H. W. HAWES.

ELECTROMECHANICAL TRAFFIC SIGNAL.

APPLICATION FILED MAR. 2, 1917.

1,265,197.

Patented May 7, 1918.

3 SHEETS—SHEET 1.

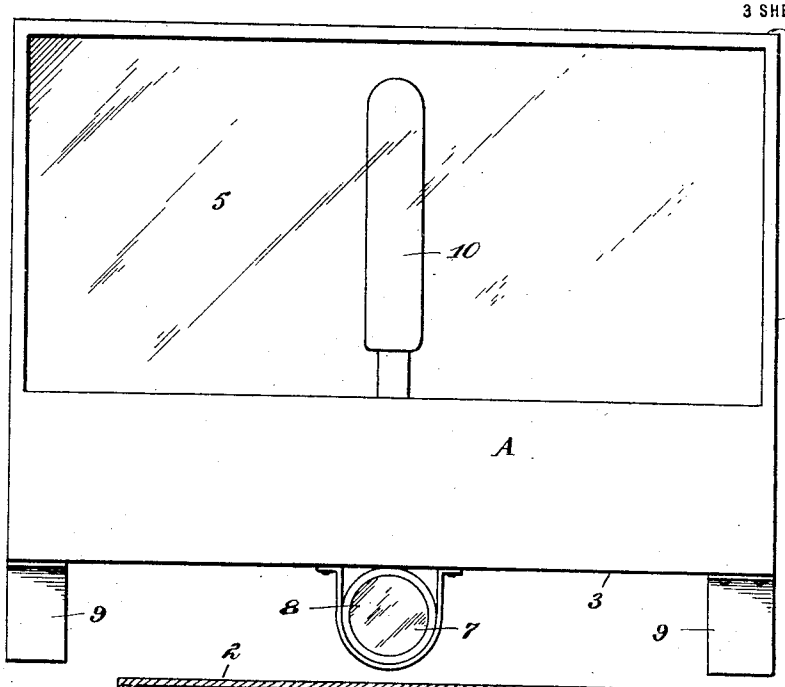

Fig. 1

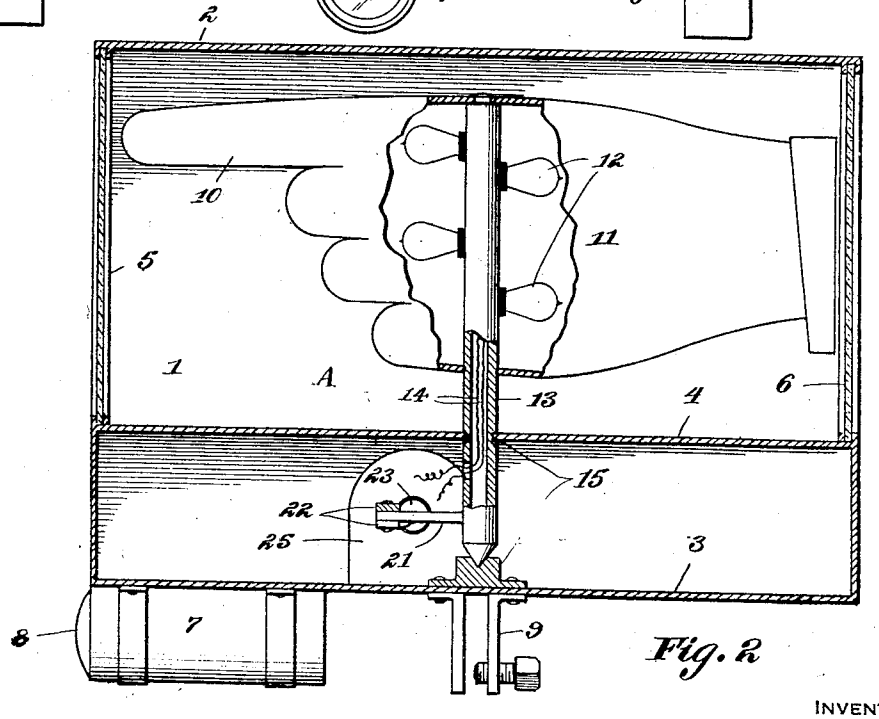

Fig. 2

WITNESSES

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