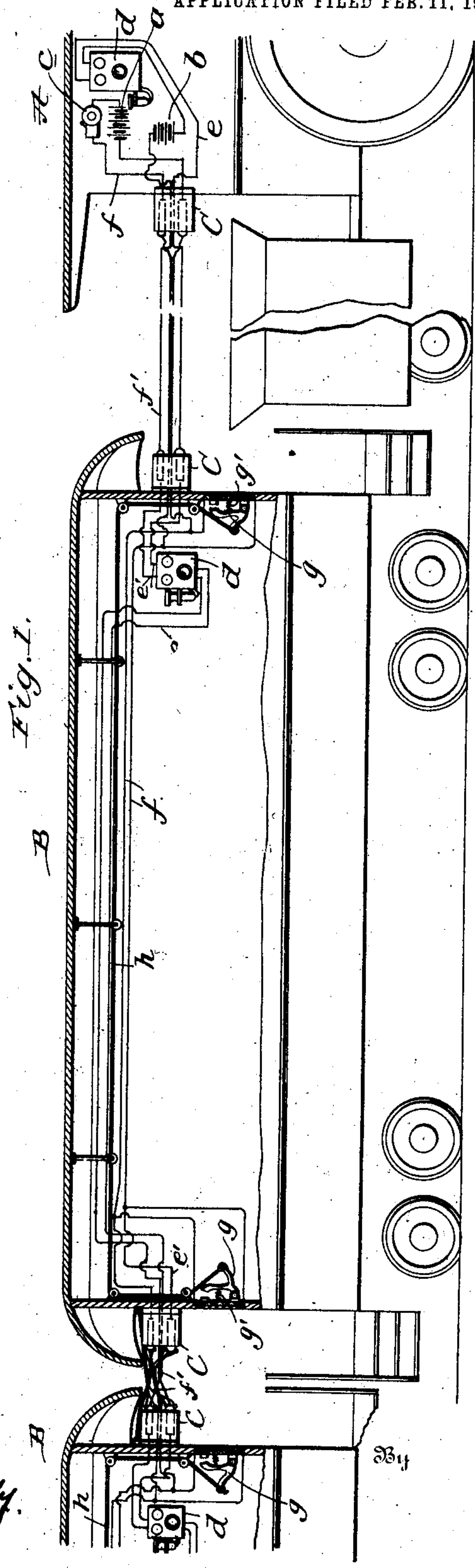
B. W. SPECK.

TELEPHONE AND SIGNAL APPARATUS FOR RAILWAY TRAINS.

APPLICATION FILED FEB. 11, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
E. A. Rader
M. C. Skaly

