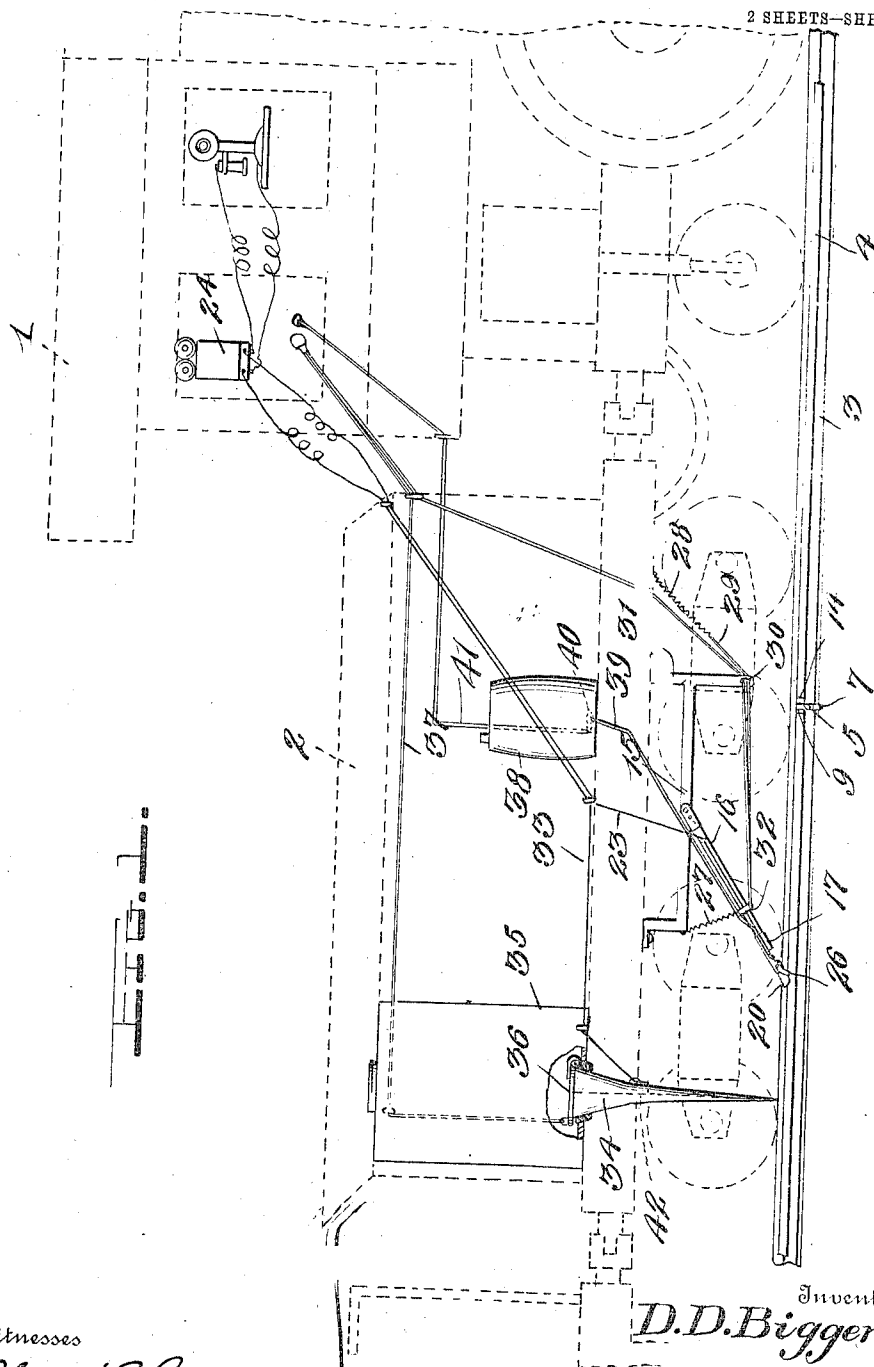


1,038,832.

D. D. BIGGERS.
RAILWAY TELEPHONE.
APPLICATION FILED MAY 27, 1911.

Patented Sept. 17, 1912.

2 SHEETS—SHEET 1.



Witnesses

Chas. R. Grieshaber.
H. F. M. Quay.

