May 9, 1933. H. O. CZECH 1,908,124

SIGNALING DEVICE FOR AUTOMOBILES

Filed Aug. 31, 1928

Fig. 1.

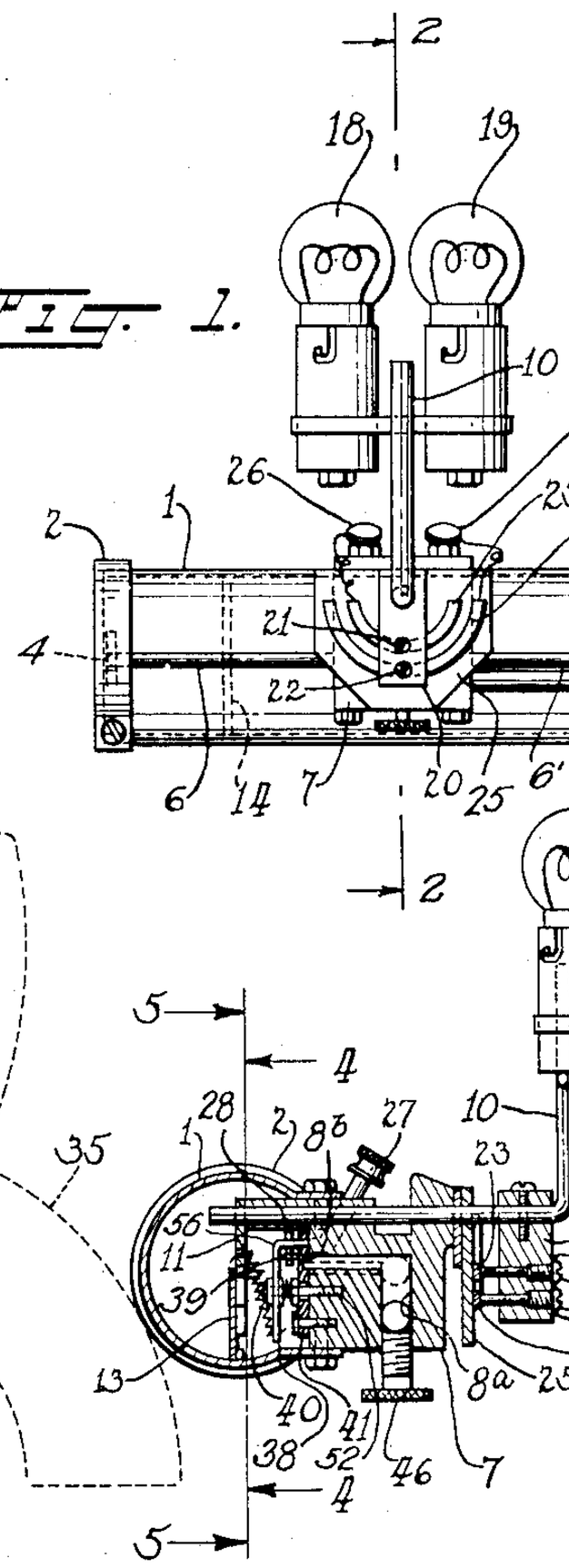
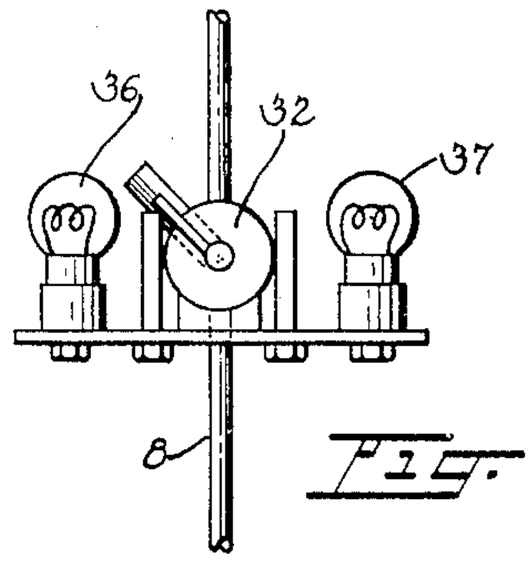


Fig. 3.



