E. POTTER.

DIRECTION SIGNAL FOR AUTOMOBILES.

APPLICATION FILED MAR. 22, 1915.

1,178,873.

Patented Apr. 11, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

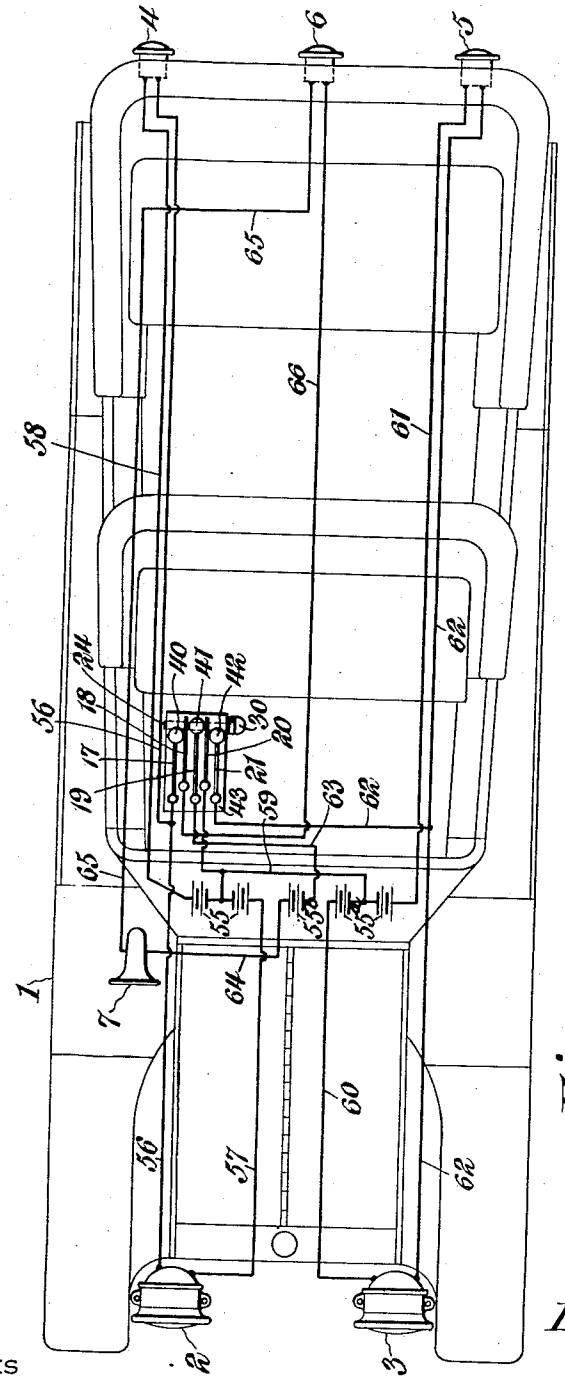


Fig. 10.

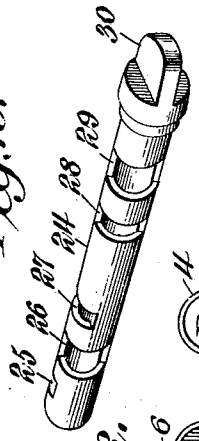


Fig. 12.

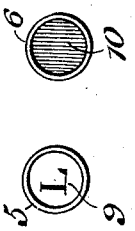
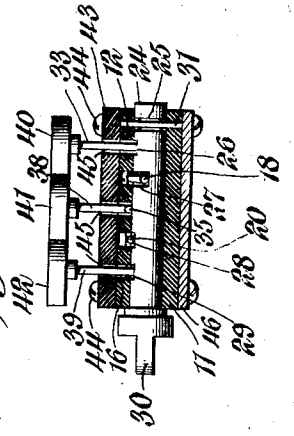


Fig. 9.



WITNESSES

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2 SHEETS—SHEET 2.

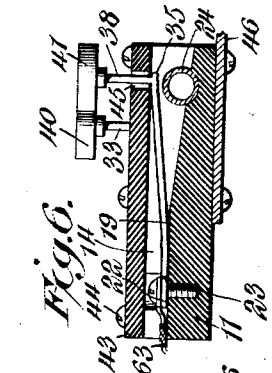


Fig. 6.

