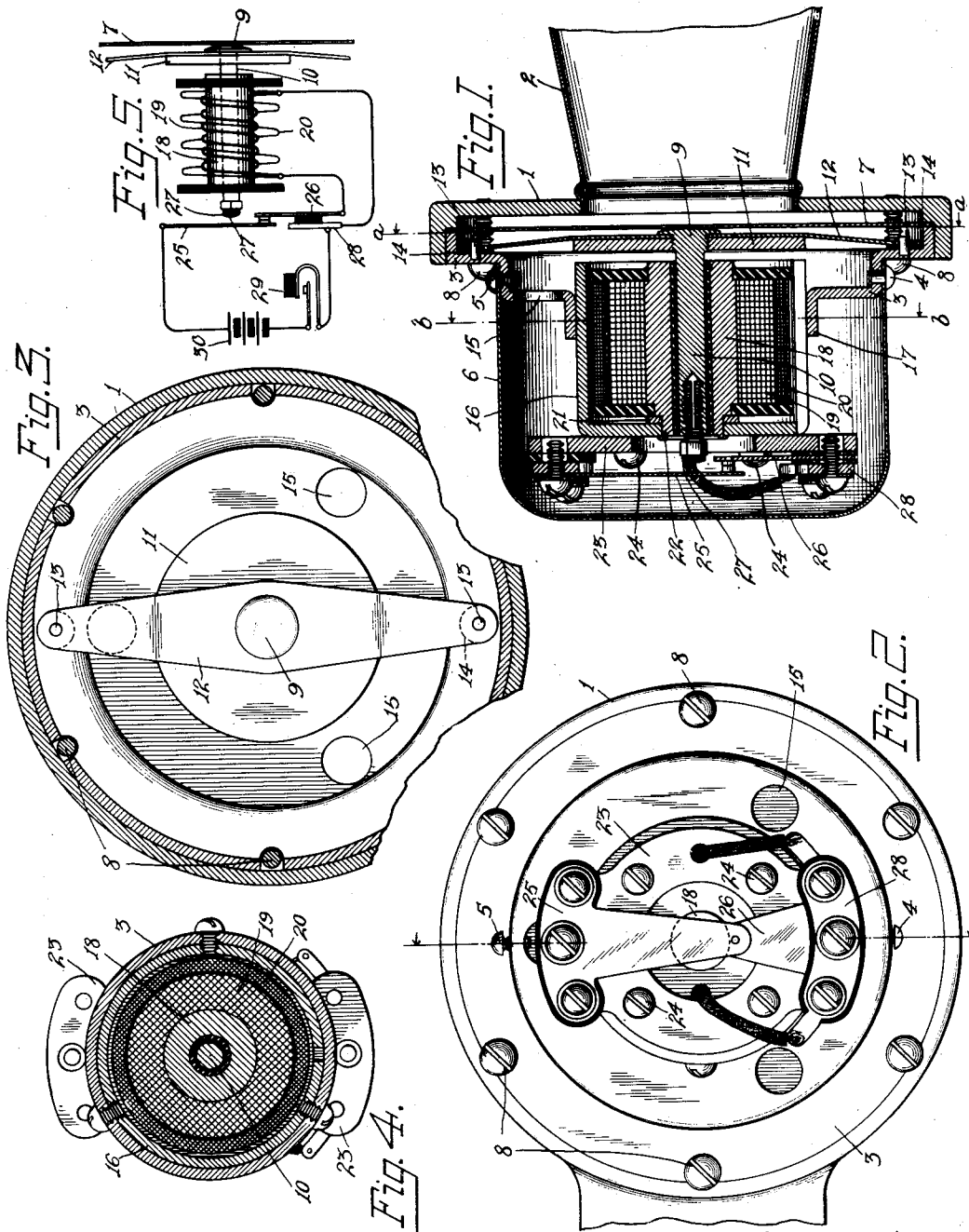


1,267,418.

Patented May 28, 1918.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM KAISLING, OF CHICAGO, ILLINOIS, ASSIGNOR TO KELLOGG SWITCHBOARD & SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SIGNALING-HORN.

1,267,418.