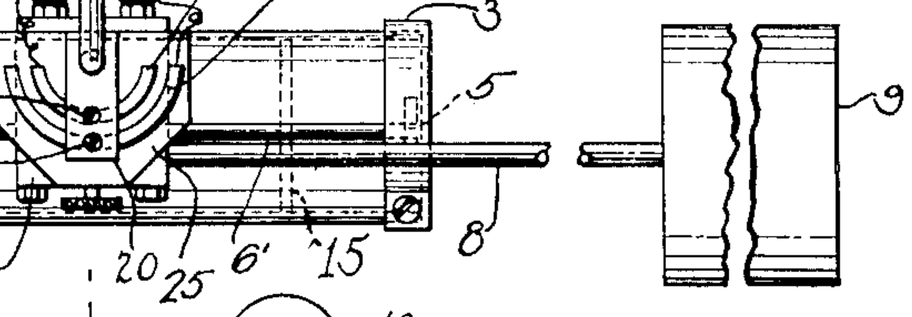


Fig. 2.

Fig. 7.

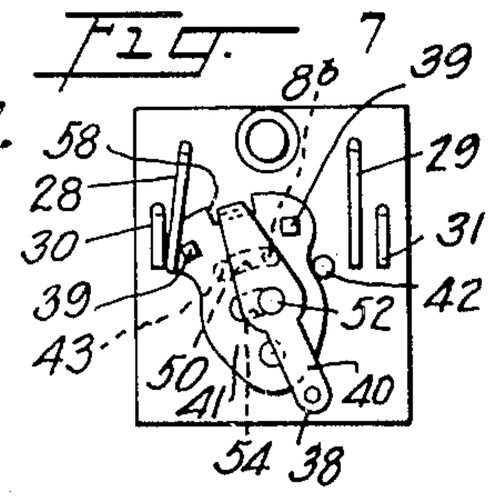


Fig. 4.

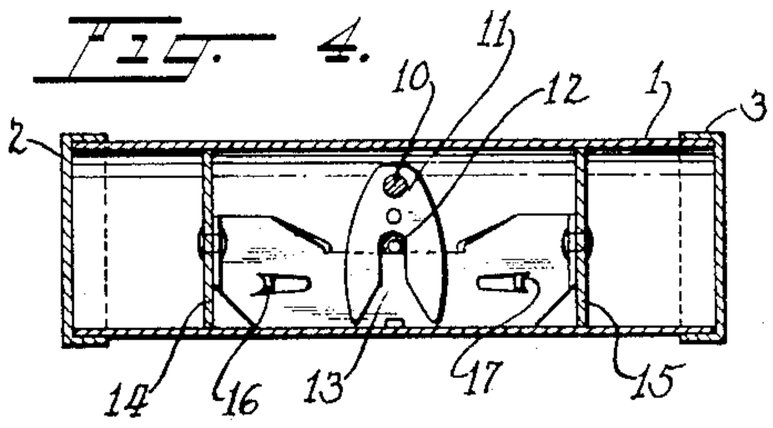


Fig. 6.