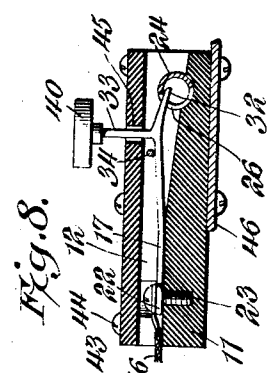


Fig. 8.

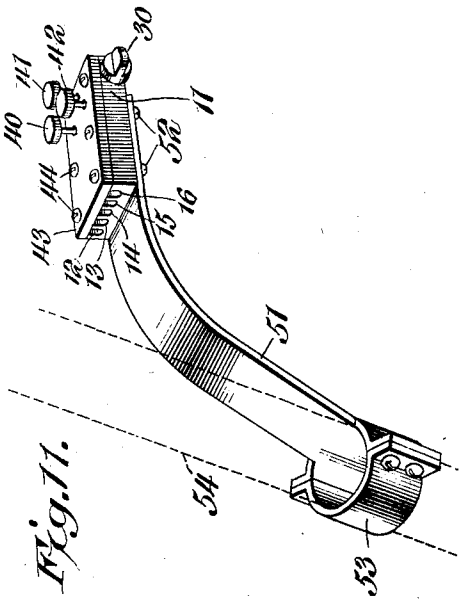


Fig. 11.

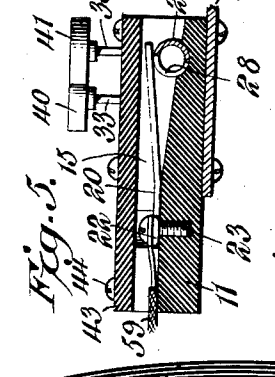


Fig. 5.

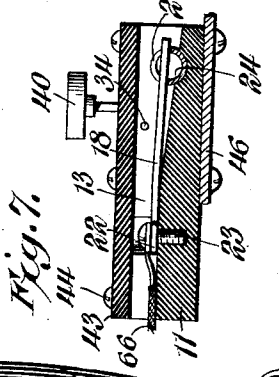


Fig. 7.

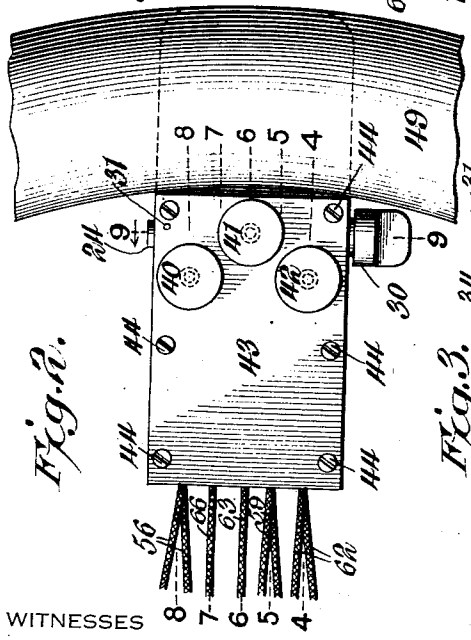


Fig. 2.

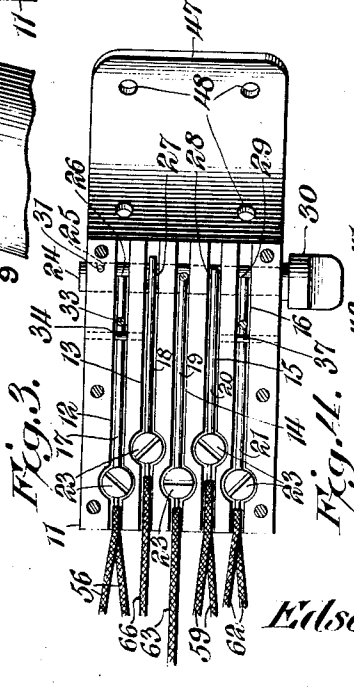


Fig. 3.

