

F. W. LOHR.
 SIGNALING APPARATUS.
 APPLICATION FILED JAN. 11, 1915.

1,244,873.

Patented Oct. 30, 1917.
 2 SHEETS—SHEET 2.

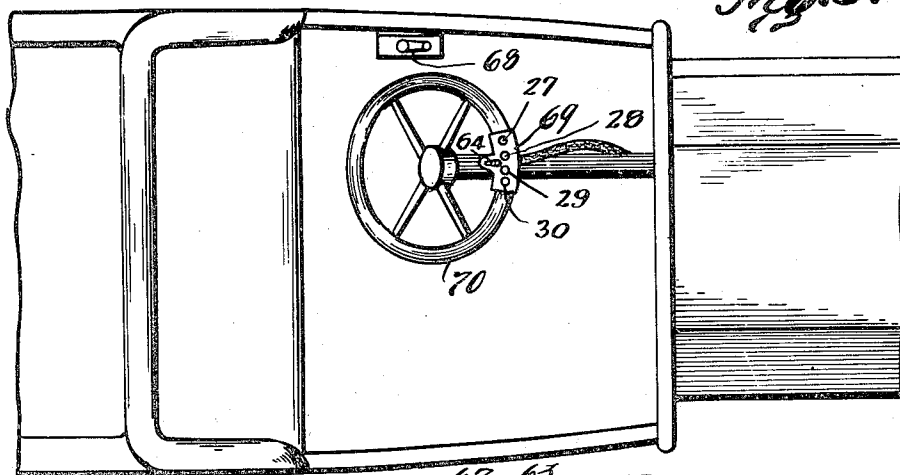


Fig. 5.

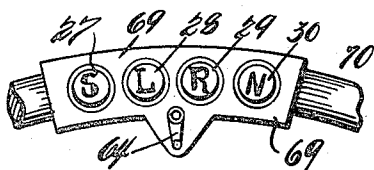


Fig. 6.

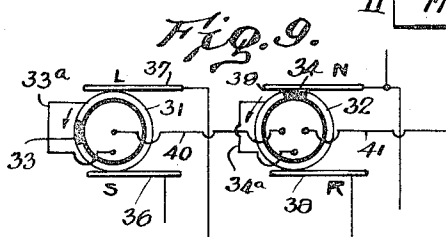


Fig. 9.

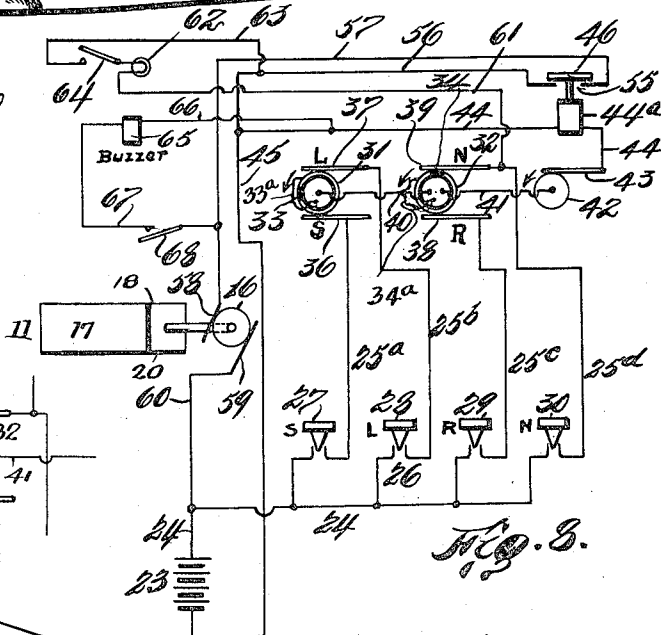


Fig. 8.