By

Watson E. Coleman.

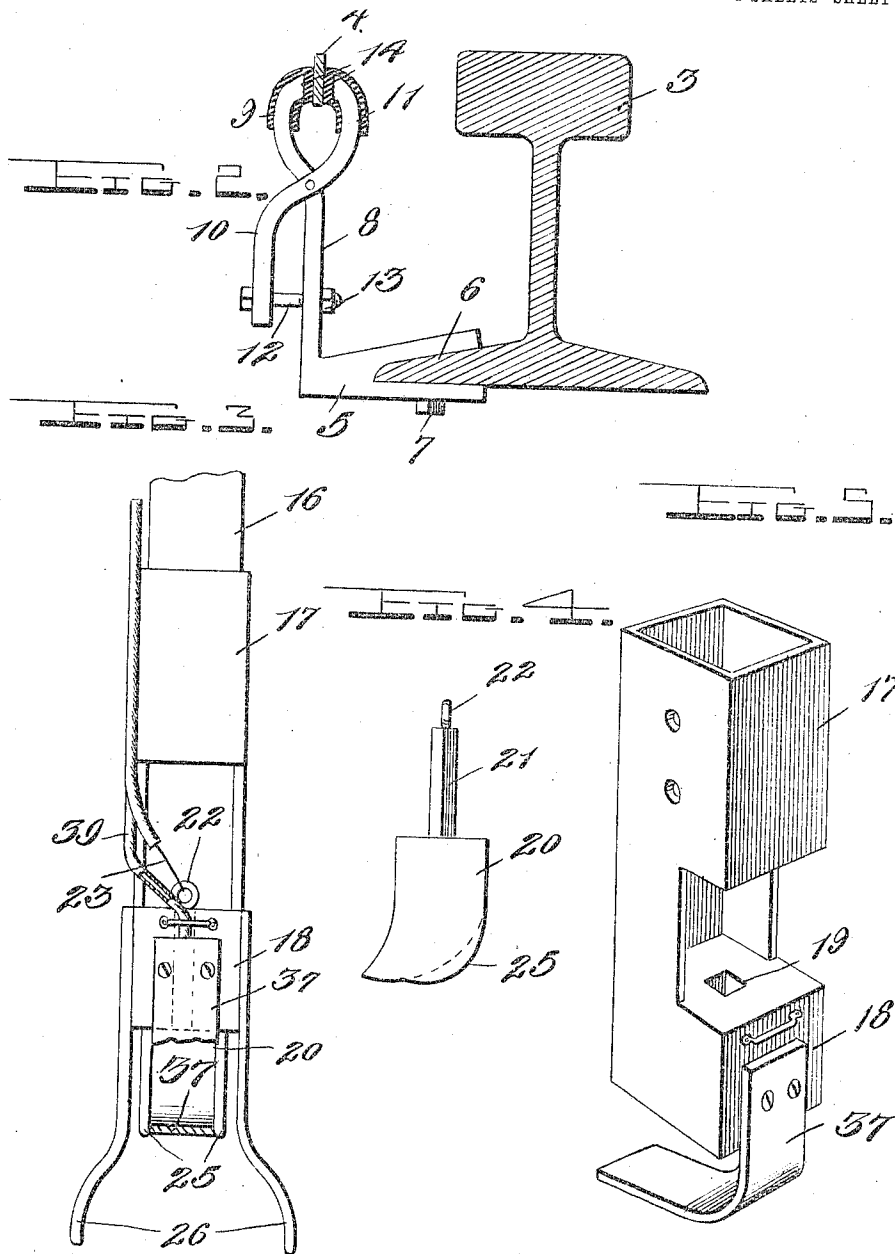
Attorney

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UNITED STATES PATENT OFFICE.

DENNIS D. BIGGERS, OF MAY, OKLAHOMA.

RAILWAY-TELEPHONE.

1,038,832.

Specification of Letters Patent.

Patented Sept. 17, 1912.

Application filed May 27, 1911. Serial No. 629,755.

To all whom it may concern:

Be it known that I, DENNIS D. BIGGERS, a citizen of the United States, residing at May, in the county of Harper and State of Oklahoma, have invented certain new and useful Improvements in Railway-Telephones, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to new and useful improvements in telephone systems and more particularly to a railway telephone, and my object is to provide means in connection with a moving train whereby the same may have communication with another train or station.