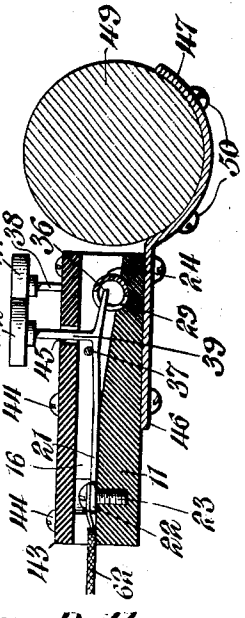


Fig. 4.

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UNITED STATES PATENT OFFICE.

EDSON POTTER, OF ROCHESTER, NEW YORK.

DIRECTION-SIGNAL FOR AUTOMOBILES.

1,178,873. Specification of Letters Patent. Patented Apr. 11, 1916.

Application filed March 22, 1915. Serial No. 16,215.

To all whom it may concern:

Be it known that I, EDSON POTTER, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented a new and useful Direction-Signal for Automobiles, of which the following is a specification.

This invention has reference to direction signals for automobiles, and its object is to provide a readily and conspicuously displayed direction indicating means clearly visible at night time and noticeably visible in daylight, and which occupies an unobtrusive amount of space so far as the operator of the vehicle is concerned.

In accordance with the present invention the head and tail lights usually present upon automobiles are adapted for the purposes of the present invention and provision is made for attracting attention to the vehicle so that the signal indicating the proposed change in the course of the vehicle will be noticed.

The arrangement of the present invention is such that at night time the usual head and tail lights are caused to glow in the customary manner, electric bulbs being utilized after the now very common practice, and there is provided suitable switching mechanism within ready control of the operator of the vehicle, and which is unobtrusive and of such small size as to be readily manipulated without the necessity of any special movements of the hands, so that the control of the vehicle is at no time lost when causing the operation of the signal means.

By the present invention the desired lights which are continuously burning at night time, or not burning at all in daylight, may be caused to rapidly blink, and if this blinking be accompanied by blasts of the automobile horn, attention is attracted to the vehicle and the observer will be apprised either by the blinking or illumination of the lamp on the proper side of the vehicle that the driver of the vehicle intends to make a turn in a certain direction.

By providing the glass fronts of the head and tail lights with appropriate letters, such as "R" and "L", and by cutting out the light at night from one side of the vehicle, the observer is apprised of the fact that the occupant of the vehicle intends to turn toward the direction indicated by the visible letter. By further providing an additional tail light with a colored glass, such as red, and by blinking the red light so produced together with the production of blasts upon the signal horn, the observer is constrained to carefully watch for the signal and thereby be particularly warned of the intended course of the vehicle.

While steady lights are not particularly noticeable in daylight flashing or blinking lights are quite readily observable, and such an arrangement as the present invention is utilizable for signaling by flashes in daylight.

The invention will be best understood from a consideration of the following detailed description, taken in connection with the accompanying drawings forming a part of this specification, with the further understanding that while the drawings show a practical form of the invention, the latter is not confined to any strict conformity with the showing of the drawings, but may be changed and modified so long as such changes and modifications mark no material departure from the salient features of the invention.

In the drawings:—Figure 1 is a diagram of the electric circuits with the head and tail lights and signal horn showing the application of the signal system to an automobile, which latter structure is merely outlined in the figure. Fig. 2 is a plan view of a switch forming part of the present invention and also in the figure showing the application of the switch to the steering wheel of the automobile. Fig. 3 is a plan view of the structure of Fig. 2 removed from the steering wheel and with the cover of the switch box removed. Fig. 4 is a section on the line 4—4 of Fig. 2. Fig. 5 is a section on the line 5—5 of Fig. 2 omitting the hand wheel. Fig. 6 is a section similar to Fig. 5 but taken on the line 6—6 of Fig. 2. Fig. 7 is a section on the line 7—7 of Fig. 2. Fig. 8 is a section on the line 8—8 of Fig. 2. Fig. 9 is a section on the line 9—9 of Fig. 2. Fig. 10 is a perspective view of a part of the switch mechanism. Fig. 11 is a perspective view of the switch box and a carrier therefor, whereby the switch box may be attached to the steering post. Fig. 12 is a face view of the tail lights.