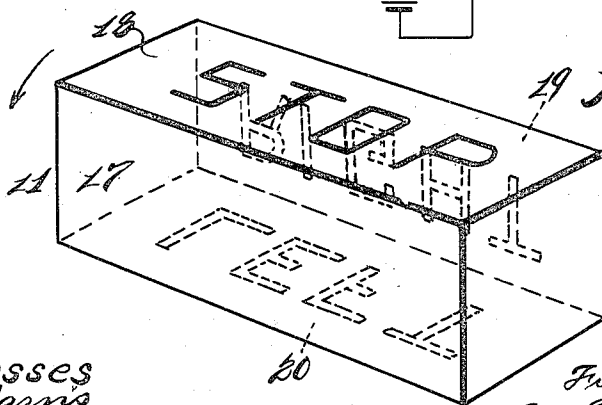


Fig. 7.

Witnesses
 C. A. Jarvis
 A. E. Munster

Inventor
 Fred W. Lohr
 by Geo. F. Hullock
 attorney

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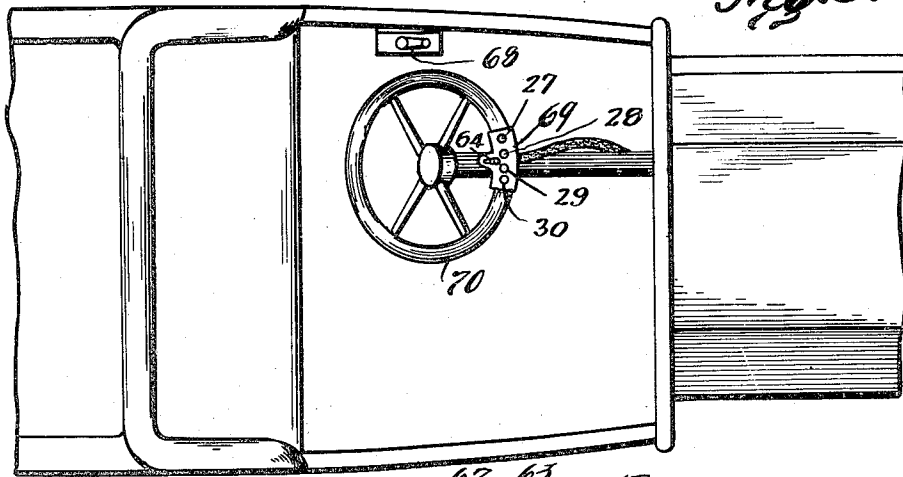


Fig. 5.

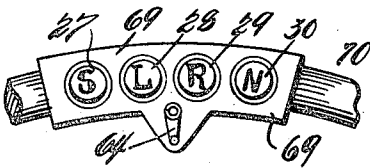


Fig. 6.

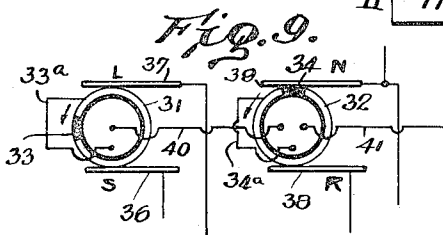


Fig. 9.

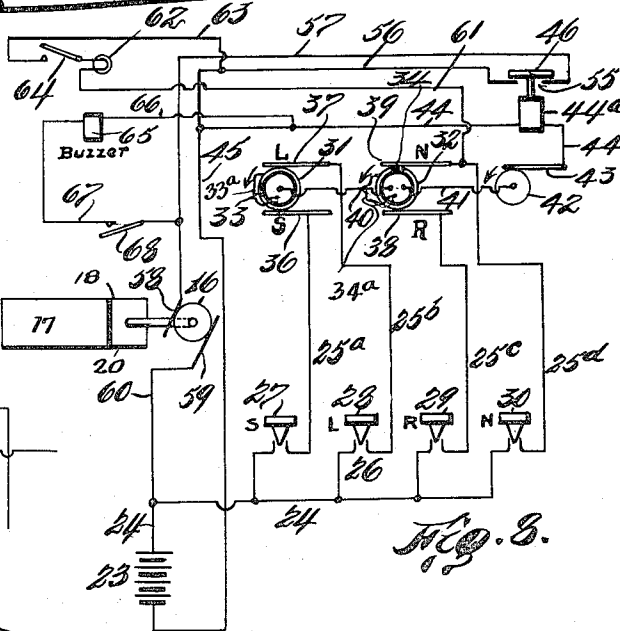


Fig. 8.

