

R. H. MANSON.
 AUTOMOBILE OR MOTOR CYCLE HORN.
 APPLICATION FILED OCT. 8, 1913.

1,268,863.

Patented June 11, 1918.

2 SHEETS—SHEET 1.

Fig. 1

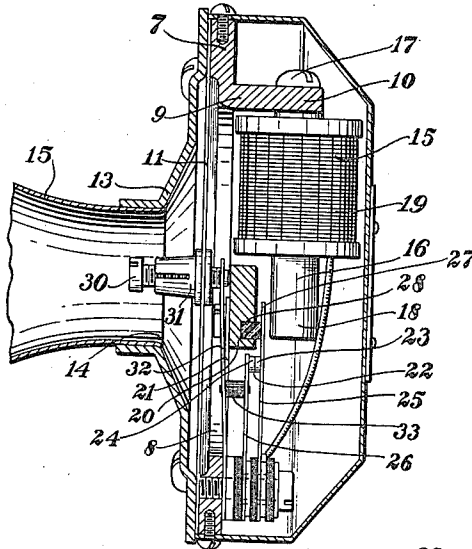


Fig. 2

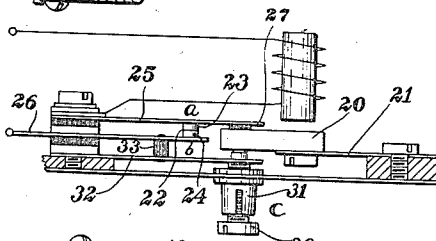
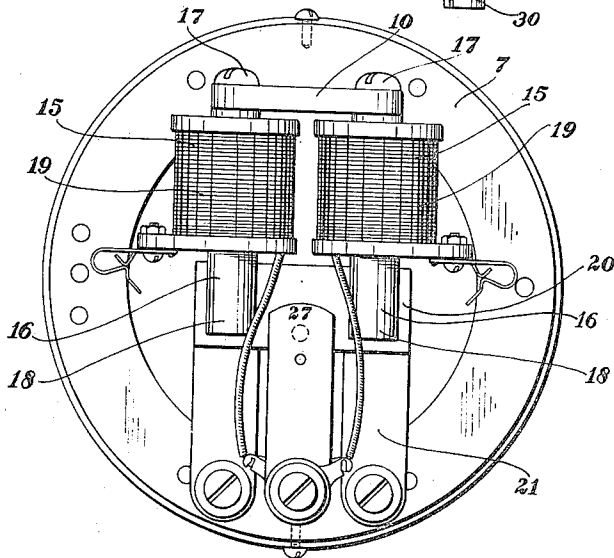


Fig. 3



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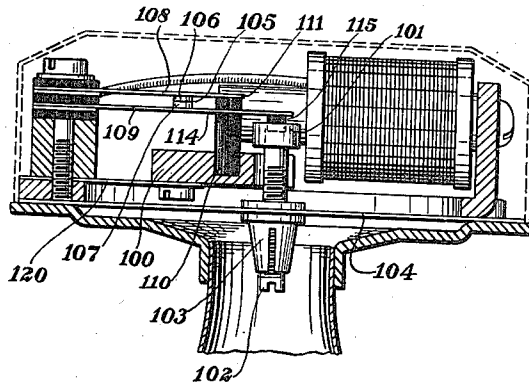