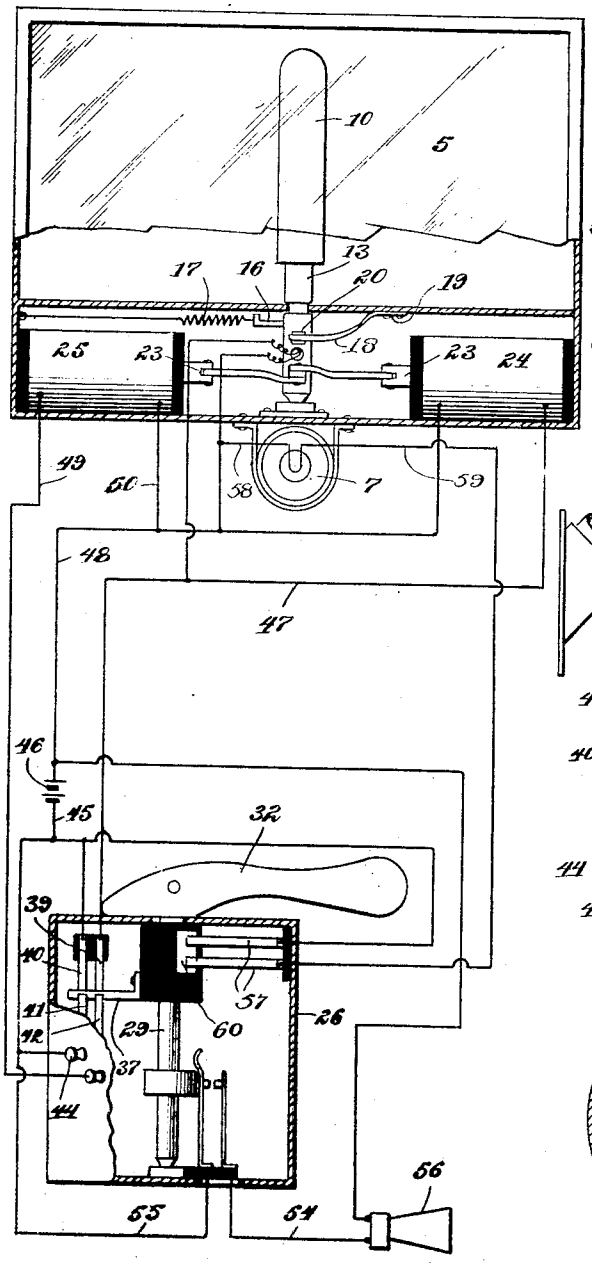


Fig. 3

Fig. 4

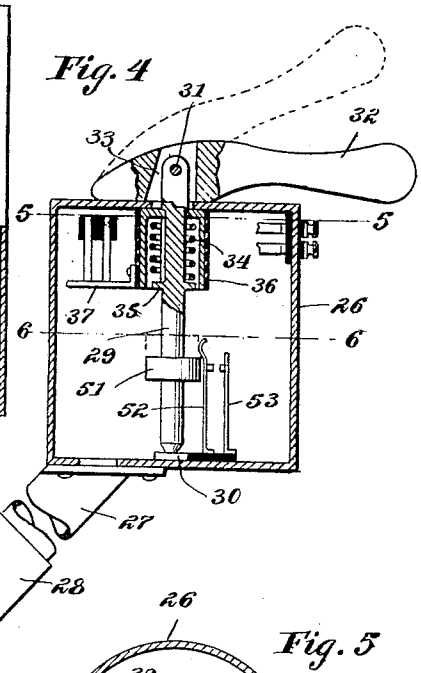
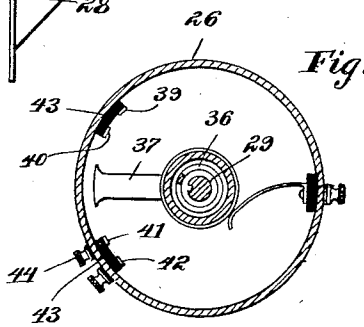


Fig. 5



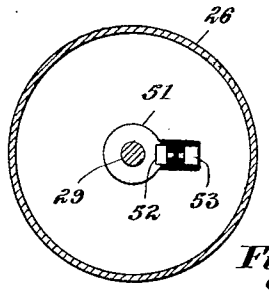


Fig. 6

WITNESSES

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3 SHEETS—SHEET 3.