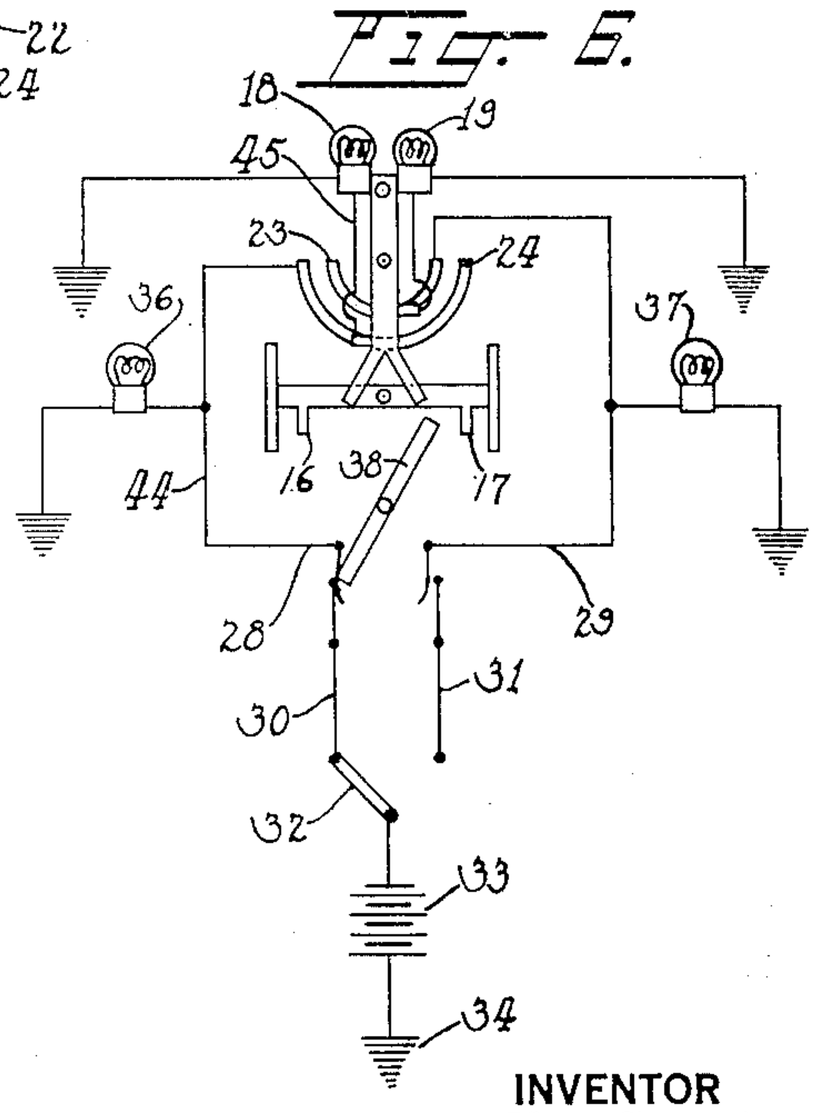
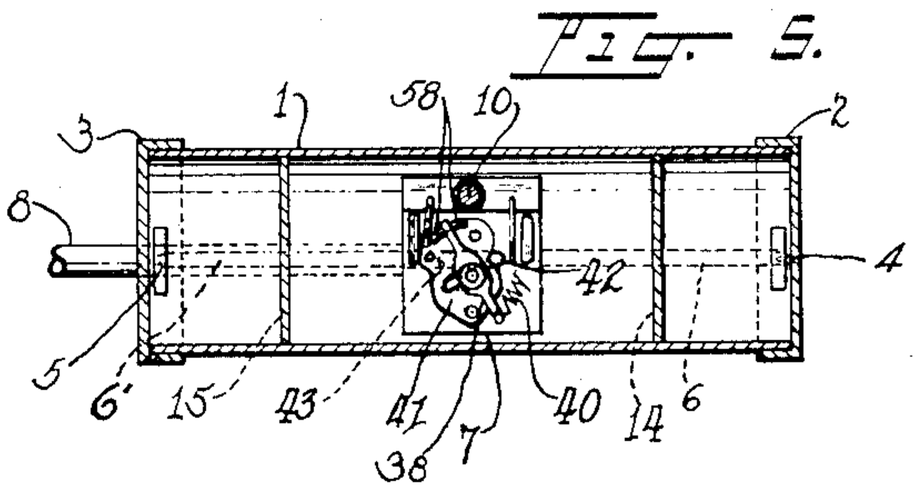


Fig. 5.



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UNITED STATES PATENT OFFICE

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SIGNALING DEVICE FOR AUTOMOBILES

Application filed August 31, 1928. Serial No. 303,296.

My invention relates to improvements in signaling devices for automobiles, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide a signaling device for automobiles which has novel means for indicating the direction in which the driver intends to turn the automobile.

A further object of my invention is to provide a device of the type described which has novel means for automatically closing and opening circuits for illuminating direction-indicating lights at desired intervals.

A further object of my invention is to provide a device of the type described which has novel means for indicating to the driver whether or not the indicating lamps are illuminated.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawing, forming part of this application, in which

Figure 1 is a front elevation of my device,

Figure 2 is a vertical sectional view of my device as applied to an automobile,

Figure 3 is a front elevation of a portion of my device,

Figure 4 is a section along the line 4—4 of Figure 2,

Figure 5 is a section along the line 5—5 of Figure 2,

Figure 6 is a wiring diagram ilustrating my invention, and

Figure 7 is an enlarged detail view of a portion of the structure shown in Figure 5.

