J. F. O'BRIEN.

TELEPHONE FOR AUTOMOBILES.

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1,182,926. Patented May 16, 1916.

Fig. 1.

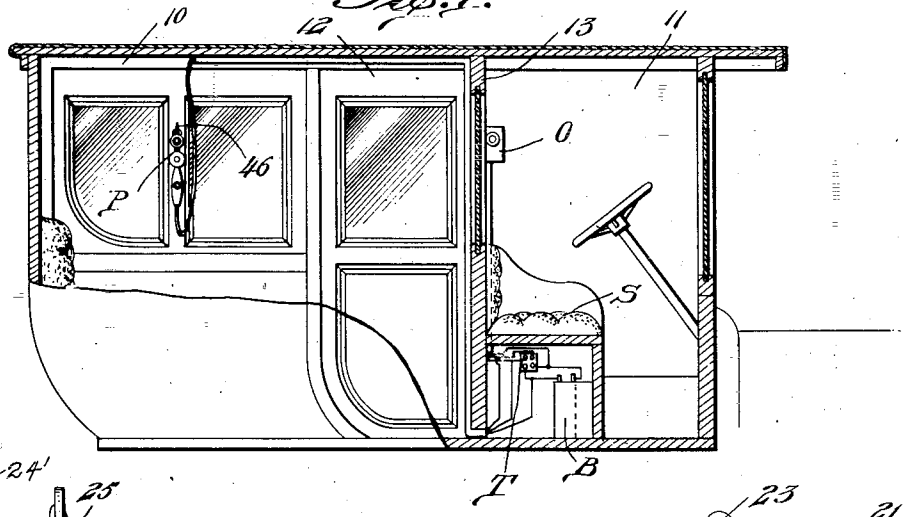


Fig. 2.

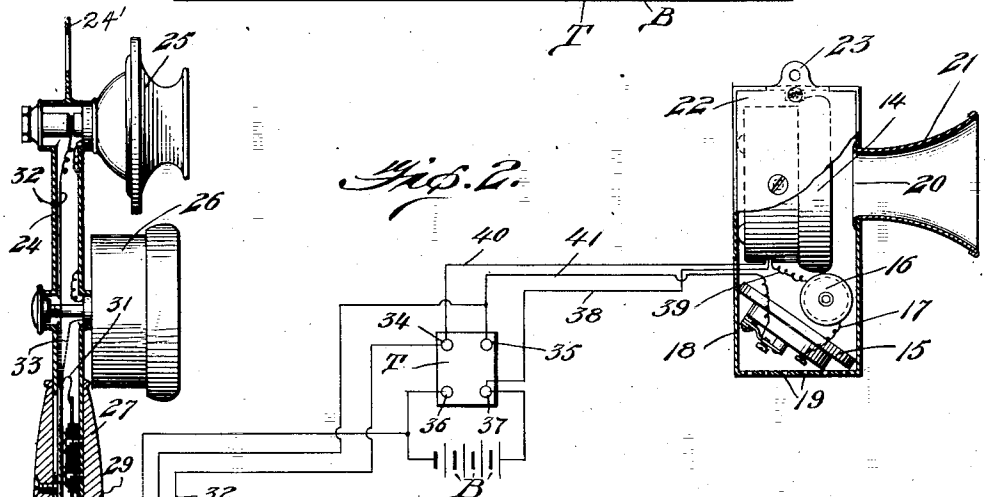
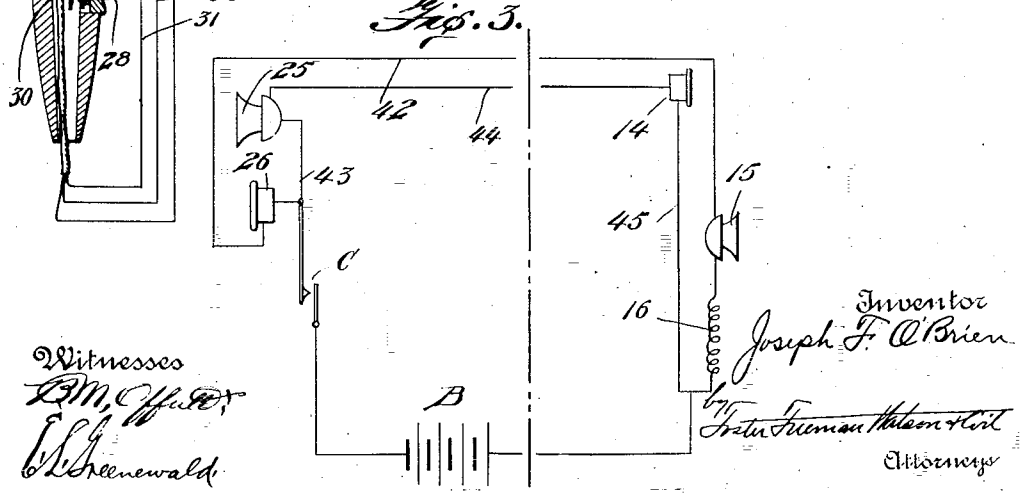


Fig. 3.