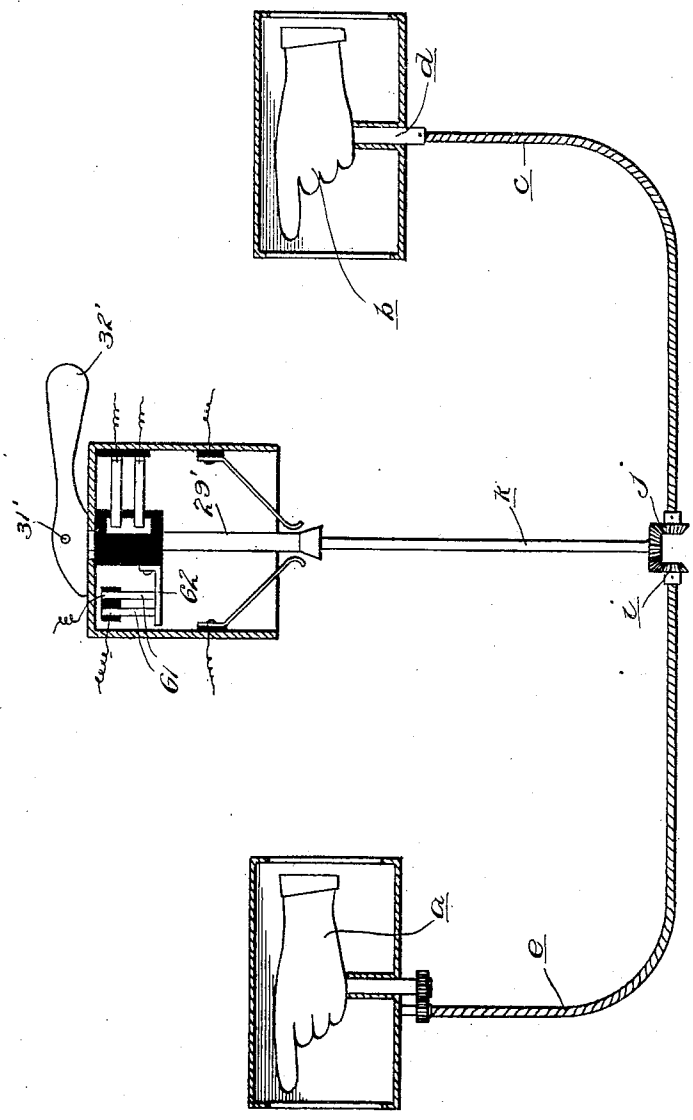

Fig. 7

WITNESSES

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UNITED STATES PATENT OFFICE.

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ELECTROMECHANICAL TRAFFIC-SIGNAL.

1,265,197. Specification of Letters Patent. Patented May 7, 1918.

Application filed March 2, 1917. Serial No. 152,113.

To all whom it may concern:

Be it known that I, HENRY W. HAWES, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Electromechanical Traffic-Signals, of which the following is a specification.

This invention relates to electromechanical traffic signals, the same being especially designed for use on automobiles, motor trucks and motor vehicles in general. The object of the invention is to produce a combined visual and audible signal capable of being used either in day light or at night time and which will indicate to the public in general the direction in which the operator of the vehicle intends to turn as well as when he intends to proceed in a straight ahead direction; also to advise others that the operator intends to make some change either in the direction of movement or the speed of the machine equipped with the signal.

With the above and other objects in view, the invention consists in the novel construction combination and arrangement of parts, herein fully described, illustrated and claimed.

In the accompanying drawings:

Figure 1 is a face view of the casing of the signal.

Fig. 2 is a vertical section through the same taken transversely of the normal direction of movement of the vehicle.

Fig. 3 is a vertical longitudinal section through the same, also showing the switch and illustrating the wiring diagrammatically.

Fig. 4 is a vertical longitudinal section through the control and switch box.

Fig. 5 is a horizontal section on the line 5—5 of Fig. 4.

Fig. 6 is a horizontal section on the line 6—6 of Fig. 4.

Fig. 7 is a sectional diagrammatic view showing manually operating means for a plurality of signals.

The casing for the signal proper is shown in the form of a box preferably composed of metal and embodying the sides 1, top 2, bottom 3, false bottom 4 located a suitable distance above the bottom 3, and the transparent or glass panels 5 and 6 arranged respectively at the front and rear of the casing in order that the signaling member may be observed either from the front or rear of the machine. The casing 6 designated generally at A has arranged beneath the same and connected fixedly thereto the tail lamp casing extension 7 having the usual red panel or glass 8 which is disposed toward the rear of the machine. The casing A is also shown as provided with clamps 9 extending outwardly therefrom for the purpose of receiving clamping and holding the usual license number plate (not shown).

