

R. H. MANSON.
 SIGNALING DEVICE.
 APPLICATION FILED NOV. 25, 1910.

1,057,752.

Patented Apr. 1, 1913.

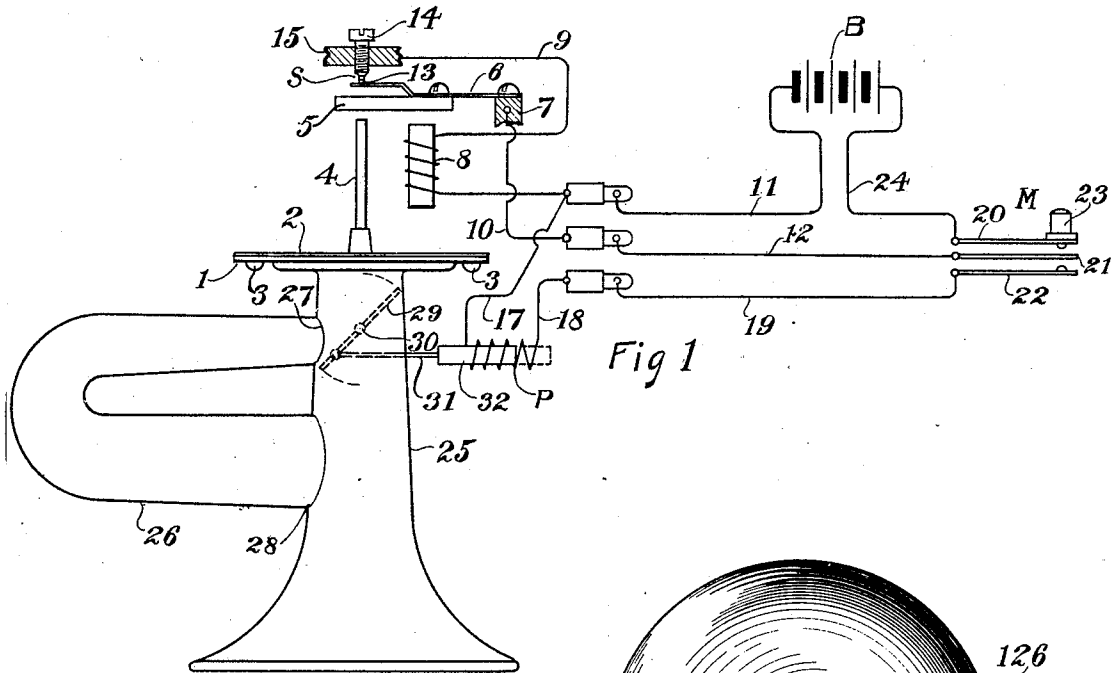
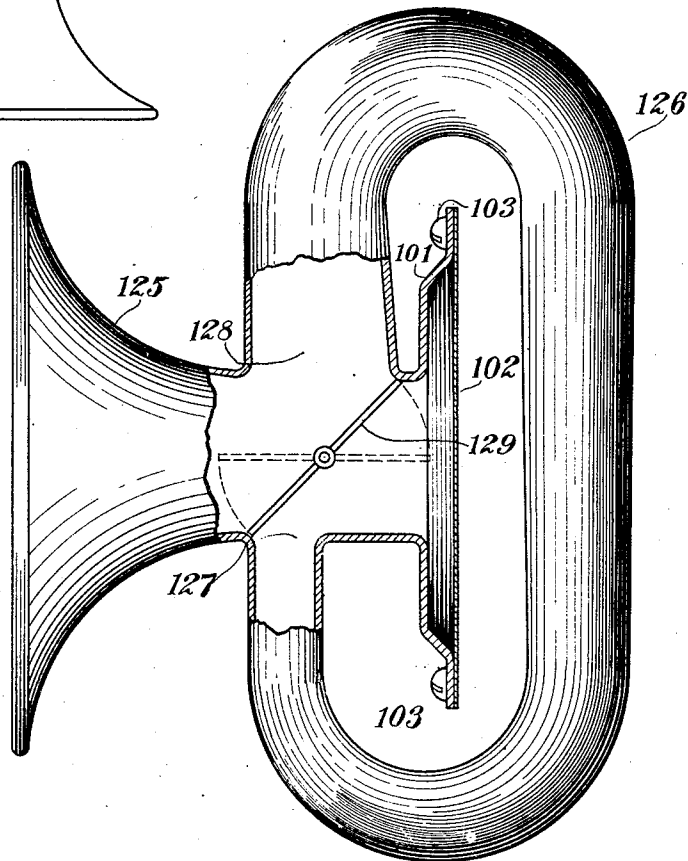


Fig 2



Witnesses
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UNITED STATES PATENT OFFICE.

