

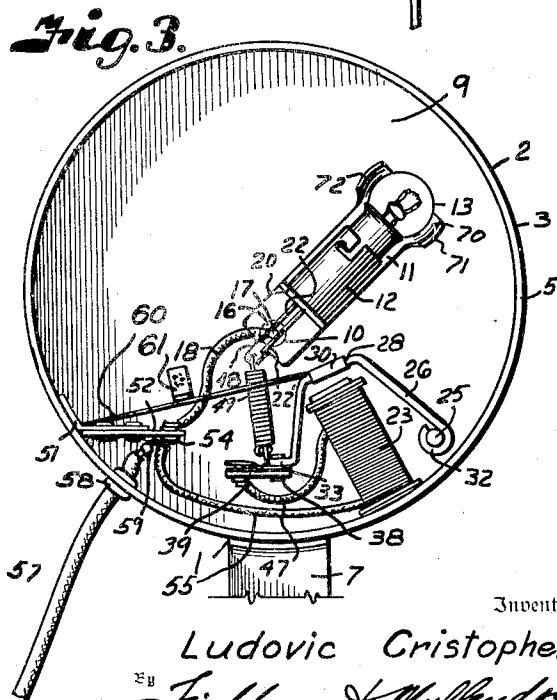
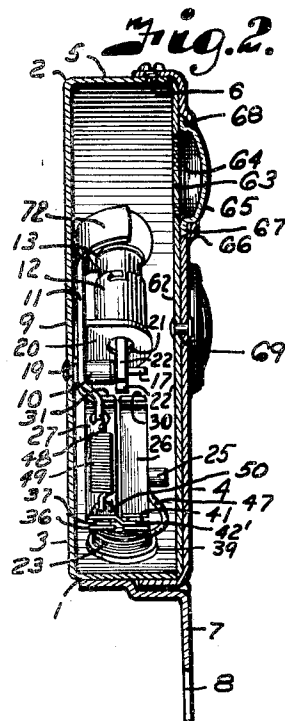
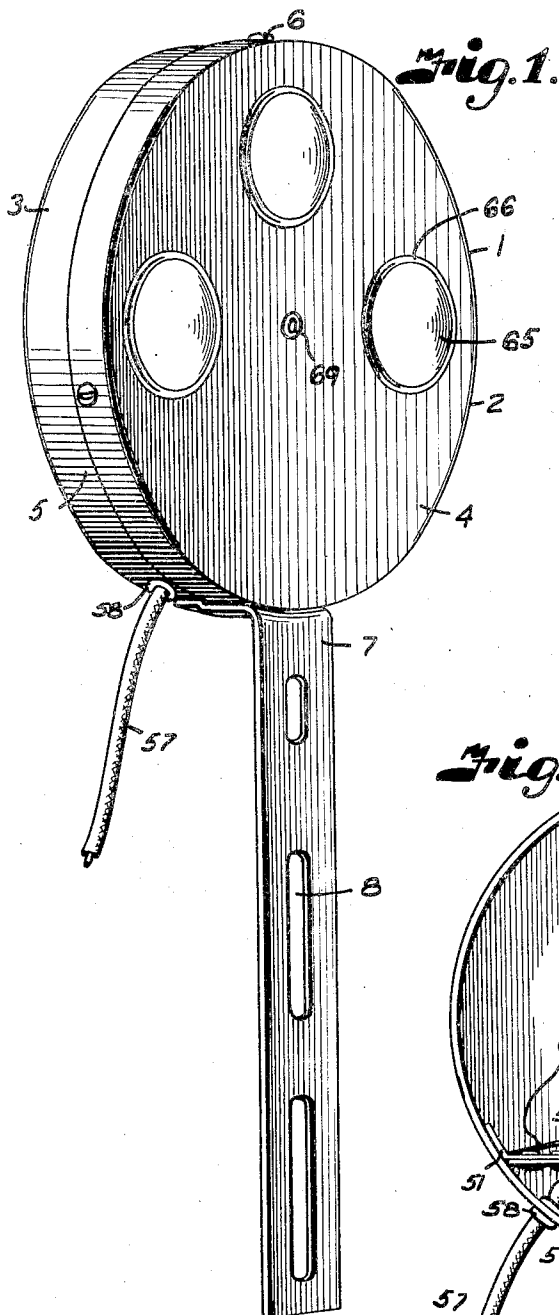
Jan. 3, 1950

L. CRISTOPHER
SIGNALING DEVICE

2,493,112

Filed June 16, 1947

2 Sheets-Sheet 1



Inventor

Ludovic Cristopher
Fischbar & Mullendore.