Mounted within the casing is an indicator or pointer 10 shown for convenience in the form of a hand having its opposite faces composed of translucent panels 11 arranged in spaced relation to each other in order to enable any desired number of lamps 12 to be placed between the same for illumination purposes. The indicator 10 is mounted upon a tubular shaft 13 through which extend the wires 14 leading to and from the lamps 12. The shaft 13 is journaled in one or more steps or bearings 15 to turn on a substantially vertical axis. The shaft 13 extends through and below the false bottom 4 where it is provided with an off-standing arm 16 to which is connected one extremity of a centering spring 17 the opposite extremity of which is connected to a fixed point within the casing. The spring 17 serves to hold the indicator 10 pointing straight ahead and to return the indicator to said position when it has been moved therefrom. 18 designates a leaf spring which is fixedly secured at 19 to the casing and which bears against a flat face 20 on the shaft 13, the spring 18 assisting the spring 17 in holding the shaft 13 so that the indicator 10 will point straight ahead.

The shaft 13 is also provided with a crank arm 21 to which are attached oppositely extending connecting rods 22. These rods are connected to the cores 23 of solenoid magnets 24 and 25 arranged at opposite sides of the shaft 13.

26 designates a control and switch box located within convenient reach of the driver and preferably mounted upon the upper end of an inclined tubular support 27 secured to the floor or body of the car by a supporting bracket 28, the tubular support 27 being adapted to contain the wires leading from the switches in the box 26 to the solenoid and the lamps which illuminate the indicator. 29 designates a rock shaft which is journaled in one or more bearings 30 in the box or casing 26, said shaft 29 being also

adapted to slide in its bearings for a limited distance in the direction of length thereof. One end of the shaft 29 is connected by means of a pivot 31 to a manually operable lever 32 which controls the switch and signal. The lever 32 is formed with a recess 33 to receive the adjacent end of the shaft 29, said end of the shaft being squared to receive the lever 32 so that when said lever 32 is turned to one side or the other, a corresponding movement is imparted to the shaft 29. The shaft 29 and the lever 32 are normally held in the positions shown in Fig. 4 by means of a coiled spring 34 which surrounds the shaft 29 and is interposed between a collar 35 fast on the shaft 29 and the adjacent end wall of the casing 26 next to the lever 32. Surrounding and inclosing the spring 34 is a hollow switch operating member 36 which is so keyed to or otherwise associated with the shaft 29 that it turns with said shaft. The member 36 is provided with a projection 37 extending in the same direction as the handle 32, the projection 37 normally occupying the neutral position in relation to the electric switch as shown in Fig. 3. Located at one side of the member 36 are two spring switch contact members 39 and 40 while two other like members 41 and 42 are located at the opposite side of the member 36. The members 40 and 41 are preferably in one piece or connected together at their lower ends where all of the members 39, 40, 41 and 42 are fastened to a common insulating block or base 43. From a binding post 44 common to both members 40 and 41, a wire 45 leads to a battery or other source of electrical energy 46. A wire 47 extends from the contact member 39 to the solenoid 24 while a return wire 48 leads from said solenoid back to the battery 46. From the contact member 42 a wire 49 leads to the solenoid 25 and a return wire 50 leads from said solenoid back to the battery 46, being shown as spliced into the other return wire 48. When the lever 32 is moved laterally in one direction, the projection 37 bridges the members 39 and 40 thereby energizing the magnet 24 and turning the indicator 10 in one direction. By moving the lever 32 in the opposite direction, said magnet is deënergized while the other magnet is energized by the projection 37 bridging the members 41 and 42. When the lever 32 is moved to its neutral and normally upright position, neither of the solenoid magnets is energized. The spring 17 as previously stated serves to hold the indicator pointing straight ahead.

Mounted upon and carried by the shaft 29 is a collar 51 which coöperates with one of a pair of spring contact members 52 and 53, wires 54 and 55 leading therefrom to an electric horn or signal 56 of any suitable type, the collar 51 coöperating with the member 52 to press the latter against the member 53 and complete the electric circuit to the horn when the shaft 29 is moved longitudinally by shifting the lever 32 from the full line position shown in Fig. 4 to the dotted line position in the same figure.

From the foregoing description taken in connection with the accompanying drawings it will now be understood that the indicating signal 10 is visible both by day and by night, being internally illuminated at night time by the lamps contained therein. Normally the indicator 10 is held in a straight forward direction by means of the spring 17 assisted by the spring 18. When the operator desires to turn to the left, he presses the lever 32 to the left thereby energizing the magnet 24 and drawing the core 23 thereof in the proper direction to turn the shaft 13 and cause the indicator 10 to point to the left. To swing the indicator 10 to the right to indicate a right hand turn, the operator presses the lever 32 in the opposite direction or to the right. To produce an audible signal, the operator moves the lever 32 away from the box or casing 36 thereby longitudinally shifting the shaft 29 and closing the circuit which controls the horn. If desired, the operator may move the lever 32 in both ways at the same time or in other words he may swing said lever to the right or to the left and also move the lever in such a way as to slide the shaft 29, in this way producing an audible signal as well as displaying a visual signal, or he may operate one type of signal and follow that with the other type of signal, either one in advance of the other.