Fig. 4

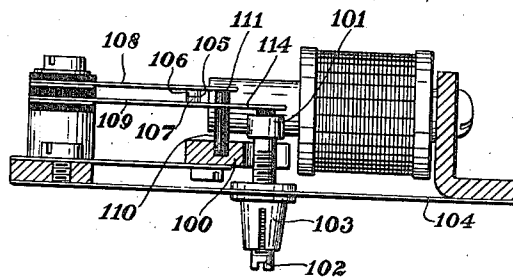


Fig. 5

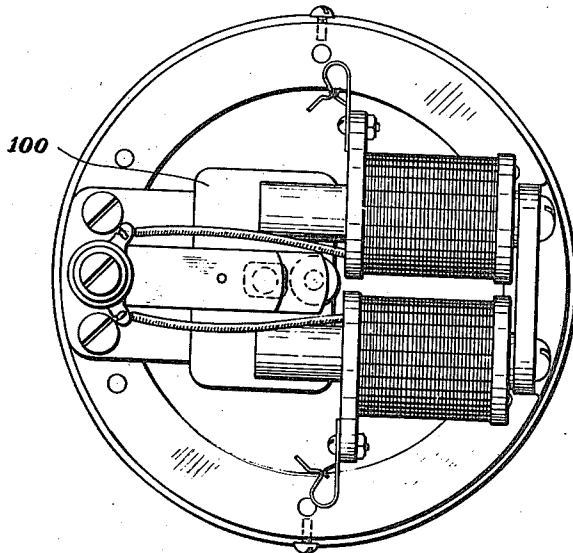


Fig. 6

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UNITED STATES PATENT OFFICE.

RAY H. MANSON, OF ELYRIA, OHIO, ASSIGNOR TO THE GARFORD MANUFACTURING COMPANY, OF ELYRIA, OHIO, A CORPORATION OF OHIO.

AUTOMOBILE OR MOTOR-CYCLE HORN.

1,268,863.

Specification of Letters Patent. Patented June 11, 1918.

Application filed October 8, 1918. Serial No. 794,159.

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 Automobile or Motor-Cycle Horns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to automobile or motor cycle horns and more particularly to electric horns in which the sound producing device is controlled by an electric current, the particular object of my invention being to improve this type of horn in several particulars.

One of the objects of my invention is to produce a compact condensed horn, in which the apparatus is so arranged that the horn may be suitable for mounting upon the handle bars of a motor cycle. In the use upon motor cycles, the apparatus must be light and occupy but little space, since there is very little room for this type of apparatus upon the frame of the motor cycle, which is already crowded with the motor, gasoline tank and other apparatus employed in the operation of the machine.

Another object of my invention is to provide means for preventing the wasting of current.

When the armature is adjusted, the relation between the armature and the switch is changed so that the time during which the contact endures will frequently be increased out of all proportion to what is necessary. During this surplus time current will be wasted and the batteries prematurely exhausted. When manufactured the parts can be so arranged that the proper contact will be made with the least expenditure of energy and the parts so adjusted that there will be no waste of current. As soon, however, as it becomes necessary to adjust the armature, owing to wearing of parts or for other reasons, the relation is changed between the armature and the switch with which it operates, when this surplus period and expenditure of energy will begin.

Another object of my invention is to produce the apparatus necessary to adjust the parts, so that the armature and the switch will be moved or adjusted by the employment of a single device, and preferably, by adjusting these parts simultaneously.

Other objects of my invention and the invention itself will probably be better understood from a description of the particular embodiments.

Figure 1 is a section of an embodiment of my invention showing one of the magnets in elevation.

Fig. 2 is a diagram illustrating certain of the parts employed in the form shown in Fig. 1.

Fig. 3 is a plan view of the embodiment shown in Fig. 1 with the back cover removed.

Figs. 4, 5 and 6 are similar views of a second embodiment of my invention.

Referring now to the drawing and to the embodiments illustrated therein, I have shown the frame of the horn or signaling device, here illustrated as a frame piece 7, which is preferably made of a plate having a large opening 8 cut therein, leaving little more than a rim for the frame piece 7. One of the edges of the frame piece may be turned up as shown at 9, substantially at right angles to the frame piece 7, forming a base or support 10, for a purpose to be described. A sonorous member, such as a vibratile diaphragm 11, is stretched over the opening 8 and exposed from the rear through said opening. The diaphragm is clamped around its edges between the frame piece 7, which it engages directly, and a casing front 13, which is provided with an opening 14 into which a resonator 15 may be fastened in any suitable manner. The means for actuating the diaphragm, here shown as electromagnetic means 15, consists preferably of two magnets mounted substantially parallel to the diaphragm and supported from the member 10 in any suitable way. In the form shown, the cores 16 of the magnets are connected at one end by screws 17 to the member 10. The cores 16 project at one end, as shown at 18, beyond the windings 19, in order that they may exert more

influence over the armature 20, which is here shown as spanning the distance between the projecting ends of the poles 18, and is preferably located between such projecting ends and the diaphragm.