Inventor
B. W. Speck
James Sheehy
Attorney

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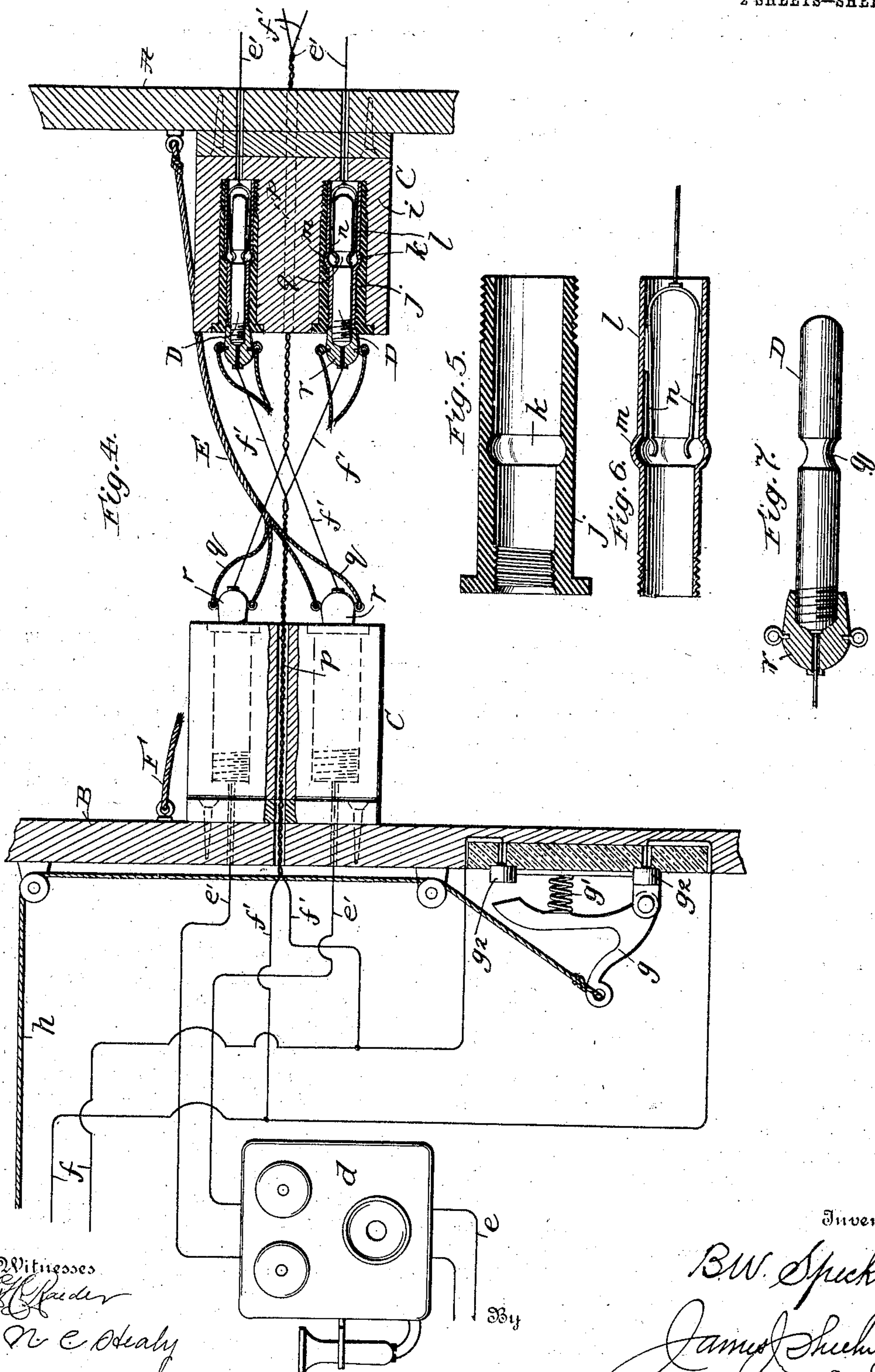
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Inventor

BW. Speck.

James J. Sheehy
Attorney

Attorney

UNITED STATES PATENT OFFICE.

BENJAMIN W. SPECK, OF UHRICHSVILLE, OHIO.

TELEPHONE AND SIGNAL APPARATUS FOR RAILWAY-TRAINS.

SPECIFICATION forming part of Letters Patent No. 768,547, dated August 23, 1904.

Application filed February 11, 1904. Serial No. 193,159. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN W. SPECK, a citizen of the United States, residing at Uhrichsville, in the county of Tuscarawas and State of Ohio, have invented new and useful Improvements in Telephone and Signal Apparatus for Railway-Trains, of which the following is a specification.

My invention pertains to means for enabling a party in any car of a railway-train to signal and converse with the locomotive-driver of the train; and its novelty, utility, and practical advantages will be fully understood from the following description and claims when taken in connection with the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view, partly in side elevation and partly in longitudinal vertical section, of so much of a railway-train as is necessary to illustrate the application of the preferred embodiment of my invention. Fig. 2 is a front elevation of one of the coupling-boxes comprised in my novel apparatus, the same being shown on an enlarged scale. Fig. 3 is a rear elevation of said coupling-box. Fig. 4 is an enlarged view, partly in side elevation and partly in vertical section, illustrative of the electrical connections between two cars. Fig. 5 is an enlarged sectional view of one of the insulating-sleeves comprised in each coupling-box. Fig. 6 is a similar view of the metallic bushing or lining contained in said sleeve, and Fig. 7 is a view of the plug used in conjunction with the said bushing or lining for effecting electrical connection between two cars of a train.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which—

A is the locomotive, and B.B the cars of a railway-train equipped with my novel apparatus. The equipment of the locomotive preferably comprises two batteries *a b*, an electric bell *c*, a telephone *d*, telephone-circuit wires *e*, and bell-circuit wires *f*, all of which are located in the locomotive-cab, together with a coupling-box C, situated by preference at the rear side of the cab.