Attorney

Jan. 3, 1950

L. CRISTOPHER

2,493,112

SIGNALING DEVICE

Filed June 16, 1947

2 Sheets-Sheet 2

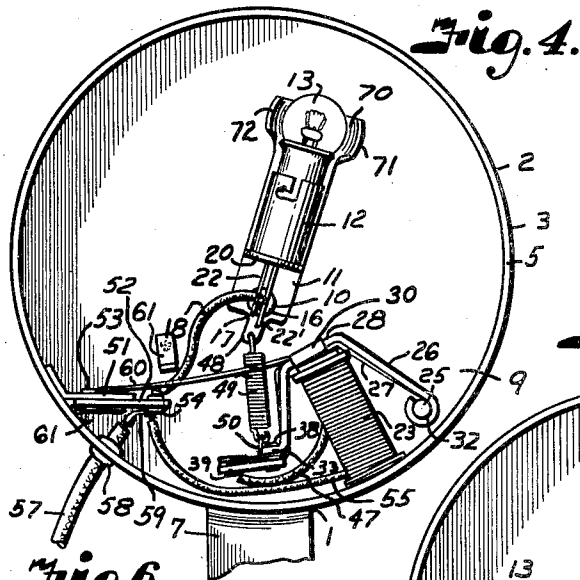


Fig. 5.

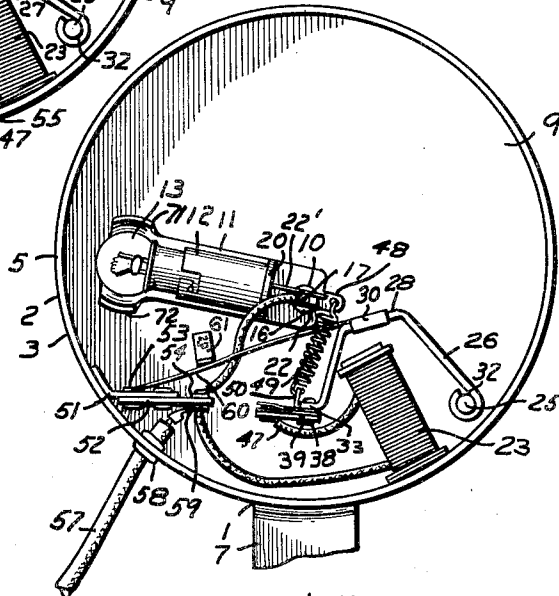


Fig. 6.

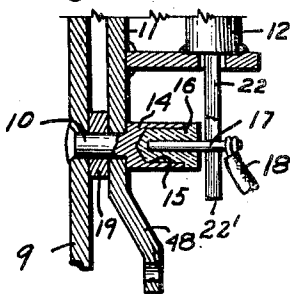


Fig. 7.

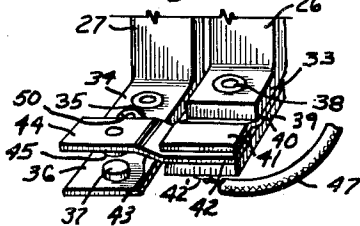
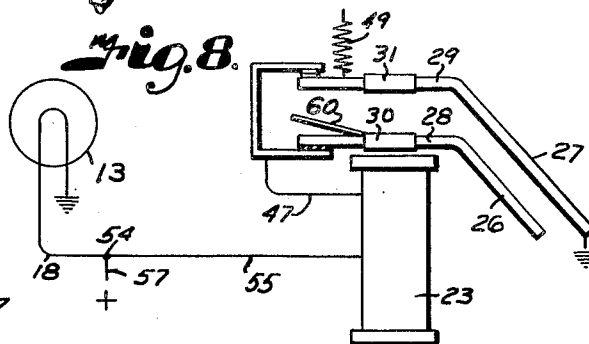


Fig. 8.