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SIGNALING DEVICE.

1,057,752.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed November 25, 1910. Serial No. 594,144.

To all whom it may concern:

Be it known that I, RAY H. MANSON, a citizen of the United States, residing at Elyria, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Signaling Devices; and I do hereby declare the following to be a full, clear, and exact description of my invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to signaling devices and more particularly to such as are used upon vehicles, such as automobiles, motor boats, etc., though I may apply this for the production of signals wherever such a device is desired.

The object of my invention is to produce a signaling device which is capable of producing sounds of different characters. Where the vehicle is traveling at a low rate of speed, a signal of a soft tone may be used to give the necessary warning of the approach of the vehicle; in fact, a loud signal is undesirable, particularly upon busy thoroughfares. On the other hand, on country roads or wherever the vehicle is approaching rapidly, it is desirable to give a signal of a more sharp and penetrating nature, in order to give a more distant warning.

The invention disclosed and claimed in this application is a modification of that disclosed and claimed in United States Letters Patent #1,016,699 granted to me Feb. 6, 1912 as assignor to The Dean Electric Company. In the device disclosed in this invention, it is my object to modify the signal after it has been produced. I contemplate making such variations in the tone as will result in the production of two distinct signals—one for service purposes in urban districts and upon crowded thoroughfares, and the other suitable for emergency work for notifying a distant driver or the driver of a noisy vehicle. This change may be accomplished by varying the quality of loudness or the frequency of the sound waves. In the form shown I have provided means for changing the character of the resonator, though I do not wish to be limited to this particular form.

I further provide means which may be attached to the steering gear or other convenient part of the vehicle for operating the

sound producing device and for changing the character of the resonator.

Other objects of my invention and the apparatus which constitutes the particular form shown will be better understood from the detailed description thereof when the same is taken in connection with the drawings.

I have shown my invention in connection with particular forms of mechanism, though I do not wish to be limited thereto.

Figure 1 is a diagram of a preferred form of my invention. Fig. 2 is a side elevation, partly in section of a modified form of resonator.

Referring now to the drawings and to Fig. 1; at 1 is shown a frame plate to which a vibratile member, here shown as a diaphragm 2 is attached by screws or other fastening means 3. An anvil 4, here shown as a stem is associated with the member 2 and is adapted to transmit motion thereto. At 5 is shown a hammer adapted to strike the anvil when vibrated. This hammer is connected by a flexible spring 6 to a frame piece 7. At 8 is shown an electromagnet connected in a circuit with the battery B by the conductors 9, 10, 11 and 12. There is a switch S in this circuit which consists of a contact 13 mounted upon the hammer 5, and an adjustable contact 14 mounted upon a frame piece 15. When the circuit through the magnet 8 is closed, the hammer 5, which is mounted upon or which may constitute the armature of the magnet 8, is attracted so that it strikes a blow upon the anvil 4, causing the diaphragm 2 to vibrate and produce a sound. The attraction of 5 also breaks the circuit at 13, 14, deenergizing the magnet 8, so that the armature 5 is released and returns to its original position. At P I show a solenoid, which is one form of electromagnet. This is adapted to be connected in circuit with the battery B, through the conductors 17, 18 and 19. At M I show a circuit controller here shown consisting of three springs, 20, 21 and 22, the spring 20 bearing a button 23 and connected to a source B by a conductor 24. The spring 21 is connected with the conductor 12. The spring 22 is connected directly to the conductor 19. The frame piece 1 is open at the center and a resonator 25 is connected over this opening. In the form shown, the resonator is shown in the shape of a horn

proximating a tube. Sound waves are adapted to pass through this resonator. At 26 I show a second tube, here shown as a loop of the resonator, which is looped from an orifice 27 to a second orifice 28 in the walls of the resonator. In the mouth of the orifice 27, I show a butterfly valve 29, pivoted in the resonator at 30. This valve is connected by a stem 31 to the core 32 of the solenoid P. Under normal conditions, the valve is in a position to divert the sound waves into the branch so that they pass therethrough and back into the main part of the resonator at 28. The character of the volume of air which is set in vibration when the sound waves pass through this route is such, that a soft tone will be produced by the horn. When the butterfly valve is turned to a central position permitting the sound waves to pass directly through the resonator, the volume of air set in vibration is of such a character that a harsher and more penetrating tone is produced by the horn.