The equipment of all the cars of the train

is similar, and therefore a detailed description of the apparatus carried by the car next to the locomotive will suffice to impart an understanding of all. The said apparatus comprises coupling-boxes C, located on the ends of the car, a telephone *d*, arranged in the car, telephone-circuit wires *e*, bell-circuit wires *f*, circuit-closing levers *g*, arranged in the bell-circuit and normally held open by springs *g'*, and a bell-rope *h*, connected to the said levers *g* and designed to enable a person in any part of the car to readily close the bell-circuit, and thereby ring the bell *c* in the locomotive-cab.

In the preferred embodiment of my invention each of the coupling-boxes C comprises a block *i*, of wood or other suitable material, connected to the locomotive-cab or to one of the cars, sleeves *j*, preferably of rubber, fixed by screw-threads or other means in the block and having interior annular grooves *k*, metallic bushings or linings *l*, arranged in the sleeves *j* and having circumferential projections *m*, disposed in the grooves *k* of the sleeves, whereby they are held against endwise movement, and also having resilient contact-pieces *n*, wires *e'*, connected to the spring contact-pieces, and wires *f'*, extending through an opening *p* in the block *i*. The wires *e'* are connected to and form continuations of the telephone-circuit wires *e*, and the wires *f'* are connected to and form continuations of the bell-circuit wires *f*.

D D, Fig. 4, are metallic plugs designed to be inserted in the metallic bushings or linings of the coupling-boxes and having grooves *q* to seat the free ends of the contact-pieces *n*; E, a cable connected to one car or to the locomotive-cab, as the case may be, and having diverging branches *q*, connected by couplings *r*, Fig. 7, to one pair of plugs D, and F a similar cable connected to the adjoining car and having diverging branches connected by couplings *r* to the other pair of plugs, as best shown in Fig. 4. The pair of plugs carried by the car or the locomotive at the right of Fig. 4 are connected to the bell-circuit wires *f'*, while the pair of plugs carried by the car at the left of said figure are connected to the telephone-circuit wires *e'*. From this it follows that when the second-mentioned pair of

plugs are placed in their complementary bushings or linings l the telephone-circuits between the two cars or between a car and a locomotive will be completed, while when the first-mentioned pair of plugs are placed in their complementary bushings or linings l the bell-circuit between two cars or between a locomotive and an adjoining car will be completed. The cables F serve to connect the plugs D to their respective cars and also serve to remove tension from the wires e' f' , and thereby lessen the liability of the said wires being broken or deranged when a train is in motion.

The circuit-closing levers g are arranged in the bell-circuit, as are also complementary contact-pieces g^2 , and the ropes h , connected to the said levers, extend throughout the length of the cars and over sheaves arranged on the end walls of the cars and hung from the roofs thereof, as shown in Fig. 1.

In virtue of the construction described it will be observed that when a person in any one of the cars of a train desires to signal the locomotive-engineer he has but to pull the rope h . With this done, the bell-circuit will be closed through the medium of the levers g and the armature of the bell in the locomotive-cab actuated. When a member of the train crew or any other person in any one of the cars of the train desires to converse with the engineer, he has but to use the telephone in the car in the ordinary well-known manner.

My novel apparatus is applicable to freight as well as passenger trains, and when so applied telephones are placed in the locomotive-cab and the caboose. The coupling-boxes C are arranged on the cars adjacent to the couplings, and circuit-closing devices arranged in the bell-circuit are located at the end of each car near the top thereof. In virtue of this provision a member of the crew in the caboose is enabled to communicate with the engineer in the locomotive-cab and is also enabled to ring the signal-bell in the cab for the purpose of starting or stopping the train. It will also be observed that a member of the crew on any one of the cars of the train is enabled to close the bell-circuit and ring the signal-bell in the locomotive-cab when an emergency arises.

