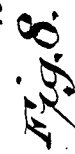


1,060,851.

3 SHEETS—SHEET 1.



B. Bradley

Fig. 1.

 $\mathfrak{B}_f$

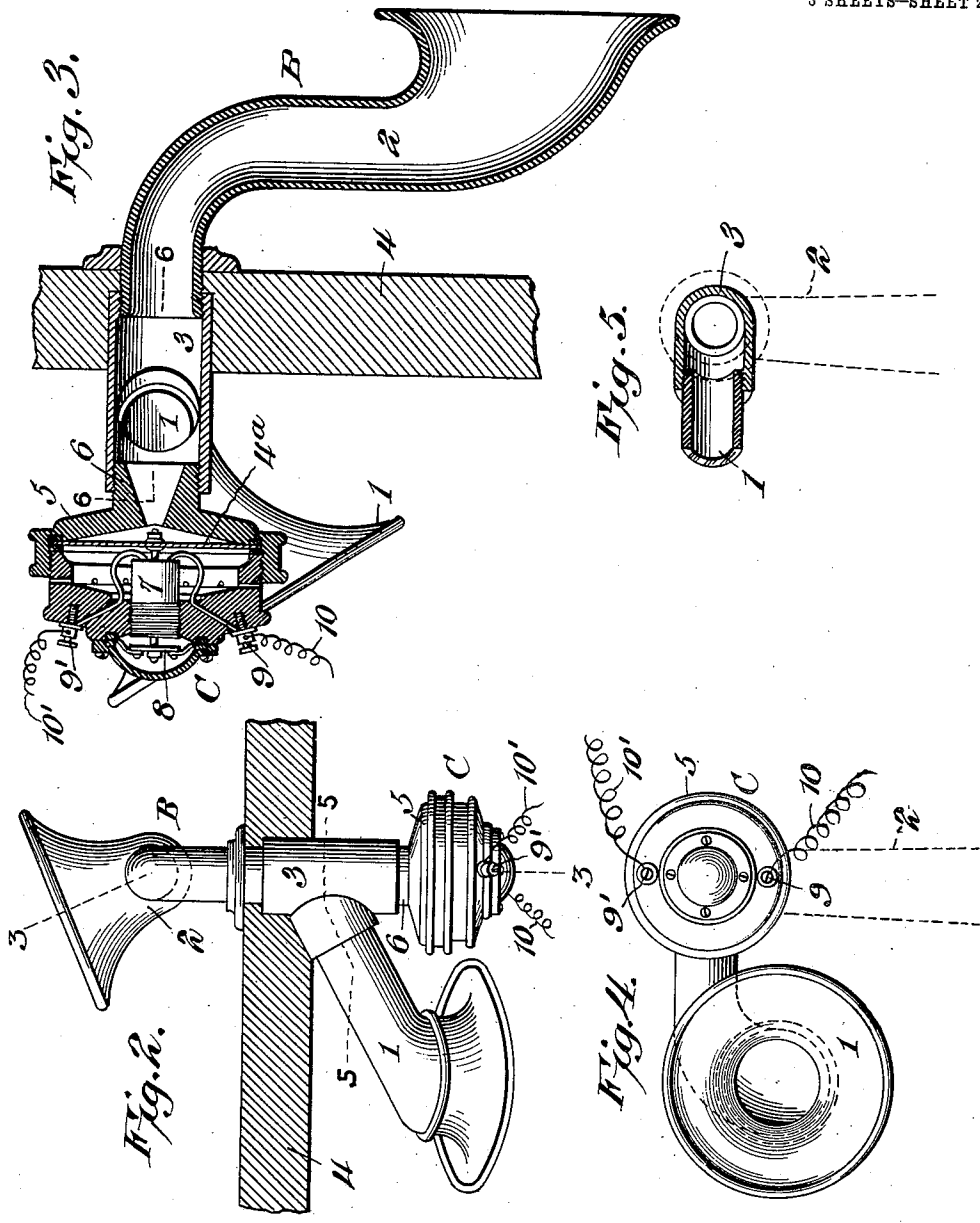
E. L. Figgers

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Witnesses
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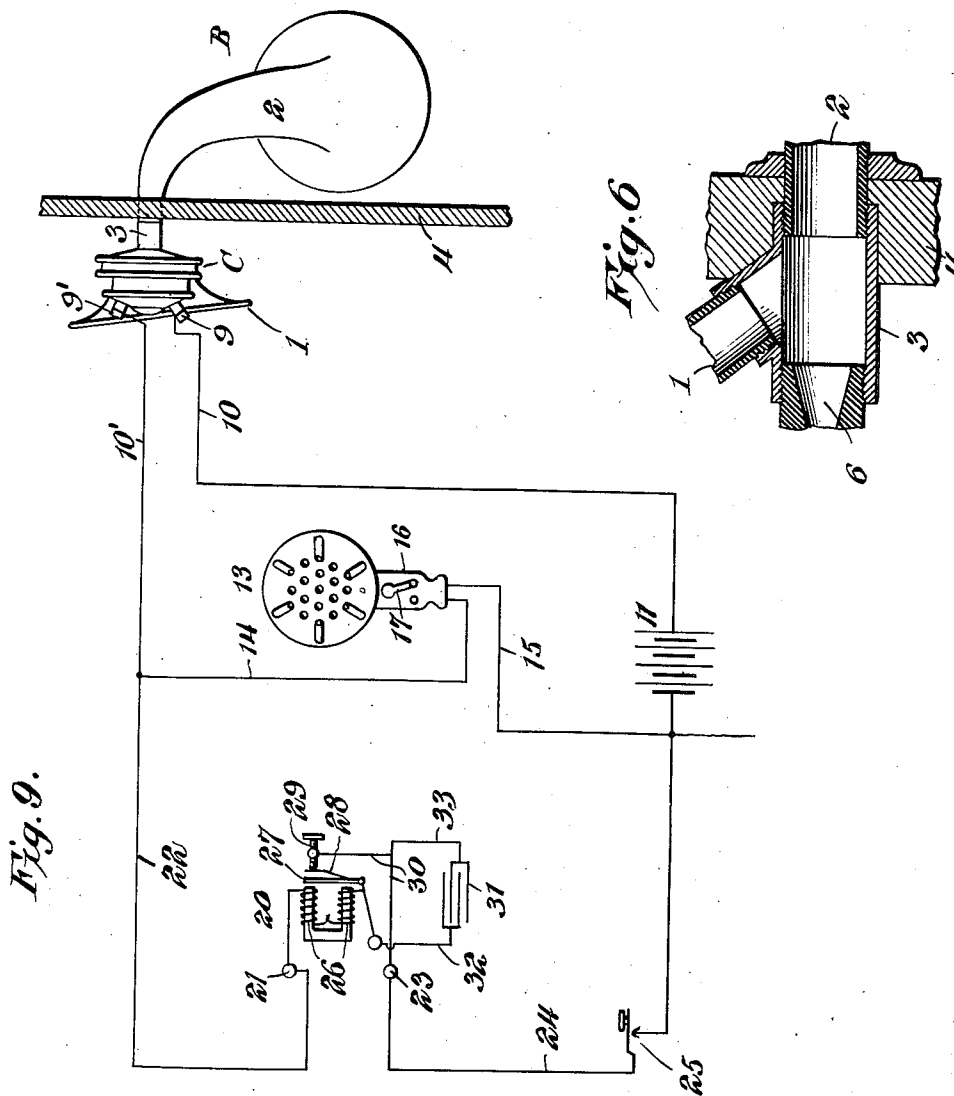
Herman G. Pape, Inventor,
By *E. J. Siggers*
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UNITED STATES PATENT OFFICE.

HERMAN G. PAPE, OF BUFFALO, NEW YORK.

PASSENGER-DRIVER TELEPHONE SIGNAL SYSTEM FOR VEHICLES.

1,060,851.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed January 27, 1910. Serial No. 540,409.

To all whom it may concern:

Be it known that I, HERMAN G. PAPE, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Passenger-Driver Telephone Signal System for Vehicles, of which the following is a specification.

This invention relates to a speaking and signaling apparatus for closed body vehicles such as landaus, landaulettes, limousines, victorias, town cars, cabs, taxicabs, etc., whereby the occupant or passenger can signal to the driver or chauffeur in order to attract his attention and then convey a message telephonically in giving directions, asking information, etc., and whereby the driver or chauffeur can respond by speaking through a direct audible device such as a tube or sound-amplifying horn.