A further object resides in providing a device adapted for connection with a locomotive tender, whereby the operator of the locomotive may use the system for signaling purposes.

A further object of the invention resides in providing an electrical conductor secured in the line of track rails, and a still further object is to provide a current collector pivotally carried on a movable object and adapted for engagement with said current conductor.

Another object of the invention resides in providing an improved means for securing said current conductor to the rails, and a further object is to provide means for holding the current collector normally out of contact with the current conductor and means to position said collector in engagement with said conductor when desired.

A still further object of the invention resides in conducting the current to the ground by means of water.

A still further object of the invention is to provide a device which is simple in construction, easily applied and operated, and one which is extremely effective in operation.

With these and other objects in view, my invention consists in the novel features of construction, combination and arrangement of parts as will be hereinafter referred to and more particularly pointed out in the specification and claims.

In the accompanying drawings forming a part of this application, Figure 1 is a side elevation showing my invention applied to use. Fig. 2 is a transverse section through the rail showing the means for securing the conductor thereto. Fig. 3 is a front eleva-

tion of the arm carrying the current collector. Fig. 4 is a side elevation of the current collector removed, and, Fig. 5 is a detail perspective of the insulated sleeve removed from the pivoted arm.

In carrying out my invention, I shall refer to the drawings in which similar reference characters designate corresponding parts throughout the several views and in which 1 indicates a locomotive cab and 2 the tender for the locomotive, said locomotive and tender being run on the usual or any preferred form of rail 3. Extending longitudinally the full length of the rail, or any desired distance, is a current conductor 4 which may comprise a rod or flat wire, which is held in position and secured to the rail by means of an improved clamping device. This clamping device comprises the bifurcated member 5, the arms of which are adapted to be engaged with the upper and lower faces of the base flange 6 of said rail, and one of said arms is provided with a locking bolt 7 which is adapted to be turned into engagement with said base flange, whereby said member may be securely held to the rail. The member 5 is provided with a substantially vertical arm 8 and the upper portion is bent out of alignment with the general trend thereof to form a jaw or the like 9, and pivotally engaged with said arm 8 is an additional cross arm 10 designed similarly to the arm 8 and is also provided with a jaw 11 at the upper end thereof.

The arms 8 and 10 are provided with openings which, when said arm 10 is positioned so that the jaws 9 and 11 are substantially closed, are alining, and adapted to extend through the alining openings, is a bolt 12, the outer end of which is threaded to receive a nut 13, so that when said nut is properly positioned on the bolt 12, the jaws 9 and 11 of the arms will be closed to securely lock the current conductor therebetween. In this manner, said conductor may be carried throughout the length of the rails or for any distance desired, and in order to prevent the grounding of the circuit, an insulation 14 of rubber or any desired material is provided on the effective faces of the jaws 9 and 11 to engage the conductor 4. Secured to the bottom of the tender 2 in any desired manner is a metallic frame 15, to which is pivotally engaged the upper end of a lever or arm 16, and to the lower end