The armature is connected to the frame, preferably by spring means 21. A circuit, not shown, is provided for the electromagnetic means and a switch 22 in this circuit is controlled by the electromagnetic means, preferably through the armature 20. This switch includes contacts 23 and 24 which are preferably mounted on springs 25 and 26 connected to the frame as shown. The spring 25 extends beyond the contact 23, as shown at 27. This spring is operated by the armature, preferably through a stud 28, which may engage the projecting end 27. The contact springs are connected in any suitable manner to the frame.

The parts of a horn of this type are all adjusted at the factory when the horn is tested, but as the parts wear or for other reasons it becomes necessary to re-adjust them, I provide adjusting means for the armature 20, which is here shown as a screw 30 fitted into a screw socket 31 which may be mounted on the diaphragm, the screw or socket serving as an anvil upon which the armature strikes to cause the diaphragm to sound a signal. It will be readily seen that if the armature were adjusted without adjusting the switch, it would be possible, and it sometimes happens, that the armature is moved so far toward the magnet in adjusting it as to open the switch 22, normally interrupting the circuit and making the device inoperative; or, adjusted the other way, the contacts 23 and 24 would remain in engagement longer than necessary, thereby wasting the battery current.

To obviate these faults, I provide means for adjusting the switch or moving the same at the same time that the armature is adjusted. In the form shown I have connected the switch to the adjusting means in such a way that when the screw 30 is moved both the armature and switch are adjusted. This may be done by a spring member 32 connecting the screw 30 to the frame and a stud 33 connecting the member 32 to one of the contact springs.

In the modification illustrated in Figs. 4, 5 and 6 the armature 100 operates the diaphragm by striking a collar 101 upon the adjusting screw 102 mounted in a screw socket 103 which is upon the diaphragm 104. The switch is shown at 105, consisting of contacts 106 and 107 carried upon the springs 108 and 109. The switch is operated by the armature through a stud 110 which engages the projecting end 111 of the spring 108. The projecting end 114 of the spring 109 may be adjusted through the screw 102. In the form shown, an insulat-

ing member 115 acts to transmit movements from the screw to the spring, whereby the same is adjusted when the contact screw is operated.

The armature spring 120 is normally stressed, so that the armature tends to move rearwardly, but is restrained by the spring 108. When the screw 102 is forced inwardly, the armature will be released and move nearer the cores; at the same time, the switch will be moved upwardly through the member 110. When the screw is drawn outward, the springs 108 and 109, which are stronger than the spring 120 will force the armature toward the diaphragm, the switch following.

I have illustrated these two embodiments of my invention for the purpose of clearly explaining the same. I do not wish to be limited to the details of the apparatus illustrated in these embodiments, but contemplate numerous and extensive departures therefrom without departing from the spirit of my invention.

I claim:—

1. In an automobile or motor cycle horn, the combination of a diaphragm, a frame from which said diaphragm is supported, a magnet supported from said frame, an armature for said magnet, an electric switch controlled by said armature, means for adjusting said armature and a member for transmitting movement of said adjusting means to said switch whereby said switch is adjusted when the armature is adjusted.
2. In an automobile or motor cycle horn, the combination of a frame, a vibratile diaphragm in said frame, an electromagnet for actuating said diaphragm, an armature for said magnet, a switch for controlling the circuit of the magnet including a pair of contacts and springs supporting the same from the frame, an adjustable screw in the diaphragm for adjusting the armature and a member connecting said switch to said adjustable screw whereby said switch is moved when the armature is moved by the screw.
3. In an automobile or motor cycle horn, the combination of a frame, a diaphragm supported from said frame, a magnet, an armature for said magnet, a switch controlling the circuit of the magnet, means carried by the diaphragm for adjusting said armature and means for moving said switch when said armature is moved by said adjusting means.
4. In an automobile or motor cycle horn, the combination of a frame piece, a pair of contact carrying springs mounted on the frame piece, an armature mounted on the frame piece, a diaphragm connected to the frame piece, and means extending through the diaphragm for simultaneously adjusting the armature and the contacts.
5. In an automobile or motor cycle horn, 130

the combination of a frame piece, a sonorous diaphragm, means for actuating said diaphragm and an adjustable anvil on said diaphragm for adjusting said actuating means and against which said actuating means strikes to cause the diaphragm to sound a signal.

In witness whereof, I have affixed my signature in the presence of two witnesses, this 4th day of October, 1913.

RAY H. MANSON.

Witnesses:

GEO. E. ROBERTS,
MARIAN VAUGHN.