The invention has for one of its objects to provide an appliance of this character which is of extremely simple and inexpensive construction, thoroughly reliable and efficient in use, and so arranged and designed as to be conveniently operated.

Another object of the invention is the provision of a speaking tube or equivalent device which passes through the body of the vehicle at a point close to the driver whereby he can place his ear or mouth to it for receiving a message or conveying one through the tube, together with a sound-reproducing device which can be energized by a circuit-interrupter or vibrator for signaling, or by a telephone transmitter when the occupant desires to speak to the driver, the arrangement and combination of said instrumentalities being such that the sounds can be conveyed distinctly without any great effort on the part of the occupant or passenger and without leaving the seat.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention, Figure 1 is a vertical longitudinal sectional view of the body of a vehicle showing the same equipped with the signal system. Fig. 2 is a plan view of the speaking tube or di-

rect sound conductor, drawn on an enlarged scale. Fig. 3 is a vertical section on line 3—3, Fig. 2, drawn on an enlarged scale. Fig. 4 is a rear view of Fig. 2. Fig. 5 is a detail sectional view on line 5—5, Fig. 2. Fig. 6 is a detail section on line 6—6, Fig. 3. Fig. 7 is a fragmentary view of the transmitter showing the push button or switch therefor. Fig. 8 is a side view of the transmitter shown in Fig. 7 with portions in section. Fig. 9 is a diagrammatic view of the electrical devices and the circuit connections of the system.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawings, A designates the closed-in body of an automobile or other vehicle for which the present signal and speaking system is especially designed. At some suitable part of the body, where it is conveniently accessible to the chauffeur, is a speaking tube or direct sound conductor designated generally by B, which passes through the front wall of the body in such position that the outer end of the tube will be close to the ear of the driver. The device B is composed, in the present instance, of inner and outer tubular trumpet-shaped members 1 and 2 that are connected together by a coupling 3 passing through the front wall 4 of the vehicle body, the outer member B forming a combined ear trumpet and mouth piece for use by the chauffeur, while the inner member forms merely a sound-amplifying horn or trumpet for conveying the speech from the chauffeur to the occupants within the vehicle. The part 3 is a Y-coupling into two branches of which the trumpets 1 and 2 fasten, while in the third branch, a sound-reproducing device, designated generally by C, is fitted. This device C is of any approved construction, such for instance as that disclosed in my prior Patent No. 800,677, and is intended to be used for giving out a signal when the chauffeur's attention is to be directed, or to reproduce the speech of the occupant in conveying a message to the chauffeur, and the part 2 or outer horn of the direct sound conductor B serves as an amplifying means for the sound waves generated by the device C.

The sound-reproducing device C consists of a diaphragm 4^a arranged in a suitable chambered casing 5 that has a nipple 6 con-

connected with the Y-coupling 3, and this diaphragm is vibrated by an electro-magnet 7 which has an armature 8 connected with the diaphragm, the winding of the electro-magnet being connected with the binding posts 9 and 9' to which the wires 10 and 10' are respectively connected. An intermittent current can be passed through the electro-magnet of the sound reproducer so as to vibrate the diaphragm, which will set up a buzzing sound to serve as a signal for attracting the attention of the chauffeur, and by use of a telephone transmitter, an undulatory current of varying amplitudes will be sent through the magnet to cause the diaphragm to respond and set up speech vibrations which will be transmitted to the chauffeur.

Fig. 9 shows the various instrumentalities used in connection with the sound-reproducing device and circuit connections. The wires 10 and 10' form the signal and telephone circuit connections, the current being derived from a battery or other suitable source. A transmitter 13 of any approved construction is connected by the wires 14 and 15 with the wire 10' and battery 11. These wires 14 and 15 are arranged as a cord conductor so that the transmitter can be conveniently manipulated and said transmitter, which may be of the watch case type, has a handle 16 through which the wires 14 and 15 pass to the usual coil in the transmitter. The circuit through the transmitter is normally opened, and when the transmitter is to be used, the circuits must be closed, and for this purpose, a push button or equivalent device is arranged, preferably, on the handle 16, so that the button can be pressed while gripping the transmitter handle. In the present instance, the push button or circuit closer consists of a spring 17 fastened on the handle and connected with the wire 15 and provided with a contact pin 18 that is adapted to engage a contact strip 19 fastened on the handle and connected with the coil of the transmitter. Thus, by pressing the spring 17, the contacts 18 and 19 are engaged so that current will flow through the transmitter, and upon vibrating the diaphragm of the transmitter by the voice directed against it, an undulatory current will be produced that causes a corresponding vibration in the diaphragm of the sound-reproducing device C, which will be audible as articulate speech to the chauffeur.