The cables E F serve in addition to holding the plugs D as a convenient means through the medium of which the said plugs may be quickly and easily pulled from their respective coupling-boxes, as when the cars are uncoupled, without injury to the circuit-wires.

Obviously the circuit-wires may be left uncovered, as shown, or may be covered with insulating material, as desired, without involving a departure from the scope of my invention.

I have entered into a detailed description of the construction and relative arrangement

of the parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be understood as confining myself to such specific construction and relative arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my invention as claimed.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a telephone and signal apparatus for railway-trains, the combination of a locomotive, a car, an electric bell arranged in the locomotive, a telephone also arranged in the locomotive, a telephone located in the car, a circuit-closer also located in the car, a coupling-box carried by the locomotive and having contacts in circuit with the signal-bell, a coupling-box carried by the car and having contacts in circuit with the car-telephone, contact-pieces carried by the car and arranged in circuit with the circuit-closer thereof, and adapted to be engaged with the contact-pieces of the coupling-box on the locomotive, and contact-pieces carried by the locomotive and arranged in circuit with the locomotive-telephone, and adapted to be placed in engagement with the contact-pieces of the coupling-box on the car.

2. In a telephone and signal apparatus for railway-trains, the combination of a locomotive, a car, an electric bell arranged in the locomotive, a telephone also arranged in the locomotive, a telephone located in the car, a circuit-closer carried by the car, a coupling-box carried by the locomotive and having bushings in circuit with the electric bell, plugs carried by the car and arranged in circuit with the circuit-closer thereof; said plugs being adapted to be placed in the bushings of the coupling-box on the locomotive, plugs carried by the locomotive and arranged in circuit with the locomotive-telephone, and adapted to be placed in engagement with the bushings of the coupling-box on the car, a cable connecting the plugs of the locomotive to the locomotive, and a cable connecting the other plugs and the car.

3. In an apparatus for the purpose described, the combination of two cars, a coupling-box carried by one car and having conductive bushings, plugs carried by the other car and adapted to be placed in the bushings of the coupling-box, and a cable connecting the plugs and the last-mentioned car.

4. In an apparatus for the purpose described, the combination of a locomotive and a car, coupling-boxes arranged thereon and having conductive bushings, plugs adapted to be placed in the bushings of the coupling-box on the car, a cable connecting the said plugs and the locomotive, plugs adapted to be placed in

the bushings of the coupling-box on the locomotive, and a cable connecting the latter plugs and the car.

5 The combination in an apparatus for the purpose described, of a locomotive, a car, coupling-boxes arranged on the locomotive and car, and having bores for the passage of wire, and also having bushings containing
10 metallic contact-pieces adapted to be connected with wires, plugs adapted to be placed in the bushings of the coupling-box on the locomotive, a cable connected to the car and having diverging branches connected to the said
15 plugs, plugs adapted to be placed in the bushings of the coupling-box on the car, and a cable connected to the locomotive and having diverging branches connected to the latter plugs.

20 6. In an apparatus for the purpose described, the combination of two cars, coupling-boxes arranged on the cars and having conductive bushings, a telephone located in one car and arranged in circuit with the conductive bush-

ings in the coupling-box thereof, an electric bell in said car, a circuit-closer located in the
25 car and arranged in circuit with the electric bell thereof, means for closing the circuit through the medium of the circuit-closer, plugs carried by said car and arranged in circuit with the electric bell, a telephone located
30 in the other car and in circuit with plugs carried thereby, the said plugs, an electric bell located in the latter car and arranged in circuit with the bushings in the coupling-box thereof, a circuit-closer located in the latter
35 car and arranged in circuit with the electric bell thereof, and means for closing the circuit through the medium of the circuit-closer.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 40

BENJAMIN W. SPECK.

Witnesses:

NETTIE MILLS,

WILLIAM D. BRADSHAW.