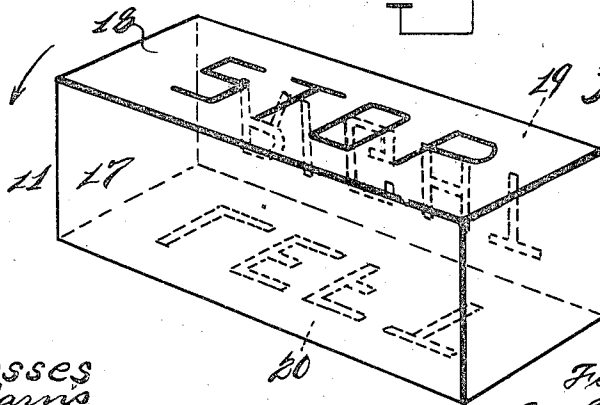


Fig. 7.

Witnesses
 C. A. Jarns
 A. Blumstein

Inventor
 Fred W. Lohr
 by Geo. F. Schubert
 attorney

UNITED STATES PATENT OFFICE.

FRED W. LOHR, OF NEW YORK, N. Y.

SIGNALING APPARATUS.

1,244,873.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRED W. LOHR, a citizen of the United States, residing at New York, borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Signaling Apparatus, of which the following is a specification.

This invention relates to signaling apparatus preferably operated electrically and more particularly designed for use on motor cars for the purpose of indicating whether the car is to turn in one or the other direction or is to come to a stop. One of the objects of the invention is to provide a signaling apparatus, the main parts of which shall be compact and occupy as small a space as possible, and which can if desired, be placed on the tail end of a motor car. Other objects of the invention are to provide simple, practical and efficient means for signaling a certain act to be done or to refrain from doing, operated preferably electrically.

These being among the objects of the present invention, the same consists of certain features of construction and combinations of parts to be hereinafter described and then claimed with reference to the accompanying drawings illustrating a desirable embodiment of the invention, in which—

Figure 1 is a front elevation of a case which may contain the main parts of the apparatus;

Fig. 2 is an enlarged section of the same showing the interior parts partly in elevation and partly in section;

Fig. 3 is a section on the line 3—3 Fig. 2, partly broken away;

Fig. 4 is a section on the line 4—4 Fig. 2;

Fig. 5 is a plan view of a portion of the front end of a motor car illustrating certain switches and push buttons;

Fig. 6 is a broken detail view showing how the push buttons are preferably mounted;

Fig. 7 is a perspective view of a plain prism which is illustrative of the poly-faced indicator and shows the position of the indications thereon;

Fig. 8 is a diagrammatic view showing portions of the apparatus and the electric circuits and connections and

Fig. 9 is an enlarged diagrammatic view of portions of the circuits.

The main parts of the apparatus are preferably inclosed in the box or case 10 shown in Figs. 1 to 4 inclusive and in which is mounted a poly-faced rotatable indicator or drum 11 which is journaled at 12, 13 in said case. The shaft of said indicator carries a gear wheel 14 while a pinion 15 meshes therewith and is rotated by means of an electric or other motor 16. An electric motor is shown. Indicator 11 preferably has four faces 17, 18, 19 and 20, and the face 17 is preferably plain as shown in Figs. 2 and 7, so as to indicate that the apparatus is normal or neutral, and when the device is applied to a motor car, it indicates no act to be done. The face 18 preferably bears the word "Stop", the face 19 the word "Right", and the face 20 the word "Left". One of the objects of the present invention is to cause these faces to be visible through a transparent plate or pane 21 which is located on the case or box 10. If the word "Right" appears it indicates that a motor car provided with these improvements is to be turned to the right; if the word "Left" appears it indicates that the car is to be turned to the left, and if the word "Stop" appears it indicates that the car is to come to a stop. Consequently the operator of another car approaching the said car from the rear will know what is to happen to the car in front. Preferably the said indicator turns in the direction of the arrows. The case 10 with its contained parts may be supported on a motor car or elsewhere as by means of a bracket 22 fully shown in Fig. 1.