Arranged in shunt relation to the transmitter is a vibrator or circuit interrupter 20 of any approved construction which has one binding post 21 connected by a wire 22 with the wire 10', and the other binding post 23 connected by a wire 24 to the side of the battery to which the wire 15 is connected, the wire 24 being provided with a normally-open push button 25. The circuit interrupter consists of magnet coils 26 that

operate on an armature 27 that carries a spring contact 28, which contact normally engages a relatively fixed contact 29, and the coils 26 are connected, respectively, to the binding post 21 and spring contact 28, while the contact 29 is connected by a wire 30 with the binding post 23. Bridging the contacts 28 and 29 is a condenser 31 connected by wires 32 and 33 with the said contacts, so as to prevent excessive sparking between the latter during the operation of the interrupter. Upon pressing the push button 25, current will flow through the coils of the interrupter and attract the armature 27, the movement of which will cause the contact 28 to separate from the contact 29, thereby interrupting the current and de-energizing the magnet so that the armature will return to normal position and again close the circuit by engaging the contact 28 with the contact 29. In this manner, the circuit will be opened and closed in rapid succession by the interrupter so as to cause an intermittent current to flow through the sound-reproducing device C, and as a consequence, a buzzing sound will be emitted through the outer horn 2 for attracting the attention of the chauffeur. By reference to Fig. 1, it will be observed that the push button 25 is located within the closed body of the vehicle at a point conveniently within reach of the occupant, and the transmitter 13 is arranged adjacent the push button and is normally held in a pocket 34 or equivalent device so as to be out of the way.

The battery 11 and interrupter 20 may be installed at any convenient point on the vehicle, as under the seat, at the dashboard or other place found most desirable by the manufacturer, and the placing of the wiring will be governed accordingly.

With an apparatus of the character described, the direct sound-conducting device formed by the two horns 1 and 2 is always available for use by the chauffeur in order to speak to the occupant or to receive a signal and message from the latter. The horn or trumpet 1 augments the sound of the chauffeur's voice so that the occupant can readily hear what is being said. The sound-reproducing device C is also located in proximity to the chauffeur, and the outer horn augments the sound so that the signal or message from the inside occupant can be readily heard. The telephone transmitter and sound-reproducing device forms an indirect conducting means for the voice, and as a result, the occupant does not have to over-exert himself in making his voice heard to the chauffeur and he uses the transmitter like an ordinary telephone. The simplicity and convenience of the appliance renders the same especially useful for the purpose described, and is highly efficient in practice.

While I have shown and described the invention is applied to a closed body vehicle, it will be understood, of course, that its sphere of usefulness is not confined to that particular application and it is adapted for use in many other fields.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. In a vehicle having a passenger compartment and a driver's seat exterior thereto, a means for intercommunication between the passenger and driver comprising a direct voice conducting device having separate amplifying means one within the passenger compartment and the other adjacent the driver's seat, and a one-way telephonic means provided with a transmitter within the passenger compartment in ready reach of a passenger, and a receiver communicating with the sound amplifying means adjacent the driver's seat.

2. In a vehicle provided with a passenger compartment and an operator's seat, means for acoustical communication between the operator's seat and the passenger compartment, and a telephone system having a transmitter within the passenger compartment and a receiver in operative relation to the portion of the acoustical communicating means extending into operative relation to the operator's seat.

3. In a vehicle provided with a passenger compartment and an operator's seat divided one from the other by a partition, a speaking tube extending through the partition and on each side thereof adjacent to the partition provided with a sound amplifying terminal member, and a telephone system provided with a transmitter within the passenger compartment and a receiver in operative relation to the portion of the speaking tube directed toward the operator's seat.

4. In a vehicle provided with a passenger compartment and an operator's seat divided one from the other by a partition, a speaking tube extending through the partition and on each side thereof adjacent the partition provided with a bell-shaped, sound-amplifying terminal portion, and a telephone system having a transmitter in the

passenger compartment and a receiver communicating with the portion of the speaking tube directed toward the driver's seat.

