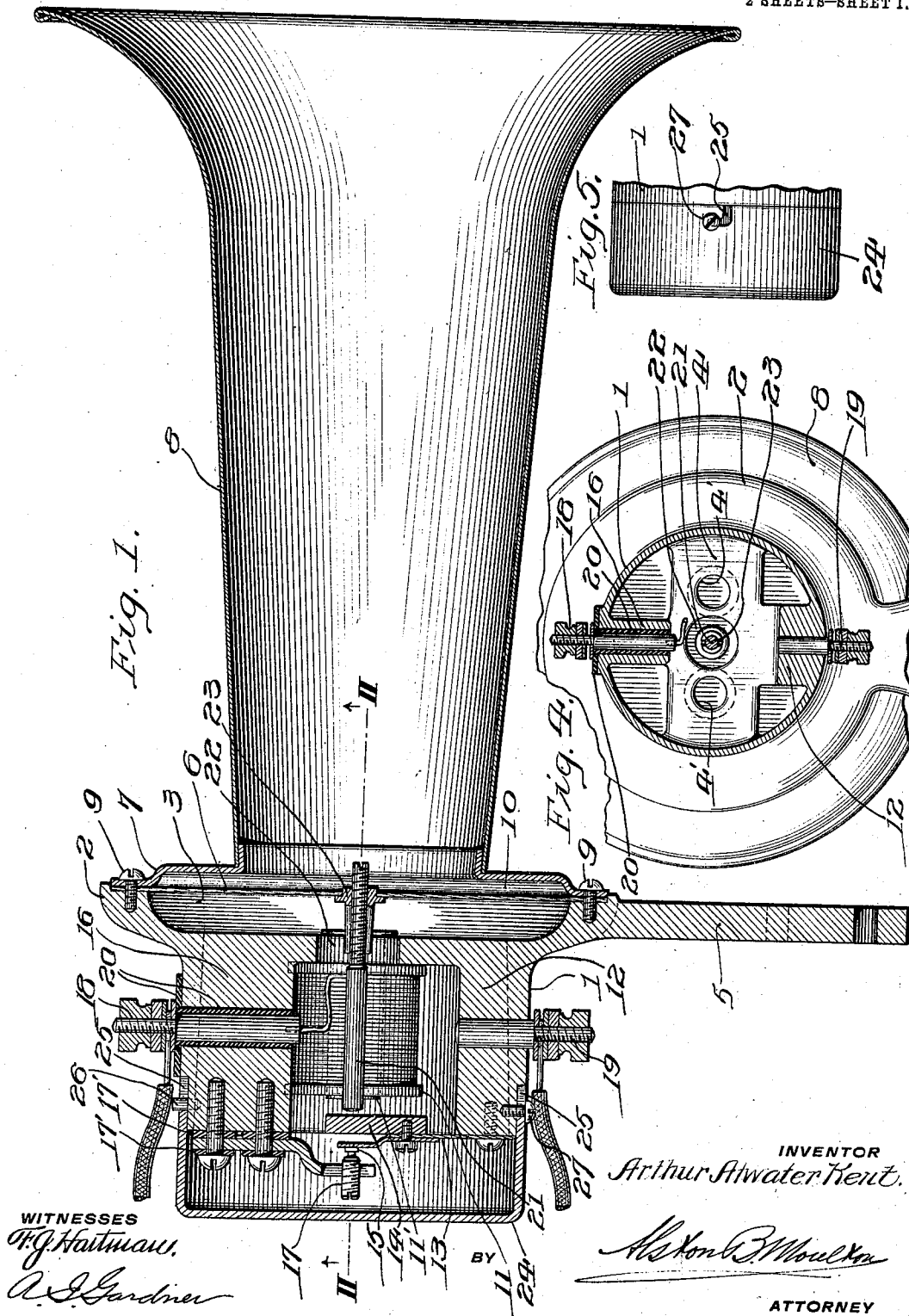


APPLICATION FILED FEB. 28, 1910.

Patented Aug. 22, 1911.

2 SHEETS—SHEET 1.



A. A. KENT.
 SIGNALING HORN.
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1,001,046.

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2 SHEETS—SHEET 2.

Fig. 2.