of said lever or arm 16 is secured an insulated sleeve 17. This sleeve has a portion of one wall thereof cut away, and the lower portion of said sleeve is formed solid, as shown at 18, through which solid portion extends an opening 19, and a current collector 20 has an upwardly extending stem 21 formed on the upper portion thereof which extends through the opening 19 in the solid portion 18 of said sleeve. The stem 21 is provided on its free end with an eye 22 which is engaged by one end of a wire 23, which wire extends upwardly along the side of said lever 16 and connects with the usual or any preferred form of phone box 24 mounted, as I have shown in the drawings, in the cab 1 of the locomotive, but it will be understood that said box may be mounted in any desired place on the train. The wire 23 has its exposed portion covered with the usual form of insulation, and as said wire is drawn somewhat taut, the current collector 20 will be held in position adjacent the solid portion 18 on the sleeve 17. This current conductor 20 has its effective or engaging face somewhat convexed, and the sides thereof are provided with the lugs 25 to prevent the collector from jumping the conductor 4 in case of any lateral movement and secured to the side walls of the sleeve 17 are the insulated guards or finders 26 which depend to opposite sides of the conductor 4 and prevent any appreciable lateral movement of the lever. The frame 15 has also engaged therewith one end of a coil spring 27, the opposite end of said spring being engaged with said lever 16, so that said lever is held normally in upward position and out of engagement with the current conductor 4, but I have provided means for manually disposing said lever in effective position when desired. To this extent, an additional coil spring 28 is provided and has one end thereof engaged with the bottom of the tender 2 and the opposite end connected with a cable 29, said cable being extended through an opening 30 in an extension 31 of the frame 15 and then extended through an eye 32 carried on the lever 16. The cable is then returned through the opening 30 and guided in any desired manner to a convenient point in the cab 1, whereby the operator may, at will, draw upon the cable and force the lever downwardly. It is, of course, understood that the conductor 4 is extremely smooth and will cause no obstruction whatsoever to the current collector carried by the lever, but it will be seen that should, for any reason whatsoever, there be any obstacle in the path of said lever, the same may yield and ride thereover, in view of the spring 28. The end of the cable 29, extended to a convenient point in the cab of the locomotive, may be engaged with any desired form of catch mechanism, so that

the operator may force the current collector into engagement with the conductor with more or less force, as desired, and retain the same in such position.

As before stated, the wire 23 extends upwardly from the lever 16 to the phone box 24, and also extending from said phone box is a ground wire 33 which is guided in any desired manner to the rear portion of the tender 2, where it is extended within a funnel member 34 carried on said rear portion of the tender and insulated therefrom. This funnel member is secured to the bottom of said tender and leads from a water tank 35 therein, said funnel member being provided with a hinged cap or valve 36 which is normally closed and prevents the exit of the water from the tank 35 through said member, and in order to provide for the opening of said valve or cap 36, a cable or the like 37 is extended therefrom and guided in any desired manner to a convenient point in the cab of the locomotive, so that the operator at any time may draw upon the same and open the valve 36 to allow the water from the tank to flow through said funnel member. The wire 33 which, as stated before, is extended within the funnel member 34, does not extend completely therethrough and in engagement with the ground, so that when it is desired to conduct the current to the ground, the water is allowed to pass through said funnel member which will carry the current therewith and accomplish the result.

Although I have described the member 20 as a current collector which is carried by the portion 18 of the sleeve and adapted to collect the current from the conductor 4, it must be here stated that a pad or the like 37' formed of such material as sponge is carried by the front face of said portion 18 and bent therebelow to be received between the lugs 25 of said member 20. This pad 37' is adapted to be moistened with water, whereby the current from the conductor may be more readily passed to the collector 20 without being broken, and in order to provide means for the moistening of said pad, a barrel or tank 38 of any desired size, may be provided and carried by the tender 2, said tank 38 having a tubular member 39 leading therefrom to a point immediately adjacent the point where said pad is secured to the member 18. This tubular member 39 extends for a portion of its length along the side of the arm 16, as does the wire 23, and at the point wherein the member 39 leads to the tank 38, a valve or the like 40 is provided which is operated by means of a connection 41 which extends to the cab, whereby when the operator desires to allow the water from the tank to flow through said tubular member 39 to the pad 37', the same may be accomplished by merely drawing

upon the connection 41. Thus, by means of this valve connection, the water from the tank will not be wasted and when the moistened pad is in contact with the conductor, the current from said conductor to said collector will be unbroken. Thus, by using water for both connections between the phone and the conductor, the current flows practically in a solid volume and is not adapted to be readily broken, thereby preventing the stuttering effect which is usually prevalent in phones of this type.

In my drawings and the specification, I have shown and stated that the various parts of the device are secured to the tender of the locomotive and the cab thereof, but it will be readily understood that this was done particularly for convenience and that the parts of the device may be easily and readily applied to any portion of the moving train whatsoever without affecting the results and the advantages of the invention.

In the drawings I have shown this device as applied to but one rail but it will be understood that the same may be applied to both rails and of course under these conditions a duplication of the matter shown will occur.