Referring to the drawings there is shown an automobile 1, the showing being merely

in outline without any attempt at showing any special detail, so that the automobile 1 may be taken as typical of any suitable automobile or other vehicle to which the present invention may be applicable. The automobile is shown as provided with headlights 2, 3, tail lights 4, 5, 6, and a horn 7. The lights and horn may be of the character of those usually supplied with automobiles, especially where electric lamps are utilized as the light-giving elements, and where electricity is employed as a means for sounding the horn, wherefore it is not deemed necessary to show any of the parts in detail.

While any suitable means may be provided for indicating by the lamps the intended direction of travel of the vehicle, a convenient manner of providing indications is to have letters upon the front glass of the lamps. For instance, as in Fig. 12, wherein the tail lamps are shown, one lamp, say the lamp 4, has the letter R thereon as indicated at 8, and the lamp 5 has the letter L thereon as indicated at 9, while the lamp 6 may be utilized as a danger indicating lamp and so its front glass 10 may be a red front glass, thereby indicating to the beholder that some dangerous condition exists or may exist, and thus the beholder is put on his guard.

For the control of the lamps there is provided a switch box which as shown in the drawings may consist of a block 11 usually of vulcanized fiber, or some other suitable insulating material in which there is produced a series of longitudinal channels 12 to 16, respectively, the number of channels varying in accordance with circumstances, but being five in number in the particular instance shown. These channels are indicated as increasing in depth from one end toward the other, and the channels have elastic arms 17 to 21, respectively, lodged therein. Since the arms 17 to 21 may be all or in most part utilized for conducting purposes, they may be all made of metal, and preferably of spring metal to serve certain purposes to be described. Each arm near one end terminates in an eye 22 traversed by a screw 23, there being a screw 23 for each arm to hold the arm in the respective channel or groove in the block 11, and these screws form convenient means for attaching electric conductors to the respective arms, which conductors will be hereinafter referred to.

Extending transversely of the block 11 near what may be termed the front end and intersecting the grooves 12 to 16 is a rock member 24 preferably, though not necessarily, of tubular construction. This rock member is shown separately in Fig. 10 and is provided with a series of notches or cut-outs 25 to 29 inclusive, and the rock member 24 terminates at one end in a manipulating key or thumb piece 30 extending beyond the corresponding side of the block 11, so that the rock member may be readily rotated in one direction or the other at the will of an operator. In the operation of the device the rock member need have but a partial rotation, and in order to hold the rock member from longitudinal movement while permitting its rocking movements, the block 11 is traversed by a pin 31 extending through the recess 25, whereby the rock member is locked in the block against longitudinal movement, but may have a limited rotative movement.

The recesses 26 to 29 are so positioned as to come opposite the corresponding ends of the grooves 12, 13, 15 and 16, a smooth or unbroken portion of the rock member 24 intersecting the groove 14.

The arm 17 extends from its holding screw 23 near one end of the groove 12 to a point about coincident with the rock member 24 where it terminates in a nose 32 normally entering the rock member through the recess 26. Adjacent to but back of the nose 32 the arm 17 is provided with a stem 33 rising through the groove 12 above the top of the block 11, the latter being considered for the purposes of description as usually, though not necessarily horizontal. To limit the rising movement of the nose end 32 of the arm 17, which arm has an upward elastic tendency, the groove 12 is traversed by a pin 34.

The arm 18 held in the groove 13 by its screw 23 overrides at its free end the rock member 24 where provided with the notch 27, and has a normal tendency to enter the notch into engagement with opposite walls thereof, but is free to yield on a turning movement of the rock member bringing the peripheral portion thereof in engagement with the arm 18. The arm 19 is held at one end by its screw 23 and at the other end terminates in a nose portion 35 overriding the smooth portion of the rock member 24 where traversing the groove 14. The elastic tendency of the arm 19 is such that the nose end 35 is normally above or out of contact with the rock member 24.

The arm 20 like the arm 18 has a normal tendency at its free end toward the rock member 24 and when the latter is turned sufficiently the arm 20 drops into the notch 28 and contacts with the opposite walls thereof.