Witnesses

E. L. Greenewald

Inventor

Joseph F. O'Brien

by Foster Freeman Watson & Coit

Attorneys

UNITED STATES PATENT OFFICE.

JOSEPH F. O'BRIEN, OF NEW YORK, N. Y.

TELEPHONE FOR AUTOMOBILES.

1,182,926. Specification of Letters Patent. Patented May 16, 1916.

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To all whom it may concern:

Be it known that I, JOSEPH F. O'BRIEN, a citizen of the United States, and resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Telephones for Automobiles, of which the following is a specification.

This invention relates to a telephone set for use on a limousine or other vehicles.

The principal object of the invention is to provide a simple intercommunicating system whereby the passenger and operator of the vehicle may communicate with one another.

Heretofore the wind, street noises, and other causes have prevented the proper transmission of the communication from the passenger to the operator, and one of the objects of the invention is to provide an instrument accessible to the operator which will transmit in a loud and clear tone the orders or other information given by the passenger.

The device comprises broadly speaking a portable telephone set in the passenger compartment and a permanently mounted telephone set in the operator's compartment connected together and to suitable current supply source by suitable wiring. The instruments in the operator's compartment are mounted within a casing which has a single trumpet serving as a mouth piece and ear piece.

The objects and novel features of the invention will be apparent from the following description, taken in connection with the drawing, in which—

Figure 1 is a side elevation of an automobile body partly in section showing the same equipped with a telephone set constructed according to the present invention; Fig. 2 is a diagrammatic view of the connections, together with enlarged sectional views of the instruments in the compartments; and Fig. 3 is a simplified diagram of the circuits connecting the instruments.

Referring to Fig. 1 of the drawing 10 designates an automobile vehicle body of any ordinary or preferred type which has an operator's compartment 11 at the front which is open at the sides and closed at the front and rear and a completely inclosed passenger compartment 12 at the rear, the compartments being separated by the partition 13. In the operator's compartment, there is a telephone set O which is connected to the telephone set P in the passenger compartment by means of suitable wiring, the batteries B and terminal board T being mounted beneath the seat S in the operator's compartment or at any other suitable place about the automobile.

The telephone set O in the operator's compartment 11 comprises a double pole electromagnetic receiver 14 of any approved type, a carbon diaphragm transmitter 15 of any suitable construction and an impedance coil 16 connected in series with the transmitter 15 by the wire 17. The receiver 14, transmitter 15, and impedance coil 16 are inclosed within a rectangular sheet metal casing 18 which has perforations 19 at one end thereof. Opposite the mouth piece of the receiver 14 there is an opening 20 in the casing 18 and a trumpet 21 is attached at and surrounds the said opening and forms a mouth piece and ear piece for the set inclosed within the casing. From the foregoing it will be seen that the trumpet 21 serves both as a mouth piece and as an ear piece and the loud speaking receiver 14 being directly in line with the trumpet will have the vibrations thereof amplified by the trumpet 21. The receiver 14 and impedance coil 16 are attached to a cover 22 which closes the box 18 and has ears 23 at each end so that it may be attached to the partition or any other suitable place in the operator's compartment. The receiver 14 and impedance coil 16, being attached to the cover, may be lifted out therewith when the cover is removed from the casing 18.

The receiver 14 rests against the rear wall of the casing 18 and is disposed a slight distance from the front wall so that when the operator speaks into the trumpet 21 the sound vibrations will reach the transmitter 15, the sheet metal box 18 acting as an amplifier of the sound waves. However, the perforations 19 are necessary in order to obtain the proper tone in the transmitter and to prevent roaring noises in the passenger's receiver due to resonance. The impedance coil 16 in series with the transmitter 15 eliminates certain vibrations in the passenger's receiver and prevents whistling and such foreign noises in the instrument.