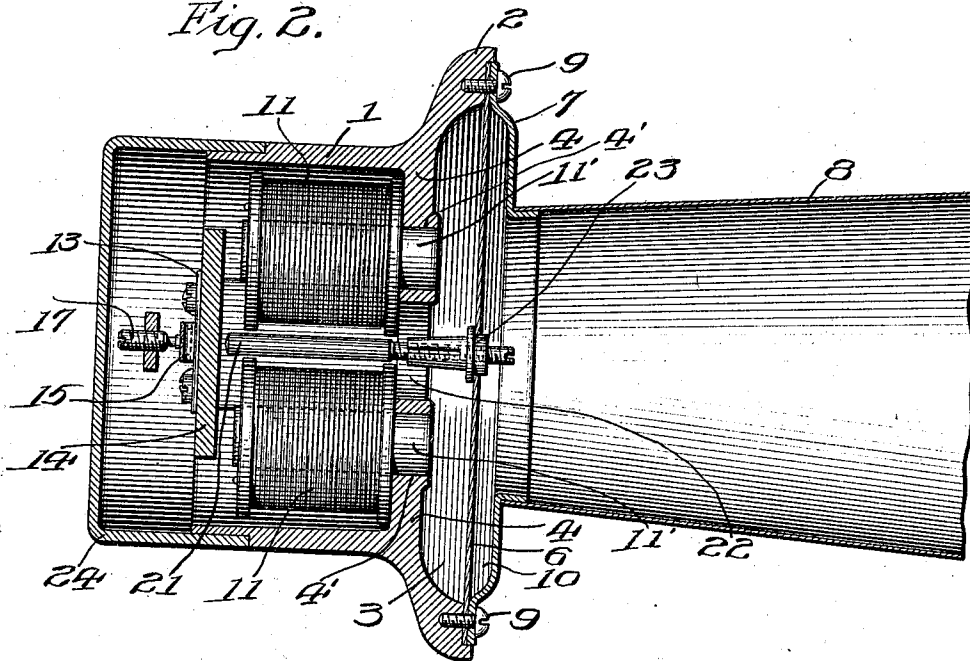
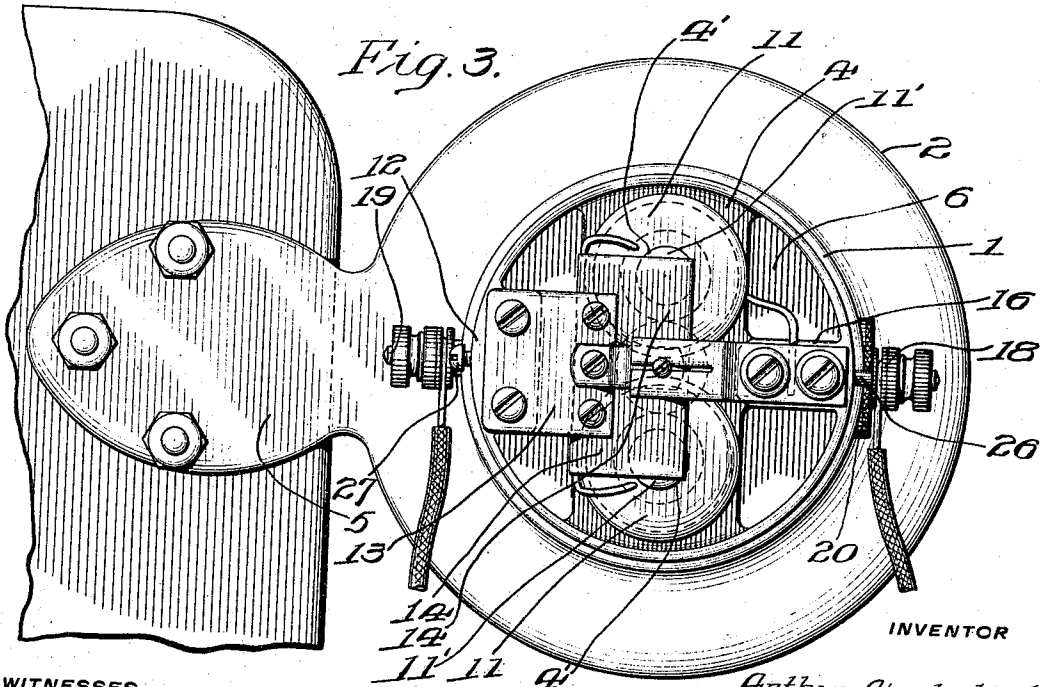


Fig. 3.