5. In a vehicle provided with a passenger compartment and an operator's seat divided one from the other by a partition, a telephone system having a transmitter within the passenger compartment and a receiver adjacent the partition, a sound conduit leading from the receiver and terminating in a sound amplifier adjacent the operator's seat, and another sound conduit branched off from the first named sound conduit and in free communication therewith, said second named sound conduit terminating in an amplifier within the passenger compartment.

6. In a system for the interchange of information between the interior of a normally closed compartment and a point exterior thereto, comprising a sound conduit extending from the exterior of the compartment to the interior thereof and terminating within the compartment, said conduit constituting the sole means of communication from the exterior to the interior of the compartment, and a one-way electric telephone system comprising a transmitter and receiver within the compartment with the receiver communicating with that portion of the sound conduit extending to the exterior of the compartment.

7. A system for intercommunication comprising a speaking tube for acoustic transmission in one direction, and an electro-telephonic apparatus for communication in the other direction, said telephonic apparatus comprising a transmitter and receiver with the receiver communicating with that portion of the sound conduit constituting the inlet end for acoustical transmission to in turn constitute the hearing end for electro-telephonic transmission.

8. A system for intercommunication comprising a megaphonic speaking tube adapted for acoustical transmission in one direction, an electro-telephonic system provided with a telephone receiver in sound producing relation to the sound receiving end of the speaking tube whereby said sound receiving end constitutes the ear piece of the telephone receiver, a telephone transmitter connected to the telephone receiver in position to be used by an auditor on the delivery side of the megaphonic speaking tube, and means for causing in the electric circuit electrical impulses active on the telephone receiver to produce an audible signal at the sound receiving end of the speaking tube.

9. A system for intercommunication comprising a megaphonic speaking tube adapted for acoustical transmission in one direction, an electro-telephonic system provided with a telephone receiver in sound producing relation to the sound receiving end of the speaking tube whereby said sound re-

ceiving end constitutes an ear piece for the telephone receiver, a telephone transmitter connected to the telephone receiver in position to be used by an auditor on the delivery side of the megaphonic speaking tube, and means for causing in the electric circuit electrical impulses active on the telephone receiver to produce an audible signal at the sound receiving end of the speaking tube, the telephone transmitter and signal means being provided with independently operable switches for including either in the electric circuit at will.

10. A means for intercommunication between a passenger in a vehicle and an operator of the vehicle comprising a sound conduit constituting the sole means of communication from the operator to the passenger, and an electric telephone constituting the means of communication from the passenger to the operator, the sound receiving end of the acoustical conduit being connected to the receiver of the electric telephone and constituting a hearing means for the telephone receiver.

11. A means for intercommunication between a passenger in a vehicle and an operator of the vehicle comprising a sound conduit constituting the sole means of communication from the operator to the passenger, and an electric telephone constituting the means of communication from the passenger to the operator, the sound receiving end of the acoustical conduit being connected to the receiver of the electric telephone and constituting a hearing means for the telephonic receiver, the electro-telephonic means of communication including electric means for causing the telephonic receiver to emit a signal at will and irrespec-

tive of the transmitter of the electro-telephonic means.

12. A means for intercommunication, comprising a one-way electro-telephonic system and means for acoustical communication operative in the reverse direction to the electro-telephonic system, the sound receiving end of the acoustical means constituting a sound conduit for the receiver end of the electro-telephonic system, and the sound emitting end of the acoustical means being located at a distance from the transmitter end of the electro-telephonic system.

13. A means for intercommunication comprising a one-way electro-telephonic system, a sound conduit constituting a means for acoustical communication operative in the reverse direction to the electro-telephonic system and constituting the sole means for communication in such direction, the receiver of the electro-telephonic system being in communication with the sound conduit to utilize the speech receiving end of the sound conduit for emitting sounds caused by the telephone receiver, and a one-way electric signal means included in the telephone system in shunt relation to the telephone transmitter for causing electric impulses to energize the telephone receiver to thereby produce an audible signal at the same end of the sound conduit through which sounds produced by the telephone receiver are emitted.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HERMAN G. PAPE.

Witnesses:

GERTRUDE WELLER,
FRANK L. NORTON.