When the lever 32 is set to point in a forward direction, terminals 57 of the tail lamp circuit wires 58 and 59 are bridged by a contact plate 60 carried by the shaft 29. When the lever 32 is turned to the right or to the left, the directional signals are energized and the circuit of the tail lamp 7 is broken. This avoids any confusion which may be caused by displaying a plurality of red lights at the rear of an automobile or other motor vehicle.

In Fig. 7, I have illustrated simple means for simultaneously operating a plurality of signals, *a* for example designating a signal arranged at the front of an automobile and *b* a signal arranged at the rear of the machine. A flexible shaft *c* is connected directly to the shaft *d* of the signal *b* and another flexible shaft *e* is connected by reverse motion gears to the shaft *h* of the signal *a*. The flexible shafts *c* and *e* are connected by bevel gears *i* and *j* to an extension shaft *k* of the shaft 29′ of the switch operated by the hand lever 32′ corresponding with the lever 32 of the preceding figures. By rocking the lever 32′ on its pivotal connection 31′, the signal circuit terminals 61 are bridged by a projection or shoulder 62 on

the shaft 29'. The operating mechanism just described causes the shafts *d* and *h* to turn in the same direction so that both of the indicators or pointers *a* and *b* will be extended in the same direction, either to the right or to the left or straight ahead.

In Fig. 7 the wires leading off from the contact 61 lead to the horn or audible signal. The wires at the upper right hand corner lead to the tail light, and the wires at the upper left hand corner lead to the lights in the hands or indicators *a* and *b*.

It will of course be understood that the signal as a whole is susceptible to changes in the form, proportion and minor details of construction, and these may accordingly be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

I claim:—

1. The combination of a directional indicator mounted for movement to point in selected directions, electrically controlled means operating to turn said indicator to one side or the other, a switch for controlling the last named means, an audible signal, an electric circuit controlling said audible signal and including a circuit closer, a manually operable lever, an oscillatory and longitudinally shiftable shaft actuated by said lever, means on said shaft for operating the indicator controlling switch, and other means on said shaft for controlling the circuit closer of the audible signal.

2. The combination of a directional indicator mounted for movement to point in selected directions, electrically controlled means operating to turn said indicator to one side or the other, a switch for controlling the last named means, an audible signal, an electric circuit controlling said audible signal and including a circuit closer, a manually operable lever, an oscillatory and longitudinally shiftable shaft actuated by said lever, means on said shaft for operating the indicator controlling switch, and other means on said shaft for controlling the circuit closer of the audible signal, said shaft and lever being so mounted that the shaft may be turned without moving the same longitudinally and so that said shaft may be moved longitudinally without being turned.

3. The combination of a directional indicator mounted for movement to point in selected directions, electrically controlled means operating to turn said indicator to one side or the other, a switch for controlling the last named means, an audible signal, an electric circuit controlling said audible signal and including a circuit closer, a manually operable lever, an oscillatory and longitudinally shiftable shaft actuated by said lever, means on said shaft for operating the indicator controlling switch, and other means on said shaft for controlling the circuit closer of the audible signal, the arrangement being such that the indicator controlling switch and the circuit closer for the audible signal may be operated independently of each other, or simultaneously, or one after the other.

4. The combination of a directional indicator mounted for movement to point in selected directions, electrically controlled means operating to turn said indicator to one side or the other, a switch for controlling the last named means, an audible signal, an electric circuit controlling said audible signal and including a circuit closer, a manually operable lever, an oscillatory and longitudinally shiftable shaft actuated by said lever, means on said shaft for operating the indicator controlling switch, other means on said shaft for controlling the circuit closer of the audible signal, said indicator being of hollow formation and having translucent sides and being mounted upon a tubular shaft, and electric illuminating means within said indicator, the circuit wires of which are carried through said tubular shaft.

5. The combination of a directional indicator mounted for movement to point in selected directions, means for turning said indicator to one side or the other, an audible signal, an electric circuit controlling said audible signal and including a circuit closer, a manually operable lever, an oscillatory shiftable shaft actuated by said lever, an indicator controlling switch, means on said shaft for operating the indicator controlling switch, and other means on said shaft for controlling the circuit closer of the audible alarm.

In testimony whereof I affix my signature.

HENRY W. HAWES.