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SIGNALING-HORN.

1,001,046.

Specification of Letters Patent. Patented Aug. 22, 1911.

Application filed February 28, 1910. Serial No. 546,511.

To all whom it may concern:

Be it known that I, ARTHUR ATWATER KENT, a citizen of the United States, and a resident of the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Signaling-Horns, of which the following is a full, clear, and complete disclosure.

My invention relates to signaling horns such as are adapted for use on automobiles or similar vehicles, and particularly to horns of the character above indicated in which sound is produced by vibrating a diaphragm by electro-magnetic mechanism.

The objects of my invention are to produce a horn or signaling device which is simple, efficient, compact, neat and attractive, which can be produced at a low cost and is readily assembled and adjusted.

A further object of my invention is to mount all the various parts upon or within a single integral casing, which casing may be formed of cast metal, or in any other suitable manner.

Further objects of my invention will appear in the specification and claims below.

Referring to the drawings forming a part of this specification in which the same reference characters are used to designate the same parts throughout the various views, Figure 1 is a longitudinal sectional view of my improved horn; Fig. 2 is a similar longitudinal sectional view taken on the line II—II of Fig. 1; Fig. 3 is an end view of my improved horn with the cap removed showing the interior of the casing; Fig. 4 is a transverse sectional view of the casing, and Fig. 5 is a fragmentary view of a detail of construction.

In carrying out my invention I provide a casing preferably of cast metal, the casing being indicated in the drawings by 1. The said casing is hollow and preferably cylindrical for the greater portion of its length, the front end of the same being provided with a flange 2, the face of which is provided with a recess or chamber 3. The rear wall of the chamber 3 is formed by suitable cross braces or ties 4, the same forming a web upon which the electro-magnets may

be mounted as will be later described. The casing is preferably provided on one side with an integral extension or support 5, by means of which the horn may be attached to the dash-board of a vehicle or to any other suitable support, as shown in Fig. 3. The diaphragm is preferably secured to the outer edge of the flange 2 by being clamped between the said flange 2 and the flange 7 of the amplifying portion 8 of the horn. Screws 9 passing through suitable openings in the flange 7, through the periphery of the diaphragm, and threaded into the flange 2 of the casing 1 hold the said parts firmly together. The flange 7 of the amplifying portion of the horn is offset for a short distance from the diaphragm to form a diaphragm chamber 10 at the smaller end of the amplifying portion 8. The recess or chamber 3 to the rear of the diaphragm may also be called a diaphragm-chamber, since it is within these spaces or chambers that the diaphragm is mounted.

The magnets 11 are mounted upon and secured in any suitable manner to a web or cross brace 4, and extend from said brace or cross piece longitudinally of the casing 1 and toward the rear of the same. I have shown the cores 11' of the magnets 11 as being forced into suitable holes 4' in the braces or ties 4 as the preferred manner of mounting the magnets 11 in the casing 1. Upon the interior of the cylindrical casing 1, and preferably upon opposite sides thereof, I arrange two integral lugs 12 and 16 which may extend from the rear end of the said casing 1 to the webs in the front thereof substantially for the full length of the casing. Upon the lug 12 I secure a spring 13, the outer end of which carries an armature 14 arranged adjacent the cores 11' of the magnets 11, the said spring 13 being preferably provided with contact point 15, extending up and away from the armature 14. Upon the lug 16, but suitably insulated therefrom, as by insulation 17, is a stationary contact point 17, arranged adjacent to the movable contact point 15, so as to be normally adjusted in contact therewith. Upon opposite sides of the casing 1

I provide suitable binding posts 18—19; the binding post 18 being insulated from the casing 1 by being passed through a suitable insulating thimble or washer 20, while the other 19 of said binding posts may be grounded or directly attached to the metallic casing. The binding post 18 is connected by a suitable wire to one end of the winding of one of the electro-magnets 11, and the two coils are connected together in series, the other end of the wire as it passes from the second of said electro-magnetic coils is attached to the insulated stationary contact points 17. The other of said binding posts 19 is directly attached to and is uninsulated from the casing. With this arrangement it will be observed that when an electric circuit is closed by attaching the two binding posts to the opposite terminals on electric circuit the armature 14 will vibrate as is usual in an electro-magnetic vibrator.