Inventor

Ludovic Cristopher

Fishburn & Mallendore

Attorneys

UNITED STATES PATENT OFFICE

2,493,112

SIGNaling DEVICE

Ludovic Cristopher, Kansas City, Mo.

Application June 16, 1947, Serial No. 755,029

3 Claims. (Cl. 172-126)

1

This invention relates to oscillating signals, and more particularly to wigwag signals adapted to be attached to an automobile, the same being an improvement over the signal devices disclosed in my Letters Patent Nos. 2,251,116, 2,265,062 and 2,302,421.

It is the principal object of my invention to provide a wigwag signal operable within a housing with few moving parts so that the signal from the light will be indicated through openings in the housing provided with lenses.

Other objects of the present invention are to provide a signal device with the moving elements substantially counterbalanced; to provide a signal device having a positive operation for controlling current flow to the oscillatory electromagnet which actuates the signal; to provide a device of this character having a signal arm with a wide amplitude of movement and means for oscillating the signal device comprising armatures operatively connected therewith and movable by an electromagnet; to provide resilient centering means for the signal element; to provide means for alternately energizing the electromagnet comprising a contact element movable with the armatures and having a contact element insulated from one of said armatures; and to provide a device of this character simple, economical to manufacture, and efficient in operation.

In accomplishing these and other objects of the present invention, I have provided improved details of structure, the preferred form of which is illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of my invention showing the bracket for attaching the device to a support.

Fig. 2 is a vertical transverse sectional view through the device.

Fig. 3 is a front elevational view of the device with the front cover of the housing removed and showing the armatures out of contact with the electromagnet.

Fig. 4 is a view similar to Fig. 3 but showing the armatures in contact with the electromagnet.

Fig. 5 is a view similar to Figs. 3 and 4 but showing the signal element in extreme position after the electromagnet has been energized.

Fig. 6 is an enlarged sectional detail particularly illustrating the mounting of the signal arm and the frictional contact of the light connection.

Fig. 7 is a fragmentary detail in perspective particularly illustrating the contact points of the armatures.

Fig. 8 is a diagram of the electrical circuit.

2

Referring more in detail to the drawings:

1 designates a signal device embodying the features of my invention comprising a housing 2 of substantially cylindrical shape and including a body member 3 and a cover 4 of slightly larger diameter than the body so that it will engage over the side edges or flanges 5 of the body. The side edges are provided with openings adapted to receive screws or the like 6 to hold the cover on the body member. The housing is provided with a bracket or arm 7 having a plurality of apertures 8 for mounting of the signal device on an automobile and preferably on the license plate bracket (not shown).

Mounted on the back face 9 of the body member 3 by peening or the like is a shaft 10 for pivotally mounting an arm 11 having a socket 12 for an electric light bulb 13. The shaft 10 has an enlarged end 14 having a recess 15 adapted to contain an insulating material 16 in which is mounted a pin 17 providing a connection for an electric cord or conduit 18.

A washer 19 engages between the arm 11 and the back face 9 of the housing to space the arm from the housing. The arm carries a shelf 20 upon which the socket 12 is mounted and is provided with an opening 21 adapted to receive contact members 22 and 22' leading from the light socket to engage on each side of the pin 17 to provide a frictional connection on the pin when the arm is oscillated. The entire operating mechanism of the signal is attached to and carried by the section 3 of the housing.

An electromagnet 23 is mounted on the flange or side edge 5 of the housing in any suitable manner having the usual core upon which the windings of the magnet are wound. Pivotally mounted upon the body member 3 by a shaft 25 and adjacent the electromagnet is a pair of armatures 26 and 27 made of soft metal as is the usual practice. The armatures are substantially U-shaped having transverse portions 28 and 29 provided with an insulating material 30 and 31 to prevent the armatures from sticking due to the residual magnetism of the magnet.