The passenger's portable telephone set P comprises a tubular metal stem 24 provided with an eye 24′ at its upper end. The stem 24 has the transmitter 25 mounted near the

upper end thereof and a receiver 26 directly below the transmitter. Attached at the lower end of the tubular stem 24 there is an insulated handle 27 which carries the push button 28 resting against the circuit closer spring 29. The circuit closer spring 29 cooperates with the spring 30 so that the holder of the set can readily open and close the circuit and send a signal to the chauffeur or operator when he desires to communicate with the latter. The spring 29 is grounded on the metal stem 24 and one side of each of the instruments 25 and 26 is also grounded on the said stem, the spring 30 being insulated from the spring 29 and electrically connected with the wire 31 which leads to the battery B. The wires 32 and 33 connected to the transmitter 25 and receiver 26 are respectively connected to the terminal posts 34 and 35 on the terminal block T.

The battery B is connected to the terminal posts 36 and 37 on the terminal block T and a common wire 38 is connected to a terminal post (not shown) within the casing of the receiver 14, the wire 39 leading to the impedance coil 16 also being connected to said terminal post. The wire 40 leads from the terminal post 34 to the loud talking receiver 14 and the wire 41 leads from the terminal post 35 to the transmitter 15.

A simplified diagram of the connections is shown in Fig. 3. In this diagram, it will be seen that the transmitter 15, impedance coil 16, and battery B are connected in series with the receiver 26 of the passenger's telephone set when the circuit closer C is depressed. The conductor 42 connects the receiver 26 and transmitter 15. The transmitter 25 of the passenger's set and the loud talking receiver 14 of the operator's set are connected by wires 43, 44 and 45 in shunt with the series circuit above described, and both the shunt and series circuit are controlled by the circuit closer C. The impedance coil 16 therefore only affects the transmitter circuit of the operator when he communicates with the passenger.

From the foregoing description the operation of the device will be apparent. When the passenger desires to communicate orders or converse with the chauffeur or operator of the vehicle, the hand set is removed from the hook 46 or other suitable place where it may be kept, and by pressing the button 28 transmits a click to the receiver 14 to call the operator's attention, the circuit being closed, and under the control of the passenger. Conversation may be carried on in both directions and when completed the spring 29 automatically opens the circuit.

It will be seen that a simple and satisfactory telephone set is provided which permits intercommunication between the passenger and operator compartments providing an instrument at the operator's position which will have a particularly loud tone and providing an equipment in which the set at the operator's position is provided with a common mouth piece and ear piece.

As modifications within the scope of the claims are contemplated, it is not intended to limit the arrangement to the exact details as shown and described.

Having thus described my invention, what I claim is:

1. In a vehicle provided with a passenger compartment and an operator's compartment, a means for inter-communication between said compartments comprising a perforated casing mounted in the operator's compartment, a common mouth and ear piece for said casing, a transmitter and a loud speaking receiver within the casing, an impedance coil within said casing and in series with the transmitter therein, transmitting and receiving means in the passenger compartment, current supply means, and suitable connections between said current supply means, transmitters and receivers.

2. In a telephone system, the combination of a pair of stations, a transmitter and receiver located at each of said stations, an impedance coil connected in series with only one of said transmitters, current supply means and means for controlling the interconnection of said current supply means, transmitters and receivers.

3. In a telephone system for automobiles, the combination of a circuit comprising a transmitter, a receiver, an impedance and a battery connected in series, a second transmitter and a loud talking receiver connected in shunt circuit with said first mentioned circuit, the second transmitter being associated with the first mentioned receiver and said loud talking receiver being associated with the firstmentioned transmitter, and means for controlling the flow of current in both circuits, said impedance coil being so connected that it impedes the flow of current in the first mentioned circuit and allows a larger flow of current to the loud talking receiver.

4. In a telephone system for an automobile the combination of a transmitter, a receiver, a second transmitter, a second receiver, an impedance connected to said second transmitter and to said second receiver only, means electrically connecting said first mentioned transmitter and second receiver, means electrically connecting said first mentioned receiver and second transmitter, current supply means electrically connected with both transmitters and both receivers, and a normally open switch for controlling the connection of the current to said receivers and transmitters.

5. In a telephone apparatus of the class described, the combination of a metal casing

having an opening in a side wall thereof and perforations in an end wall thereof, a mouth and ear piece mounted in the opening in said side wall, a receiver located in the casing directly opposite said opening and mouth and ear piece, a transmitter within the casing adjacent said perforated wall, and an impedance coil in said casing and connected in circuit with said transmitter and receiver.

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

JOSEPH F. O'BRIEN.

Witnesses:

DANIEL O'BRIEN,

BENJAMIN W. READ.