The arm 21 has a normal rising tendency like the arm 17 and at the end remote from the holding screw 23 has a nose extension 36 adapted to enter the recess 29. The rising tendency of the arm 21 is limited by a pin 37 traversing the groove 16.

The arm 19 near its nose end 35 is provided with a stem 38 rising above the block

11 and the arm 21 back of the nose 36 has a stem 39 rising from the block 11. The three stems 33, 38 and 39 carry buttons or finger pieces 40, 41 and 42, respectively.

The grooved surface of the block 11 is normally covered by a plate 43 held thereto by screws 44 or otherwise, and this plate or cover member has passages 45 therethrough for the respective stems 33, 38 and 39.

The switch box such as described, which switch box, however, may be otherwise constructed, so long as it is capable of operation in accordance with the present invention, may be variously mounted. For instance, in Figs. 2 and 3 and associated figures there is shown a plate 46 with a curved tongue 47 projecting therefrom and provided with holes 48, whereby the plate may be applied to a steering wheel 49 by means of screws 50 or otherwise, and in this position the knobs or finger pieces 40, 41 and 42 and the thumb piece 30 are all in convenient reach of the fingers of the driver of the vehicle when the hands of the driver are holding the steering wheel.

Another mounting for the switch is shown in Fig. 11 where there is provided a bracket 51, to one end of which the block 11 is secured by screws 52 or otherwise, and this bracket terminates at the end remote from the block 11 in a divided collar 53 which may be applied to a steering post indicated in dotted lines at 54. These two examples of ways of mounting the switch box will suffice to indicate that any suitable manner of mounting the switch box may be utilized.

At some convenient point on the vehicle a series of batteries 55, 55^a, 55^b are located. These batteries may be of any suitable type, and since they are designed to produce light in the head and tail lights, the batteries may be in the form known as storage batteries on account of the large capacity of such batteries and the convenience with which the batteries may be recharged by a generator driven by the motor power of the vehicle. Of course, these batteries are to be taken as indicative of any suitable source of electric current.

Extending from the switch arm 17 are conductors 56 branched off to the head and tail lights 2 and 4 on the corresponding side of the vehicle. The head light 2 is connected by a return conductor 57 to an appropriate one of the batteries 55 and the tail light 4 is connected by a return conductor 58 to another appropriate one of the batteries 55. These two batteries are coupled in common to a conductor 59 carried to the arm 20, and this arm is also connected to two other of the batteries 55^a. One of these last-named batteries is connected by a conductor 60 to the head light 3, and the other one of the batteries is connected by a conductor 61 to the tail light 5, while the head and tail lights 3 and 5 are coupled by a common conductor 62 to the switch arm 21.

The switch arm 19 is connected by a conductor 63 to one side of the remaining battery 55^b and the other side of this battery is connected by a conductor 64 to one side of the operating mechanism of the horn 7, this operating mechanism being considered as of the usual electric type. The other side of the horn 7 is connected by a conductor 65 to one side of the tail light 6, and the other side of this tail light is connected by a conductor 66 to the switch arm 18.

With an arrangement such as described the rock arm 24 may be rocked about its longitudinal axis to an extent to bring one or the other of the arms 18 or 20 into engagement with both side walls of the respective notches 27 or 28, as the case may be. In either event the other arm is in engagement with the peripheral portion of the rock member and the arm engaging the side walls of the respective notch serves as an elastic lock for the rock member holding it in the position to which it has been turned. Still the rock member may be readily rocked in the opposite direction without material interference, although it is effectively locked against any rocking movement due to shocks or jars to which the structure is usually subjected. There must be an intentional turning of the rock member to move it in one direction or the other. In either event the rock member 24 is coupled to the batteries 55 except when coupled to the tail light 6 by the switch arm 20. When the rock member 24 is in one position the noses 32 and 36 are in line with the respective recesses 26 and 29, but out of metallic contact therewith, being held in such position by the normal tendency of the respective switch arms. Under such circumstances if pressure be applied to the knob 40 or 41, as the case may be, the respective switch arm is depressed against this elastic tendency until the nose 32 or 36, as the case may be, is brought into contact with the rock arm 24, thus establishing a circuit from the respective battery 55 through the respective head and tail lamps, and the latter glow. By alternately pressing and releasing the proper knob the head and tail lamps controlled thereby may be caused to blink or the circuit may be held closed for a relatively long time. At night, however, when it is desired to have the head and tail lights glowing continuously, the rock arm 24 is rotated sufficiently to bring the appropriate margins of the recesses 26 and 29 into overriding engaging relation with the noses 32 and 36, whereby the circuit from the batteries to the lamps is established and maintained continuously and the lamps glow. However, the respective switch arms still have sufficient range of movement to permit them to