One end of the U-shaped portion of the armatures is pivotally mounted on the shaft 25 as indicated at 32, and the opposite ends of the arms of the armatures are provided with laterally extending flanges 33 and 34. Secured to the flange 34 by rivets or the like 35 is a plate 36 having a contact point 37. Secured to the flange 33 of the armature 26 by a rivet or the like 38 is an insulating strip 39. A strip of insulating material 40 is mounted between the strip 39 and the flange

33 and extends beyond the flange 33 as indicated at 41. Mounted on the outer end of the strip 39 is a plate 42 extending transversely of the strip and secured thereto by a rivet or the like 42' curved as indicated at 43 forming an arm 44 having on its underneath side a contact point 45 adapted to cooperate with the contact point 37. The rivet or pin 42' serves as a post or terminal for an electrical conduit 47 leading to the electromagnet.

The arm 11 has an extension 48 to which is attached one end of a coil spring 49, the opposite end being attached to a bracket 50 carried by the laterally extending flange 34 of the armature 27.

Mounted on the inside edge of the flange 5 by welding or other suitable means is a bracket 51 to which is attached an insulating member 52 by rivets or the like 53 as is the usual practice. A terminal 54 is carried by the insulating member. The cord or conduit 18 having one end connected to the pin 17 of the signal arm has its opposite end connected to the terminal 54. Also leading from this connection 54 of the conduit 18 is an electrical connection or conduit 55 leading to the electromagnet 23. The flange 5 is provided with an opening adapted to receive an electrical conduit 57 leading from a source of supply (not shown), and the conduit engages in the opening by a grommet as indicated at 58 and is also connected to the terminal 54 on the insulator 52 as indicated at 59. Connected to the transverse portion 28 of the armature 23 by riveting or other suitable means is a light flat spring 60 of sufficient length to engage on the upper side face of the bracket 51 for the purpose of bringing the armature 26 to a normal position (Fig. 3) when the current is interrupted. Carried by the back of the housing 2 above spring 60 is a stop 61. This stop is placed about one-half of the distance of the spring from its anchor point. This is to increase the strength of spring 60 when pulled upward by the weight of the arm 11. The stop is in the form of a bracket having an arm which is adjustable to the desired vertical position.

Located within the cover 4 of the housing 2 is a disk or cylindrical member 62 of a size to fit against the edges of the flanged portion 5 of the back member 3 as best illustrated in Fig. 2. The disk 62 is provided with a plurality of openings 63 adapted to align with openings 64 in the cover 4 adapted to contain lenses 65. I preferably provide three of these lenses, one to the right side of the housing, one to the left side of the housing, and one substantially in the center of the upper edge of the housing, so that the signaling light when oscillating will reflect through the openings in either right or left position or substantially vertical neutral position. The openings in the cover 4 are provided with circular flanges 66 (Fig. 2) adapted to receive the annular flanges 67 of the lenses 65, the opposite faces of the flanges bearing against the disk 62 also as best illustrated in Fig. 2. I also provide a gasket 68 to engage between the flanges 66 of the cover and the flanges 67 of the lenses to prevent moisture from entering the housing around the lenses. The lenses are held in place by a rivet or the like 69 extending through the disk 62 and cover 4 (Fig. 2).

The arm 11 comprises substantially a flat rectangular member, and the upper end is provided with a circular portion 70 extending along the back and circular side flanges 71 and 72 along

a portion of the sides of the bulb 13 as best illustrated in Fig. 2, the inside of the member 70 being provided with a reflector surface. The flanges 71 and 72 will prevent light rays from extending to the side lenses when the signal light is not directly behind the lenses. The light will thus be shown only when directly behind the reflectors upon oscillation of the light.

Operation of a device constructed and assembled as described is as follows:

Current is supplied through conduit 57 by turning of a switch (not shown), and the conduit 57 being in contact with the conduits 18 and 55, respectively, current will energize and excite the electromagnet 23 and the light bulb 13 on the signal arm 11. Since normally the armature 27 is pulled upwardly by the weight of the oscillating arm 11 and light through spring 49 and is stopped only by armature 26 through the contact points, it follows that said contacts are closed normally (Fig. 3). As the current is turned on, the armature 26, being directly above the electromagnet, will be attracted downwardly with a stronger force than armature 27, which is slightly off-center of the magnetic field, and also is held back by the weight of the oscillating arm 11. The armature 26 moving downwardly will pull with it armature 27 through the contact points 37 and 45, thereby keeping them closed until armature 26 reaches the top of the electromagnet 23. By this time armature 27 in its descent will have imparted a pull to arm 11 through spring 49 sufficient to swing the oscillating arm 11 to the opposite side of its semi-circular movement. As armature 26 reaches the top or the electromagnet 23, armature 27 will continue a slight travel downwardly (Fig. 4), thereby breaking contact with armature 26 and interrupting the electromagnetic circuit. The top of the electromagnet is beveled slightly from the armature 26 toward armature 27 to allow greater travel of the latter to break the circuit through separation of the contact points carried by the outer ends of the armatures. The armature 26 is then immediately returned to its higher normal level by spring 60, thus widening the gap between the two contact points. The oscillating arm 11 now loaded with kinetic energy will pass dead center or vertical position and continue its travel to the opposite side, gradually pulling armature 27 up to a stop against the contact of armature 26, thus closing the electromagnetic circuit. The momentum of the oscillating arm will carry the same farther than its normal position by stretching coil spring 49 and also flat spring 60 against stop 61. After the swinging member has reached its farthest point of oscillation (Fig. 5), the recoil from the spring 49 and flat spring 60 and pull of the electromagnet will cause the swinging arm 11 to reverse its journey and the same action will take place as described above when the arm 11 started its swing from the opposite side. This pull-pull action of one electromagnet is unique in the fact that the driven member changes direction of motion at every pull.

Spring 60 is weaker than spring 49, and it absorbs the shock of the swinging arm 11 and by yielding, permits armature 26, and consequently armature 27, to reach a higher level above the electromagnet, and the armatures are, therefore, out of the electromagnet's effective range momentarily, thus permitting a slower oscillation of the arm. By adjustment on a vertical plane, the

5

stop 61 controls the amplitude and speed of the oscillating member.

Oscillation of the arm will cause the light to alternately appear before the respective lenses 65 through the openings in the cover and disk of the housing to indicate stopping of the vehicle. When the circuit is interrupted, the spring 49 automatically returns the moving parts of the signal to neutral position.

From the foregoing it will be obvious that I have provided a simple and inexpensive signal device having a movement which more easily attracts the attention of drivers in following vehicles and one having few moving parts which obviates wear on the device.

What I claim and desire to secure by Letters Patent is:

1. A device for producing oscillatory motion including a support, a shaft carried by said support including a pin insulated therefrom, an arm loosely mounted on said shaft, armatures pivotally mounted on said support, means including a coil spring connecting the arm with one of said armatures, an electromagnet carried by said support, means for alternately energizing said electromagnet whereby said arm will be oscillated, and means limiting movement of said arm, said last named means including a stop and a spring carried by one of the armatures and adapted to engage under said stop.

2. A device for producing oscillating motion to an object including a support, a shaft carried by said support, an arm loosely mounted on said shaft, armatures pivotally mounted on the support, contact points carried by one of the armatures, an insulating piece secured to the other armature, an arm carried by said insulating piece having a contact point adapted to normally engage the other contact point, means including

6

a coil spring connecting the first named arm with one of said armatures, an electromagnet carried by said support, means on said armatures to allow one armature to pivot past the other to break the contact for alternately energizing said electromagnet to oscillate said arm, and means limiting movement of said first named arm, said last named means including a stop and a spring carried by one of the armatures and adapted to engage under said stop.

3. A device for producing oscillatory motion to an arm including a support, a shaft carried by said support, an arm loosely mounted on said shaft, armatures pivotally mounted on the support, contact points carried by one of the armatures, an insulating piece secured to the other armature, an arm carried by said insulating piece having a contact point adapted to normally engage the other contact point, means including a coil spring connecting the first named arm with one of said armatures, an electromagnet carried by the support, means on said armature to allow one armature to pivot past the other to break said contact for alternately energizing said electromagnet to alternately oscillate said arm, and means limiting movement of said arm.

LUDOVIC CRISTOPHER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,262,326	Grabe	Apr. 9, 1918
1,751,018	Signor	Mar. 18, 1930
2,002,330	Signor	May 21, 1935
2,035,841	Signor	Mar. 31, 1936
2,442,203	Harrington	May 25, 1948