Rigidly secured to the center of the diaphragm 6 and preferably longitudinally adjustable with respect thereto is a rod 21 extending rearwardly from the diaphragm and having its rear end terminate close to but just out of actual contact with the armature 14, a suitable hole or opening 22 being provided in the braces or cross ties 14 for the passage of said rod.

For the purpose of permitting a longitudinal adjustment of the rod or anvil 21 the center of the diaphragm may be provided with a split nut 23 through which the threaded outer end of the rod 21 is passed, so that by turning the rod 21 within the nut the rear end of the rod may be brought into the first effective position with respect to the armature. The armature is preferably made rather heavy so that when it is vibrated by the electric current passing through the magnet it will strike a rather heavy blow upon the rear end of the rod 21, thus giving the diaphragm 6 a great amplitude of vibration. With the horn or signaling device arranged as above described it is only necessary to close a circuit by a suitable push button or other suitable switch to cause the armature 14 to vibrate with great rapidity, and in vibrating to strike against the end of the rod or anvil 21, and this blow being communicated through the rod or anvil 21 to the diaphragm, sets the diaphragm into a correspondingly rapid vibration and produces a very loud and distinctive tone or sound, which transmitted to the air in the diaphragm-chamber 10, and thence through the amplifying portion or megaphone of the horn, is emitted through the bell of the horn as a loud continuous tone.

To inclose the end of my horn I preferably make the rear end of the casing 1 of a slightly reduced external diameter, as plainly shown in Figs. 1 and 2, so that a cup-

shaped cap 24 of spun or pressed metal may be fitted tightly over the same and form the rear end of the casing. To hold the cap in place I prefer to provide one or more bayonet joints 25 on opposite sides of the said cap or cover 24 which coöperate with similarly disposed pins 26 and 27. I prefer to use a machine screw as the pin 27, thus enabling me to securely lock the cap in place on the end of the casing 1 by merely turning said screw after the parts have been assembled, thus clamping the casing under the head of the said screw. The cap thus provides a substantially weatherproof closure for the end of the casing.

Having thus described my invention what I claim and desire to protect by Letters Patent of the United States is:

1. In a signaling horn a combination of a cylindrical casing having an integral flange at the front end thereof, said flange being provided with a recess to form a diaphragm chamber, the interior of said casing being provided with longitudinally arranged integral lugs, an armature mounted to vibrate on one of said lugs, and a stationary contact point support mounted upon the other of said lugs.

2. In a signaling horn a combination of a cylindrical casing having an integral flange at the front end thereof, said flange being provided with a recess to form a diaphragm-chamber, the interior of said casing being provided with longitudinally arranged integral lugs, an armature mounted to vibrate on one of said lugs, and a stationary contact point support mounted upon the other of said lugs, the said flange having an integral extension for securing the same to a suitable support.

3. In a signaling horn a support and casing integral therewith and having at one end a diaphragm chamber and a diaphragm mounted in operative relation thereto and secured to said casing, and at the other end of the same a chamber, integral supports on the sides of said chamber, a vibrating armature mounted on one of said supports, a contact point support mounted on the other of said supports, and a magnetic coil mounted within said chamber with one end adjacent said armature.

4. In a signaling horn, an integral support and casing having a transverse web and an outward extending flange at one end of the same, a diaphragm secured by its periphery to said flange, a pair of electric magnets mounted within said casing and upon said web, and extending toward the rear of said casing, an integral lug upon the interior of said casing, and an armature mounted to vibrate upon said lug, a second lug within said casing and integral therewith, and extending longitudinally of the same, a sta-

tionary contact point support mounted upon said second lug, a cap fitting over the end of said casing, and inclosing the rear of the same, and an amplifying horn having its smaller end provided with a flange between which flange and the flange on said casing the diaphragm is clamped.

In witness whereof I have hereunto set my hand this twenty fourth day of February 1910.

ARTHUR ATWATER KENT.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."