Referring particularly to the diagram Fig. 8, a battery 23 is connected at one end with a wire 24, from which lead branches 25^a, 25^b, 25^c and 25^d, which are each provided with a break at 26 which breaks are adapted to be closed by means of manually operated devices or switches such as push buttons 27, 28, 29 and 30. If there are four faces to the indicator 11, there will be four corresponding push buttons. Referring particularly to Figs. 2, 3 and 4, metallic conductors 31 and 32 are shown, which are preferably the segments of rings, with their gaps closed by means of insulating material at 33, 34, and these annular conductors are mounted firmly upon an extension 35 of the rotary indicator 11. The insulation 33 is set off relatively to the insulation 34 around the circumference 35, so that said insulations are located at a distance apart corresponding to preferably

a quarter of a revolution of said indicator. Metallic brushes 36, 37 are preferably located diametrically opposite each other so as to be in position to bear upon the annular conductor 31 and its insulation, while similarly located metallic brushes 38, 39, are adapted to bear upon conductor 32 and its insulation. It is preferred that normally the brush 39 rests upon insulation 34 (see diagram Fig. 8), while the remaining brushes normally bear upon the annular conductors carried by the indicator. As indicated in said diagram, a wire 40 connects the annular conductors 31, 32, said conductors being insulated from the part of the indicator which carries them. Since the extension 35 is composed of metal, it will be seen from diagrammatic Fig. 9 that short bridges 33^a and 34^a from the conducting rings 31, 32, respectively, to the wires 40, 41, will enable the completion of the desired push button circuits. Annular conductor 32 is by means of a wire 41 electrically connected with a metallic conducting ring 42 which is also mounted upon, but at the extremity of, the extension 35. The annular conducting ring 42 is engaged by a brush 43 connected with a wire 44 which leads around a magnet or solenoid 44^a, adapted to be energized by a current flowing through the foregoing electric connections except that preferably the brush 39 does not connect electrically with said magnet. The wire 44 connects with a return wire 45 to the other end of the battery 23. Any one of the wires 25^a, 25^b, 25^c and 25^d is therefore adapted to form a part of a main circuit which includes the electrical devices referred to.

A contact 46 is adapted to be operated by said magnet or solenoid, while the armature or core thereof operates a latch 47 (see Fig. 4), which is pivoted to the case 10 at 48 and is provided with an arm 49 under pressure of a spring 50 which is adapted to throw said latch away from the magnet or solenoid when the latter is deenergized. In this position the latch 47 is adapted to engage one or the other of a series of abutments or pins 51, 52, 53 and 54 which extend radially from the indicator extension 35 and may be located between the segmental annular conductors 31, 32. The energization of the magnet or solenoid 44^a withdraws the latch 47 from a stop then in contact with it, whereupon the motor 16 turns the indicator and when a position of the same corresponding to the desired position controlled by one of the push buttons is reached, the magnet is deenergized and the indicator is immediately stopped by the return and release of the latch 47 so that it will be in position to be engaged by the appropriate pin or abutment.

Referring now to Figs. 2, 4 and 8, it will be seen that the double contact 46 is adapted

to close a break 55 in the motor circuit which is in parallel with the push button or magnet circuit before described. The motor circuit comprises wires 57 and 56 of which wire 56 leads to one end of the battery 23 or other source of electrical energy, while the wire 57 is connected with a brush 58 for the armature of the motor, the other brush 59 of which is connected by wire 60 to the other end of the source of electrical energy, through a part of wire 24. It will be seen that whenever magnet 44^a is energized through the actuation of any of the manually operated devices 27, 28, 29 and 30, the motor circuit is closed and the motor therefore runs.