The switch M may be mounted upon the steering wheel or upon any convenient part of the machine, so that the driver may operate it without detracting his attention from other duties. The circuit controller is adapted to be operated to assume three positions. First, the normal position, which is that shown in the drawing and at which the signal device is inactive. When the button 23 is pushed down until the spring 20 engages the spring 21, the following circuit will be closed: 20, 24, B, 11, 8, 9, 14, 13, 6, 7, 10, 12, 21. This will operate the magnet 8 and the armature 5 will be vibrated with a rheotome effect, causing the diaphragm to produce a signal which will be transmitted through the branch 26, and which, as stated, will be a signal of a soft tone. When the button 23 is shoved to its way down position, causing the spring 21 to engage the spring 22, the following circuit will also be closed, 20, —24—B—11—17—P 18—19—22—21—20. This solenoid will attract its core 32, and swing the valve 29 to the mid-position so that the sound waves will now pass directly through the resonator, causing the horn to produce a harsh signal.

While I have employed a solenoid to operate the valve, any form of electromagnet can be used for this purpose. It will also be apparent that the tube 26 need not lead back to the resonator, but may terminate in a bell as does the resonator. In fact, this may be made in a variety of forms, which will fall within the scope of the appended claims.

In Fig. 2 I have shown a modified form. 101 is the frame piece, 102 the diaphragm, 103 the fastening means, 125 the resonator, 126 a branch which is here looped around, beginning in the orifice 127 and terminating in the orifice 128. The valve 129 may be

thrown in such a position as to direct the sound waves into the branch through the orifice 127 and when they emerge from the branch into the main part of the resonator, the valve may be moved to the dotted line position to permit the sound waves to pass directly through the resonator.

While I have shown these particular forms for the purpose of clearly illustrating my invention, I do not wish to be limited thereto. It will be obvious to those skilled in the art that numerous and extensive departures from the forms and details thereof may be made without departing from the spirit of my invention.

I claim:

1. In an automobile horn, the combination of an electrically operated sound producing device, a tube to direct sound waves produced by said device, a second tube to direct the sound waves produced by said device, electrically controlled means to direct the sound waves through one of said tubes and to permit the sound waves to pass through the other of said tubes, said tubes adapted to modify the character of the sound transmitted therethrough, whereby a sound of different character will result when the waves pass through one of said tubes from that resulting when transmitted through the other and common means for controlling said sound producing device and said electrically controlled means.

2. In an automobile horn, the combination of an electrically operated sound producing device, a tube to direct the sound produced by said device, a second tube of different volume from the first, adapted to alter the character of the sound produced by said device, whereby the character of the sound resulting from the transmission of the sound waves from said device through one of said tubes will differ from the character of the sound transmitted through the other tube, and electrically controlled means to direct the sound into one of said tubes and to permit the sound waves to pass through the other and common means to control said sound producing device and said electrically controlled means.

3. In an automobile horn, the combination of a sound producing device, means to cause said device to sound a signal, means to modify the character of the sound which has been produced by said device and means common to said first and second named means controlling said first and second named means.

4. In an automobile horn, the combination of a sound producing device, a resonator therefor, remotely controlled means to change the character of said resonator, and means controlling the operation of said sound producing device and said remotely controlled means.

5. In an automobile horn, the combination of a sound producing device, electromagnetic means controlling said device, means to modify the character of sound which has been produced by said device, and means common to said electromagnetic means and said modifying means controlling said electromagnetic and said modifying means.

6. In an automobile horn, the combination of a sound producing device adapted to produce a sound of a certain tone, a resonator therefor, remotely controlled means for changing the character of the resonator, electrical means for operating said sound producing device, and common means controlling said electrical means and said remotely controlled means.

7. In an automobile horn, the combination of a sound producing device adapted to produce a sound of a certain tone, a resonator therefor, means to change the character of the resonator, electrical means for operating said last named means, and a common device for controlling said sound producing and said electrical means.

8. In an automobile horn, the combination of a sound producing device adapted to produce a sound of a certain tone, a resonator therefor, means associated with said resonator to change the character of the tone produced by said horn, an electric circuit, a source of current for supplying current thereto, electrical means in said circuit for controlling said sound producing device and said first named means and a circuit controller controlling the circuit through said electrical means and adapted to govern the operation of said sound producing device and said first named means.

9. In an automobile horn, the combination of a vibratile diaphragm, means to operate said diaphragm, a resonator, electrically controlled means for changing the character of said resonator, and a device common to said operating means and said electrically controlled means controlling each.