In carrying out my invention, I provide a cylinder 1 having end members 2 and 3 disposed thereupon. The cylinder is provided with openings 4 and 5, which communicate with the interior of the cylinder 1. Vacuum pipe 6 and 6′ have ends disposed between the end members and the cylinder and communicate with the openings 4 and 5 respectively. A supporting member 7 is carried by the cylinder 1 and is adapted for having ends of the pipes 6 and 6′ connected therewith. A vacuum tube 8 has one end connected to the supporting member 7 and the other end disposed in communication with a vacuum tank 9. The pipes 6 and 6′ are in communication with separate passageways in the block member 7, which terminate in spaced-apart orifices or openings 42 and 43 respectively. The pipe 8 is in communication with a passageway 8*a* in the block member which terminates in an orifice 8*b* positioned between the orifices 42 and 43.

An L-shaped pivot rod 10 extends through the supporting member 7 and has an actuating fork 11 rigidly secured to the inner end thereof. The fork 11 straddles an actuating arm 12 which is carried by a connecting member 13. The connecting member 13 has pistons 14 and 15 carried by each end thereof. The connecting member 13 is also provided with actuating lugs 16 and 17.

The pivot rod 10 has a portion which extends upwardly and arranged to receive a left indicating signal lamp 18 and a right indicating lamp 19. A contact block 20 is carried by the pivot rod 10 and has brushes 21 and 22 which are electrically connected to the indicating lamps 18 and 19, respectively. Arcuate-shaped contact strips 23 and 24 are carried by an insulating plate 25 which is secured to the supporting member 7. The arcuate-shaped contact strips 23 and 24 are electrically connected to terminal posts 26 and 27, respectively. The terminal posts 26 and 27 are carried by the supporting member 7 and have resilient contact members 28 and 29, respectively. Rigid conductors 30 and 31 each have one of their ends extending through the supporting member 7 insulated therefrom and disposed adjacent the resilient contact members 28 and 29. The other ends of the conductors 30 and 31 terminate at a switch 32 which is in electrical connection with a source of current such as a battery 33. The battery 33 is grounded at 34.

The body or frame of the automobile may serve as the grounding member. Therefore,

as the cylinder 1 is connected to the body or frame of the automobile indicated at 35, it is not necessary to provide ground wires for the indicating signal lights 18 and 19 or for pilot lights 36 and 37 shown in Figure 3. However, in the wiring diagram shown in Figure 6, the ground connections are illustrated so as to complete the different circuits.

An automatically actuated switch or plate member 41 is pivotally mounted on the supporting member 7 and is provided with insulating portions 39 which are arranged to be moved into engagement with the resilient members 28 and 29. The plate member 41 is positioned in front of the orifices 8*b*, 42, and 43. The plate member always covers the orifice 8*b* but only covers one of the orifices 42 and 43 at one time depending on its pivotal position. The plate member is provided with an arcuate-shaped recess 50 for providing communication between the orifice 8*b* and the orifices 42 or 43 depending on which orifice the plate member is covering.

An arm or switch actuating member 38 is pivotally mounted on a pin 52 which extends through a slotted opening 54 in the plate member 41 and is connected with the block member 7. The arm is provided with a projecting portion 56 which extends within a recess or slot 58 in the plate member 41 whereby the plate member may be moved when the arm 38 is moved by the lugs 16 and 17 on the connecting member 13. An L-shaped spring 40 has one end secured to the arm 38 and the other end secured to the actuating fork 11 for holding the arm 38 in the desired position.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. Let us assume that the driver wishes to turn to the left. The switch 32 is first actuated so as to position the switch as indicated in Figures 3 and 6. With the switch 32 in this position, the circuit is closed by the switch or plate member 38 being moved so as to swing the resilient member 28 into engagement with the conductor 30, thus allowing the source of current to pass from the battery 33 through the conductor 30, the resilient member 28, through a conductor 44, through the arcuate-shaped contact strip 24, the brush 22, a conductor 45, through the left indicating light 18, and to the ground. However, this circuit is opened and closed alternately by the swinging or oscillating of the switch 41, so that the lamp 18 is illuminated only when swinging to the left.