The improved signaling apparatus is preferably provided with means for illuminating and lighting up the indications on the indicator 11. To this end a shunt circuit is preferably included between any of the push buttons other than the neutral or normal push button 30, which shunt circuit comprises the neutral or normal contact brush 39, a wire 61, a lamp 62, and a wire 63 leading from the lamp and electrically connected with the motor circuit at wire 56. A switch 64 may control the described lamp circuit. It will be seen that current will be supplied to the lamp circuit whenever any of the push buttons 27, 28 or 29 are actuated, so that the indication then appearing on the indicator will be lighted up. This action will conserve the supply of electricity, inasmuch as the light will be extinguished whenever the indicator is in normal or neutral position as no current is then required. In the latter position it will be seen that the neutral or normal contact brush 39 rests on the insulation 34 so that if the neutral or normal push button 30 is actuated, the lamp will be lighted because the current does not then have to pass through contact 39. It is clear that when one of said push-buttons 27, 28, 29 is actuated, the movement of the indicator removes the insulation 34 from the contact 39 and establishes a circuit through the segment 32 and the said contact, and thus through the lamp. And, although the indicator is at rest and set to any other position than neutral by either of said buttons 27, 28, 29, the closing of the lamp circuit can be maintained by the button 30 as long as that button is depressed. This is so whether the car is turning to the left or right or is at rest, or even going straight ahead, because the button 30 does not close any circuit through the neutral contact 39.

For the purpose of testing the circuits of the electro-magnet 44^a and motor, a buzzer or similar sounder 65 is preferably employed. A wire 66 leads from one side of the buzzer to wire 44 on the one hand and a wire 67 leads from the other side of the buzzer on the other hand to wire 57 of the motor cir-

cuit. If the motor circuit is all right, the magnet circuit can be tested because the buzzer 65 is in a shunt of the motor circuit. This is so because if the magnet circuit is not all right when any of the push buttons is operated after closing switch 68, the buzzer sounds just as loud as when the motor circuit alone is tested and found to be all right. If both circuits are all right when the push button is operated, the sound will be weaker than in the case just before mentioned, as the full strength of the current will not be imposed on the motor circuit alone. In testing the motor circuit, it is only necessary to close switch 68, but the magnet circuit can not be tested unless the motor circuit is all right. Consequently when switch 68 controlling the buzzer circuit is closed in order to condition the circuits for testing, the motor circuit and accessories and the push button or magnet circuit and accessories can be tested.

Preferably the push buttons 27, 28, 29 and 30 are mounted upon a support or bracket 69 which is secured to the wheel 70 of the steering device of a motor car, when the apparatus is used in that connection. This location will place all of the push buttons under the ready control of the operator of the car. Preferably the lamp switch 64 is located on the same support or bracket or as fully shown in Figs. 5 and 6. Preferably the buzzer or sounder switch 68 is located within ready access of the operator of the apparatus.

From the above description the following method of operation will appear. Assuming that the manually operated device or push button 27 is actuated, current will be supplied from the battery through wire 24, branch 25^a and push button 27, contact brush 36, wires 40, 41, annular contact 42, contact brush 43, wire 44 and magnet 44^a and wire 45 back to the source of electrical energy. Said button 27 corresponds to the stopping position, and indicates that the motor car is to come to a stop, and the actuation thereof will supply current to energize the magnet 44^a. This action will release the latch 47 from the neutral or normal stop 51, and the indicator, if of the construction shown, will be given a quarter turn, which will place the insulation 33 opposite the contact brush 36, whereupon the magnet circuit and the motor circuit will be broken, the motor stopped and the indicator set to indicate "stop". A some what similar action will occur when push buttons 28 and 29 are actuated so that the indicator will be set to indicate that the machine is to turn to the left or to the right according to which push button is actuated. When push button 28 closes the magnet circuit and thereby the motor circuit, the indicator described will be given a three-quarter revolution which will bring the insulation 33 opposite the contact brush 37. When

push button 29 is actuated, the indicator will be given a one-half revolution which will set the insulation 34 opposite the brush 38. It will be seen that when these circuits are closed, the lamp circuit will also be closed so as to illuminate the indication then appearing.

It is obvious that the described invention can be modified as parts can be omitted; parts added, and parts substituted without departing from the spirit and scope of the invention as claimed.

What I claim is:—

1. In a signaling apparatus, the combination of a poly-faced rotatable indicator, some of the faces at least of which bear separate indications, a motor connected therewith, a series of manually operated selecting devices, of equal number to the faces of said indicator, an escapement device having stop positions corresponding in number to said faces, a single means of control for said escapement device, common to said selecting devices, and being electrically disconnected from said motor but operable on said escapement device to permit said motor to operate on said indicating means, and means controlled by the movement of said indicating means for acting on said single controlling means for shutting off said motor when the desired stop position is reached, said single controlling means being controllable by each of said selecting devices separately and independently of the presence of said motor in said apparatus.