10. In an automobile horn, the combination with a sonorous diaphragm, a resonator, means to change the character of said resonator, an electro-magnet controlling said means, and controlling means for said diaphragm and said electro-magnet common to the two.

11. In a signaling device, the combination of an electrically operated sound producing device, a resonator through which the sound may pass, a loop of said resonator, means to direct the sound through said loop and controlling means for said sound producing device and said means common to the two.

12. In a signaling device, the combination of an electrically operated sound producing device, a resonator through which the sound may be directed, a loop of said reso-

nator, a valve for directing the sound through said loop and controlling means for said sound producing device and said valve common to the two.

13. In a signaling device of the class described, the combination of a sound producing device, a resonator through which the sound may be directed, a loop of said resonator, a valve normally directing the sound waves through said loop an electro-magnet controlling said valve, a source of current, a circuit controller, circuit connections for said magnet, source and controller and means to operate said sound producing device, said magnet adapted to operate said valve to permit the sound to pass directly through said resonator and said circuit controller governing said means and said magnet.

14. In a signaling device of the class described, the combination of a sound producing device, a resonator, of means to change the character of said resonator, electrically operated means controlling said device and said first named means, a source of current to supply energy to said electrically operated means, a three position circuit controller associated with said source and said electrically operated means, said sound producing device being operated when said circuit controller is in either of two of said positions to produce a sound of a certain tone and said first named means being operated when said circuit controller is in one of said two positions whereby the tone of the sound so produced is changed.

15. In a signaling device of the class described, the combination of a sound producing device, a tube directing the sound produced by said device, a second tube adapted to direct the sound produced by said device, means normally diverting the sound waves into the second tube and adapted to be operated to permit the sound to pass through the first tube, an electro-magnet for operating said sound producing device, a second magnet for operating said means, a source of current, circuit connections in which said magnets and said source are connected, a circuit controller connected in said circuit, said circuit controller adapted to be operated to assume each of a plurality of positions and when in one position to so condition the circuit connections that the sound producing device is operated and when operated to assume a second position to so condition the circuit connections that the said means is operated and the sound waves produced by said device permitted to pass through the first tube.

16. In a signaling device of the class described, the combination of a sound producing device, a resonator therefor, a loop of said resonator, means normally directing the sound waves through said loop, an elec-

tromagnet controlling said means and adapted to operate the same so as to permit the sound waves to pass directly through the resonator, a second electromagnet controlling said sound producing device, a source of current, circuit connections for said source and said magnets connecting the same in a circuit and a circuit controller in said circuit adapted to be operated to assume each of a plurality of positions, said circuit controller when operated to assume one of said positions conditioning said circuit to operate said second magnet, whereby said sound producing device is actuated and when operated to assume another position conditioning said circuit to operate both said magnets, whereby said means is operated to permit the sound waves to pass directly through the resonator.

17. In an automobile horn, the combination of a sonorous member, means to cause said member to sound a signal, means to alter the signal which has been produced by said member, and means common to said first and second named means controlling said first and second named means.

18. In an automobile horn, the combination of a sonorous member adapted when operated to produce a signal, remotely controlled means for operating said member, means for changing the character of the signal produced by said member, said means operating upon the signal to change it after it has been produced and means common to said first and second named means controlling said first and second named means.

19. In an automobile horn, the combination of a sonorous member, adapted when operated to produce a signal, electrically controlled means for operating said member, means for changing the character of the signal after it has been produced by said member, and means common to said elec-

trically controlled means and said last named means controlling said electrically controlled means and said last named means.

20. In an automobile horn, the combination of a sonorous member, electromagnet means for operating said member to cause the same to sound a signal, a source of current, and a circuit for supplying current to said electromagnet means, a device for changing the character of the signal produced by said member, second electromagnet means controlling said device, and common means controlling said first and said second electromagnet means.

21. In an automobile horn, the combination with a sonorous member adapted when operated to sound a signal, an electromagnet for operating said member, a source of current and a circuit for supplying current to said magnet, means including a resonator for changing the character of the sound produced by said member, an electromagnet controlling said means, and a single circuit controller controlling said magnets.

22. In an automobile horn, the combination of a vibratile diaphragm, an electromagnet to operate said diaphragm to cause the same to sound a signal of a certain tone, a source of current, conductors connecting said source and magnet, a resonator having two channels for the passage of sound waves from said diaphragm, each passage having different modifying effect on said sound, a valve controlling the flow of sound waves to said passages and electrically controlled means controlling said valve.

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

RAY H. MANSON.

Witnesses:

R. G. SANDS,
F. O. RICHEY.