In practice, it will be seen that if the device is connected to the tender and cab of the locomotive, as I have shown in my drawings, a head gear may be provided for the engineer or operator of the locomotive, which head gear carries the receiver, so that said operator may continually be in position to receive any message delivered, and in this connection, the customary portable stand of the desk type carrying the transmitter may be provided. In this manner, the operator, having the receiver to his ear, will receive all messages at any time the current collector is moved in position to engage the conductor, and all messages which he may deliver through the transmitter will be carried to the conductor and received by any of the other operators in communication with said conductor, whether they be on moving trains or at stations on the circuit.

Of course, it will be understood that it is not necessary to have the conductor extend the full extent of the line, as such a feature would doubtless be expensive to some railroads, but if desired, this conductor may be provided for a considerable distance on both sides of a switch or the like, and thus, engineers of the various trains may enter into communication with one another as well as the operator at the station, so as to prevent serious accidents at such points.

From the foregoing, it will be seen that I have provided a simple, inexpensive and efficient means for carrying out the numerous objects of the invention and while the elements described are believed to be well adapted to perform the functions set forth,

it is obvious that various changes in form, proportion and in the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the principles of the invention.

What I claim is:—

1. In a telephone or signaling system for railways, the combination with a pair of rails and a current conductor extending therealong, of an object adapted to move on said rails, line and ground wires carried by said object, one end of the ground wire being carried to a point just above the surface of the ground; means to collect the current from said conductor and transmit the same to said line wire, and additional means to conduct a stream of water over the free end of the ground wire.

2. In a system of the class described, the combination with a pair of rails and a current conductor extending therealong; of an object adapted to move on said rails, a lever pivotally engaged with said object, an insulated sleeve carried on the free end of said lever, a current collector removably mounted on said sleeve, line and ground wires carried by said object, said line wire having connection with said current collector, means to retain said lever in its raised and inoperative position, and additional means manually operable from the object to lower said lever and the collector into engagement with said current conductor.

3. In a system of the class described, the combination with rails and a current conductor extending therealong; of a car adapted to move on said rails, a lever pivotally carried on the bottom of said car, an insulated sleeve secured to the free end of said lever, a current collector removably mounted on said sleeve and line and ground wires carried by the car, said line wire having connection with said current collector, means to normally retain said lever in its raised position, additional means manually operable from the car to lower said lever and the collector into engagement with said current conductor; and means carried on said sleeve to prevent the collector from being disengaged from the conductor through any lateral movement of the lever.

4. In a system of the class described, the combination with rails and a current conductor extending therealong; of a car movable on said rails, line and ground wires carried by said car, means to collect the current from said conductor and transmit the same to said line wire, a hollow member carried by said car in which said ground wire terminates, and means to supply water to said member to conduct the current from the last referred to wire to the ground.

5. In a system of the class described, the combination with rails and a current conductor extending therealong; of a car mov-

able on said rails, line and ground wires carried by said car, means to collect the current from said conductor and transmit the same to said line wire, a funnel member 5 carried by said car into which said ground wire extends and terminates, and means to supply water to said funnel member to conduct the current from the wire there- within to the ground.

10 6. In a system of the class described, the combination with rails and a current con- ductor extending therealong; of a car mov- able on said rails, line and ground wires carried by the car, one end of the ground 15 wire extending to a point just above the surface of the ground; means to collect the current from said conductor and transmit the same to said line wire, means to supply water to said current collecting means, and 20 means to direct a stream of water over the free end of said ground wire.

7. In a system of the class described, the combination with a pair of rails and a cur- rent conductor extending therealong; of a car movable on said rails, line and ground wires carried by the car, a pivoted lever 25 carried by said car, a current collector car-

ried by the lever having connection with said line wire, means to supply water to said current collector, means to retain the 30 lever in raised position, and additional means to lower said lever and the current collector into operative position.

8. In a system of the class described, the combination with rails and a current con- 35 ductor extending therealong; of an object movable on said rails, ground and line wires carried by the object, a lever having one end thereof pivotally engaged with said object, a current collector carried by the 40 free end of said lever, a pad also carried by the lower end of said lever and contacting with the effective lower face of the current collector, means to supply water to said pad, and means to lower said lever to corre- 45 spondingly lower the pad into engagement with the current conductor.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

DENNIS D. BIGGERS.

Witnesses:

GEORGE POWELL,
L. S. KNOTT.