be depressed enough to break the circuit, so that the operator on applying pressure to the key or button 40 or 42, as the case may be, may cause the corresponding head and tail lights to blink or to go out entirely and to remain out so long as desired.

By depressing the key 41 the arm 19 is brought into contact with the rock member 24 and there is then established a circuit from the corresponding battery 55 through the horn and through the tail light 6, whereby the horn is caused to sound and the tail light 6 to glow. This tail light 6 being by preference a red light apprises an observer that some dangerous condition is prevalent or about to occur and then when one or the other of the keys 40 or 42 is vibrated, the observer is made aware that the vehicle is about to turn in the direction indicated by the flickering light, while the noise of the horn of course attracts attention to the vehicle.

In daylight the noise of the horn will attract attention to the vehicle, and then a flickering of the head or tail lights, or both, on the proper side of the vehicle indicates to the observer that the vehicle is about to turn in the direction indicated.

The whole structure for the control of the lights and for indicating thereby the intended direction or course of the vehicle is an extremely compact structure which outside of the batteries and electrical conductors is readily attachable to the steering wheel or steering post or other part of the vehicle well out of the way and still within ready reach of the operator.

Many types of automobiles have front or head lights both at the dash and farther in front, so that the term headlights is to be understood as including either the ordinary or other headlights, or dash lights, or both.

What is claimed is:—

1. A direction signal system for automobiles comprising electric head and tail lights on opposite sides of the automobile, and means for maintaining the circuit through the lights on both sides of the automobile normally open or normally closed, said circuit controlling means including means for controlling the head and tail lights on each side of the automobile independently of those on the other side thereof for momentarily closing the circuit if normally open or opening the circuit if normally closed and without otherwise affecting the normal condition, for blinking the head and tail lights on either side of the vehicle independently of those on the other side thereof.

2. A direction signal for automobiles, comprising electric head and tail lights having the head and tail lights on the same side of the vehicle connected together, a reciprocable switch member for each connected set of head and tail lights, and means coacting with the switch members for maintaining the head and tail lights normally in or normally out of circuit, the reciprocable switch members being movable at will to momentarily open the circuit if normally closed or close the circuit if normally open to blink the lights controlled by the respective switch member.

3. An automobile direction signal means comprising electric head and tail lights with the head and tail lights on the same side of the vehicle electrically connected together, a reciprocable switch arm for each connected set of head and tail lights for blinking said sets of head and tail lights, and circuit closing means movable into the path of the switch arms for connecting them in circuit, and said switch arms having a range of movement to carry them out of the path of the circuit closing means to provide for blinking the head and tail lights from the closed-circuit position.

4. A direction signal system for automobiles comprising electric head and tail lights with the head and tail lights on respective sides of the vehicle electrically connected together, a switch arm for each connected set of head and tail lights having a normal tendency toward the open circuit position and movable against its normal tendency toward the closed circuit position, and a circuit closing means associated with the switch arms and movable into the path of said switch arms on the side thereof toward which they have a normal tendency, and said switch arms then being movable against their normal tendency away from the circuit closing means to temporarily open the circuit to produce blinking of the lamps.

5. A direction signal system for automobiles comprising electric lamps, switches for the lamps each having a normal tendency toward the open circuit position, and circuit controlling means associated with the switches and provided with contact portions movable to one side or the other of the switches into the path of said switches in one direction or the other of the movement of said switches.

6. A direction signal system for automobiles comprising electrically operated lamps in sets, a reciprocable switch for each set of lamps having a normal tendency in one direction, and contact means for the switches movable alternately into the path of the switches on opposite sides of said switches to engage the switches on the sides of the latter toward which they have a normal tendency and movable to the other sides of said switches in spaced relation thereto to permit the switches to be moved against their normal tendency to bring them into engagement with said contact means.