When the switch member 41 is in the position shown in Figures 5 and 7, the vacuum in the pipe 8 is transmitted through the passageway 8*a*, the orifice 8*b*, the recess 50 in the plate member, the orifice 43, the pipe 6', and the opening 5 for creating a suction on the head of the piston 15 for moving the piston and the connecting member 13 to the left in Figure 5. At the same time the switch member 41 does not cover the opening 42 so that communication is provided between the space between the pistons and the space between the piston 14 and the cover member 2 via the orifice 42, the pipe 6, and the opening 5, so that there will be no restriction of the movement of the pistons. During the movement of the pistons to the left in Figure 5, the illuminated lamp 18 is swung to the left in Figure 1 through the media of the rod 10, the fork 11, and the pin 12 connected with the member 13.

As the pistons approach their extreme positions to the left, the lug 16 engages the arm 38 and swings it about its pivotal axis. The spring 40 serves to complete the movement of the arm. The movement of the arm 38 is transmitted to the plate member for moving the plate member to the right. The movement of the plate member breaks contact between the conductors 28 and 30 thereby breaking the circuit. At the same time, the orifice 43 is uncovered and the orifice 8*b* is placed in communication with the orifice 42 so that the vacuum will be transmitted to the head of the piston 14 for moving the pistons to the right in Figure 5. Neither of the lamps will be illuminated, however, because of the position of the switch 32.

If the switch 32 should be moved for engaging the conductor 31, then the lamp 19 would be illuminated when being swung to the right, but neither of the lamps would be lighted when swinging to the left.

Thus it will be seen that when the device is actuated, even though the lamps 18 and 19 are swung in unison, only one lamp at a time is illuminated and this lamp is only illuminated when swung in the direction in which it is to indicate the desired movement of the automobile.

The desired position for the signal lamps is at the rear of the automobile, as indicated in Figure 2. The switch 32 and the pilot lights 36 and 37 may be positioned at any desired location within the automobile, such as upon the instrument board. It is obvious by viewing Figure 6 that the pilot lights are in electrical connection with the two circuits and will be illuminated when the lamps or signals 18 and 19 are illuminated. The purpose of the pilot lights is to indicate to the driver whether or not the signal lamps 18 and 19 are being illuminated.

The speed of the movement of the signals or the lights 18 and 19 may be varied by adjusting the screw 46 for varying the opening of the passageway 8*a* in the supporting member 7.

I claim:

1. In a vehicle direction signal a signal

lamp, means mounting said lamp for reciprocatory movement in a fixed path, pneumatic operating means for reciprocating said lamp mounting means, and means cooperating with said operating means for closing a circuit through said lamp on movement of the latter in one direction of its reciprocation.

2. In a vehicle direction signal a signal lamp, means mounting said lamp for reciprocatory movement in a fixed path, operating means, including at least a cylinder and a piston for reciprocating said lamp mounting means and means operating synchronously with the movement of a piston for closing a circuit through a lamp on movement of the latter in one direction of its reciprocation.

3. In a traffic signal for automobiles or the like, a supporting structure, a lamp, means for supporting said lamp for movement in a fixed path with relation to said structure, and means for actuating said lamp and causing the light thereof to appear successively at a plurality of points in said path, for extinguishing said light and returning said lamp to its initial position and for again causing said light to appear successively at said plurality of points.

4. On a traffic signal for automobiles and the like, a supporting structure, a lamp, means for supporting said lamp for bodily movement with relation to said structure, power operated means for imparting movement to said lamp, means for automatically reversing the direction of movement of said lamp, and means controlled by said reversing means to cause said lamp to be lighted when it is moved in one direction and to cause said lamp to be darkened when it is moved in the other direction.

5. In a vehicle direction signal a signal lamp, means mounting said lamp for reciprocatory movement in a fixed path, operating means for reciprocating said lamp mounting means, and means cooperating with said operating means for closing a circuit through said lamp on movement of the latter in one direction of its reciprocation.

6. In a vehicle direction signal a pair of signal lamps, means mounting said lamps for reciprocatory movement in a fixed path, operating means for reciprocating the mounting means, and means cooperating with said operating means for selectively closing the circuit to one of the lamps on the movement of the latter in one direction of its reciprocation and to the other of said lamps on movement of the lamps in the other direction of reciprocation.

Signed at Chicago, in the county of Cook, and State of Illinois this 29th day of August, A. D. 1928.

HENRY O. CZECH.