2. In a signaling apparatus, the combination of a shiftable indicator, having indicating faces, a motor connected with said indicator, a series of selecting devices of equal number to the said faces of said indicator, an escapement device having stop positions corresponding in number to said faces, an electro-magnet for controlling the position of said escapement device, electric circuits for energizing said magnet through the operation of any of said selecting devices, means actuated by a portion of said escapement device for effectuating the actuation of said motor, said indicator having a neutral indicating position, a lamp, and means for controlling said lamp to light up when said indicator is being set by said motor to display one of said indicating faces, said lamp controlling means comprising conducting means carried by said indicator and having a break therein, a neutral contact located opposite said break when said indicator is at said neutral indicating position, and an electric circuit including said conducting means, contact and lamp.

3. In a signaling apparatus, the combination of a shiftable indicator, having indicating faces, an electric motor connected with said indicator, a motor circuit, a series of selecting devices of equal number to the

said faces of said indicator, an escapement device having stop positions corresponding in number to said faces, an electro-magnet for controlling the position of said escapement device, electric circuits for energizing said magnet through the operation of any of said selecting devices, and means actuated by a portion of said escapement device for closing said motor circuit and actuating said motor.

4. In a signaling apparatus, the combination of a shiftable indicator, some of the faces at least of which bear separate indications, an electric motor connected therewith, a motor circuit, a series of manually-operated selecting devices of equal number to the faces of said indicator, abutments on said indicator corresponding to all of said faces, a movable stop for said abutments, an electro-magnet for controlling the position of and releasing said stop, electric circuits for energizing said magnet through the operation of any of said manual selecting devices, and means actuated by the release of said stop for closing said motor circuit and actuating said motor.

5. In a signaling apparatus, the combination of a shiftable indicator, having indicating faces, an electric motor connected with said indicator, a motor circuit, a series of selecting devices of equal number to the said faces of said indicator, an escapement device having stop positions corresponding in number to said faces, an electro-magnet for controlling the position of said escapement device, electric circuits for energizing said magnet through the operation of any of said selecting devices, and means actuated by a portion of said escapement device for closing said motor circuit and actuating said motor, said indicator having a neutral indicating position, a lamp, and means for controlling said lamp to light up when said indicator is being set through the actuation of said selecting devices to display one of said indicating faces, said lamp controlling means comprising conducting means carried by said indicator and having a break therein, a neutral contact located opposite said break when said indicator is at said neutral indicating position, and an electric circuit

including said conducting means, contact and lamp, and means in addition to said selecting devices for closing the said lamp circuit.

6. In a signaling apparatus, the combination of a shiftable indicator, having indicating faces, an electric motor connected with said indicator, a motor circuit, a series of selecting devices of equal number to the said faces of said indicator, an escapement device having stop positions corresponding in number to said faces, an electro-magnet for controlling the position of said escapement device, electric circuits for energizing said magnet through the operation of any of said selecting devices, and means actuated by a portion of said escapement device for closing said motor circuit and actuating said motor, an audible signal, a circuit including said audible signal, and a manually-operated switch for closing the latter circuit, which is connected with the other said circuits for testing them in any one of the indicating positions of said indicator.

7. In a signaling apparatus, the combination of a poly-faced rotatable indicator, some of the faces at least of which bear separate indications, an electric motor connected therewith, a motor circuit, a series of manually operated devices, of equal number to the faces of said indicator, abutments on said indicator corresponding to all of said faces, a movable stop for said abutments, an electro-magnet for controlling the position of and releasing said stop, electric circuits for energizing said magnet through the operation of any of said manual devices, and means actuated by the release of said stop for closing said motor circuit and actuating said motor, an audible signal, a circuit including said audible signal, and a manually operated switch for closing the latter circuit, which is connected with the other said circuits for testing them in any one of a number of rotated positions of said indicator.

FRED W. LOHR.

Witnesses:

GEO. L. WHEELOCK,
BEATRICE MIRVIS.