7. A direction signal system for automobiles, comprising electric lamps, reciprocable

switches for the lamps each having a normal tendency in one direction, and a contact member common to the switches and having contact portions movable at will either into or out of engagement with all the switches on the side of the latter toward which they have a normal tendency, said contact member when out of engagement with the switches being located in their path to be engaged by the switches when the latter are moved against their normal tendency.

8. In a direction signal system for automobiles, a switch means for controlling the direction indicating means comprising reciprocable switch arms each having a normal tendency in one direction, and a rock member having recesses into which the corresponding ends of the switch arms project, and said rock member having a range of movement to bring one edge of each recess into engagement with the respective switch arm on the side thereof toward which the switch arm has a normal tendency and with the other side of the recess in the path of the respective switch arm for engagement thereby when said switch arm is moved against its normal tendency.

9. In an automobile direction signal, electric means for producing signals, and a switch for controlling the electric means comprising a block having elastic switch arms therein each with a normal tendency in one direction, and a tubular contact member in traversing relation to said switch arms and rockable about is longitudinal axis, said tubular member having recesses in line with the switch arms and movable to bring the edges of the slots into engaging relation with the switch arms and the sides of the latter toward which they have an elastic tendency, and the other sides of the slots in the path of the switch arms when moved against their normal tendency.

10. An automobile direction signal system comprising electric lamps and a switch structure for controlling the lamps comprising a rotatable contact member and switch arms in operative relation thereto and adapted to engage with the rotatable member, said rotatable member having contact portions movable into and out of engagement with certain of the switch arms and all of the switch arms having a normal tendency in one direction and movable in opposition to said tendency toward the rotatable member.

11. An automobile direction signal system comprising electric head and tail lights with the head and tail lights on respective sides of the automobile electrically connected together and one of the tail lights being independent of the other tail lights, an audible signal for use in connection with the last-named tail light, and switch mechanism comprising a series of switch arms and a rotable member in transverse relation to the switch arms, certain of the switch arms having a normal tendency away from the rotatable member, and others of the switch arms having a normal tendency toward said rotatable member, and the latter having recessed portions to accommodate certain of the switch arms with those switch arms having a normal tendency toward the rotatable member coacting with the latter to hold it in adjusted positions, and said rotatable member also being related to others of the switch arms to simultaneously contact therewith, the last-named switch arms and another one of the switch arms controlling the connected head and tail lights and the third tail light and horn and those switch arms controlling the lights being provided with manipulating means for causing their movements into and out of contact with the rotatable member to control the head and tail lights.

12. An automobile direction signal system provided with electric head and tail lights, switches for cutting the head and tail lights into and out of circuit, at will, and another switch member common to and in coöperative relation with certain of the first-named switches for simultaneously engaging and thereby completing the circuit through them.

13. An automobile direction signal system comprising electric head and tail lights arranged in groups on opposite sides of the automobile, switches one for each group of head and tail lights and having a normal tendency in one direction and movable in the other direction to complete the circuit through the respective group of head and tail lights, and a circuit making and breaking member common to the switches and movable at will into or out of engagement therewith on the side of said switches which they normally tend to move, said switches having a range of movement independent of the circuit making and breaking member and of each other for momentarily closing the circuit of the respective group of head and tail lights if normally open or opening the circuit if normally closed for blinking the lights of the respective group without otherwise affecting the normal condition.

14. An automobile direction signal system comprising electric head and tail lights connected in groups on opposite sides of the automobile, and another tail light and signal means, and controlling switches for the lights and signal means comprising switch members one for each group of head and tail lights and one for the additional tail light and signal means, all the switches having a normal tendency in one direction and provided with readily accessible manipulating means for moving the switches against their normal tendency, and a rota-

table contact member in the path of the switches, said rotatable member being movable into position to contact with and complete a circuit through those switches controlling the connected head and tail lights on opposite sides of the automobile.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

EDSON POTTER.

Witnesses:
HALTON D. BLY,
FLORENCE A. MCANANEY.