Specification of Letters Patent.

Patented May 28, 1918.

Application filed June 11, 1914. Serial No. 344,413.

To all whom it may concern:

Be it known that I, WILLIAM KAISLING, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Signaling-Horns, of which the following is a specification.

My invention relates to signaling devices and more particularly to a device of this general character used to give precautionary signals when used for instance in connection with automobiles, motor boats, or the like.

In general my improved device provides a structure in which the recoil of a resiliently mounted striker is made use of to actuate a diaphragm. An armature is provided to cause a movement of the striker and also to control the movement of a vibratory contact when such is used to control the actuations of an electromagnetic mechanism to operate the armature.

One feature of my invention consists in the provision of a plurality of windings connected in parallel to thereby provide means to accommodate for the discharge of current due to the periodic disruption of the circuit.

I will explain one form which my invention may take more in detail by referring to the accompanying drawing in which:

Figure 1 is a longitudinal sectional view of a signaling device constructed in accordance with my invention;

Fig. 2 is a rear view of the device with the cup-shaped closure removed;

Fig. 3 is a sectional view on line *a-a* of Fig. 1;

Fig. 4 is a sectional view on line *b-b* of Fig. 1; and

Fig. 5 is a diagrammatic view illustrating the circuit arrangements.

My improved signal includes the front plate 1 to which a resonator or horn 2 may be secured at the front thereof, and to which at its rear portion is secured a step-like angular ring 3. The angular ring has a rivet 4 and set screw 5 to hold in place a cup-shaped cap 6, the cap being provided with bayonet slots so as to be readily removable and being secured in position by operating the screw 5 after said cap has been mounted in place. All of the apparatus is mounted within the parts thus set forth. A diaphragm 7 is held in place between the ele-

ments 3 and 1 as readily apparent from Fig. 1, and screws 8 serve to clamp the elements 3, 7 and 1 securely together. A striker 9 preferably forms an integral part of a plunger 10, being also fixedly secured to an armature 11, and a resilient element such as the spring 12, flexed as shown, normally presses the striker to the right (Fig. 1) against the diaphragm 7. This spring 12 has holes by which it is placed upon pins 13 provided in the ring 3, insulating washers 14 being interposed as shown. Holes 15 are provided in the element 3 to permit of passage of air. An electromagnet is provided within a split shell 16, which split shell, cup-shaped in form, is fastened to the projecting annular flange 17 of the element 3. A core 18 is provided for the electromagnet, and between the core and shell two coils respectively 19 and 20 are mounted upon a spool. A strip of insulation is inserted between the core 18 and plunger 10 as apparent from Fig. 1.

As will be seen through the use of collars and the washer 21, the elements 18 and 16 are held together by having the protruding extremity 22 of the element 18 turned over as shown in Fig. 1. The armature 11 is preferably circular to conform to the circular outline of the shell 16. A bracket 23 is fixedly secured to the shell 16 by the screws 24 and carries two insulatingly mounted springs respectively 25 and 26. These springs have contact points as shown and are adapted to have circuit between them broken whenever a projection 27 carried by the plunger 10 presses against the spring 25 to withdraw it from electrical contact with the spring 26. A contact segment 28 is also mounted to superpose the spring 26 but is not in electrical contact with the said spring as readily apparent from the structure illustrated.

It will be readily seen that as current in sufficient quantity is supplied to the coils, the armature 11 is withdrawn from engagement with the diaphragm 7 against the action of the spring 12, thereby causing an inward movement of the plunger 10 which causes the element 27 to break the circuit between the springs 25 and 26, whereby the circuit through the coils is opened as will presently appear to permit recoil of the striker 9 so that it impinges against the diaphragm 7 to cause a signal or alarm.

In Fig. 5, I have shown more in detail the circuit arrangements where a push button 29 is designed to close circuit from battery 30 through both of the coils 19 and 20, which coils are connected in parallel. The circuit passes through the springs 25 and 26 and as the element 27 actuates the spring 25, this circuit is broken so that the armature 11 may vibrate as well understood. These two coils are connected in parallel because the high resistance fine wire winding 20 may then discharge the current due to a break in the circuit through the low resistance winding 19, to thereby prevent arcing at the contacts provided between the springs 25 and 26.

It will be seen that a very compact structure is provided for mounting the moving parts of the device and a highly efficient magnetic circuit results due to this arrangement. Furthermore the striker is actuated in a manner which secures uniform effect and a very even tone results more or less independent of the battery strength within reasonable limits.

From what has been described the nature of my invention it is thought will be readily clear to those skilled in the art as well as its various applications. Having however thus described one form which my invention may take, what I claim as new and desire to secure by Letters Patent is:

1. A device of the character described including a front plate, a circular mounting ring, a diaphragm securely held between said plate and said mounting ring, a striker normally in engagement with said diaphragm, a resilient mounting member for said striker adapted to impel said striker against said diaphragm, a cylindrical forwardly extending cup concentrically secured to said mounting ring, a magnet contained within said cup, a circular armature secured to said striker and extending out over the edge of said cup whereby said cup is included in the magnetic circuit of said magnet, said electromagnet adapted upon energization to withdraw said striker away from said diaphragm against the action of said resilient mounting member, and means for deenergizing said magnet whereby said striker impinges said diaphragm.

2. A device of the character described including a mounting plate, a diaphragm, an actuating member normally close to said diaphragm, a spring mounting member for said actuating member lying against said mounting plate and adapted to impel said actuating member toward said diaphragm, means for holding said spring member in position, a cylindrical cup secured to said mounting plate, an electromagnet contained within said cup for periodically drawing said actuating member away from said diaphragm against the action of said spring, a circuit controlling device secured to said cup for

controlling the actuations of said electromagnet, and a contact operating member extending through an orifice in the core of said electromagnet into operative relation with said circuit controlling device.

3. A sonorous device including a mounting plate, a diaphragm, a resiliently mounted actuating member for vibrating said diaphragm, a forwardly extending cylindrical cup concentrically secured to said mounting plate, an electromagnet contained within said cup for periodically withdrawing said actuating member away from said diaphragm to permit said diaphragm to be actuated by the recoil of said actuating member, a circular armature secured to said actuating member and extending past the periphery of said cylindrical cup whereby said cup is included in the magnetic circuit of said electromagnet, a mounting bridge carrying a pair of interrupter contacts secured to the rear of said cup, and an operating member attached to said circular armature and extending through a circular orifice in the core of said electromagnet for actuating said interrupter contacts.

4. An electrical device including a mounting member, a circular front plate, a diaphragm securely held between said mounting member and said front plate, a striker for said diaphragm normally in engagement therewith, a leaf spring for holding said striker in engagement with said diaphragm, orifices in the ends of said leaf spring adapted to fit over pins in said mounting member to hold said spring and striker in normal position, an electromagnet attached to said mounting member for actuating said striker, and means for intermittently energizing said electromagnet to cause said striker to vibrate said diaphragm.

5. An electrical signaling device including a diaphragm, a circular mounting ring provided with a concentrically disposed orifice, a cylindrical cup member having its forward end open and adapted to be mounted within said orifice, an electromagnet, a striker for actuating said diaphragm, and a circular armature secured to said striker and extending out over the edge of said cup to include the said cup in the magnetic circuit of the magnet.

6. A device of the character described including a face plate, an annular recessed mounting ring, a sound emanating member secured between said plate and said mounting ring, a striker for engaging said sound emanating member, a cylindrical cup concentrically secured to said mounting ring, a magnet mounted within said cup and having said cup included in its magnetic circuit, a circular armature secured to said striker and extending out over the edge of said cup, interrupter contacts secured to said cup, means whereby when said magnet is energized said

armature and striker are drawn away from
said sound emanating member, and an op-
erating member fastened to said striker and
extending through an orifice in the core of
5 said electromagnet into operative relation
with said interrupter contacts to cause said
magnet to deenergize and cause said striker
to impinge said sound emanating member.

Signed by me at Chicago, county of Cook
and State of Illinois, in the presence of two 10
witnesses.

WILLIAM KAISLING.

Witnesses:

GEORGE E. MUELLER,
M. R. ROCHFORD.