March 29, 1927. H. WARBURTON ET AL 1,622,932

TRAFFIC INDICATOR

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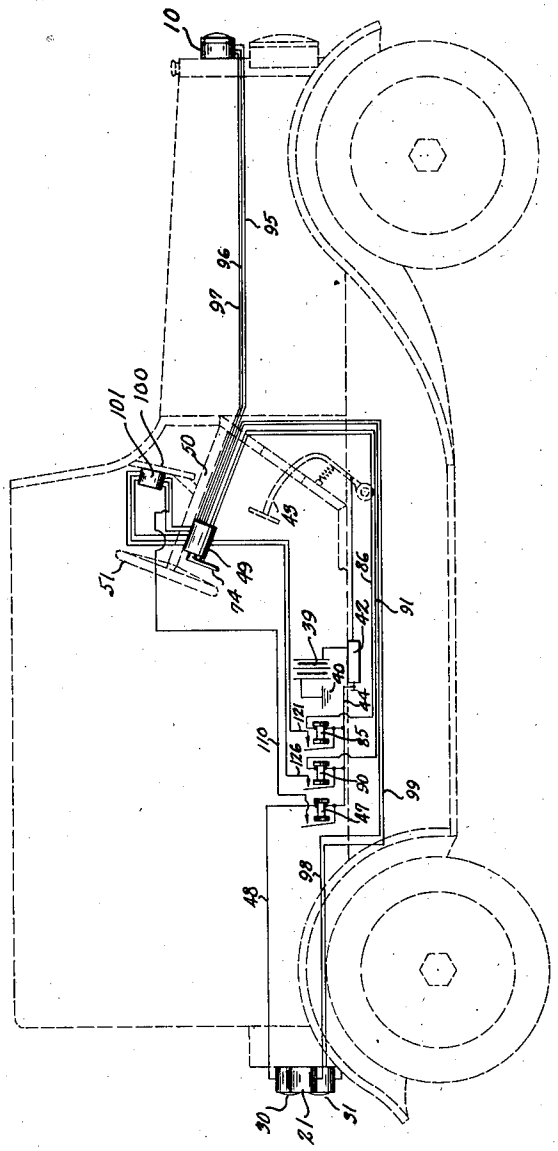


Fig. 1.

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Fig. 2.

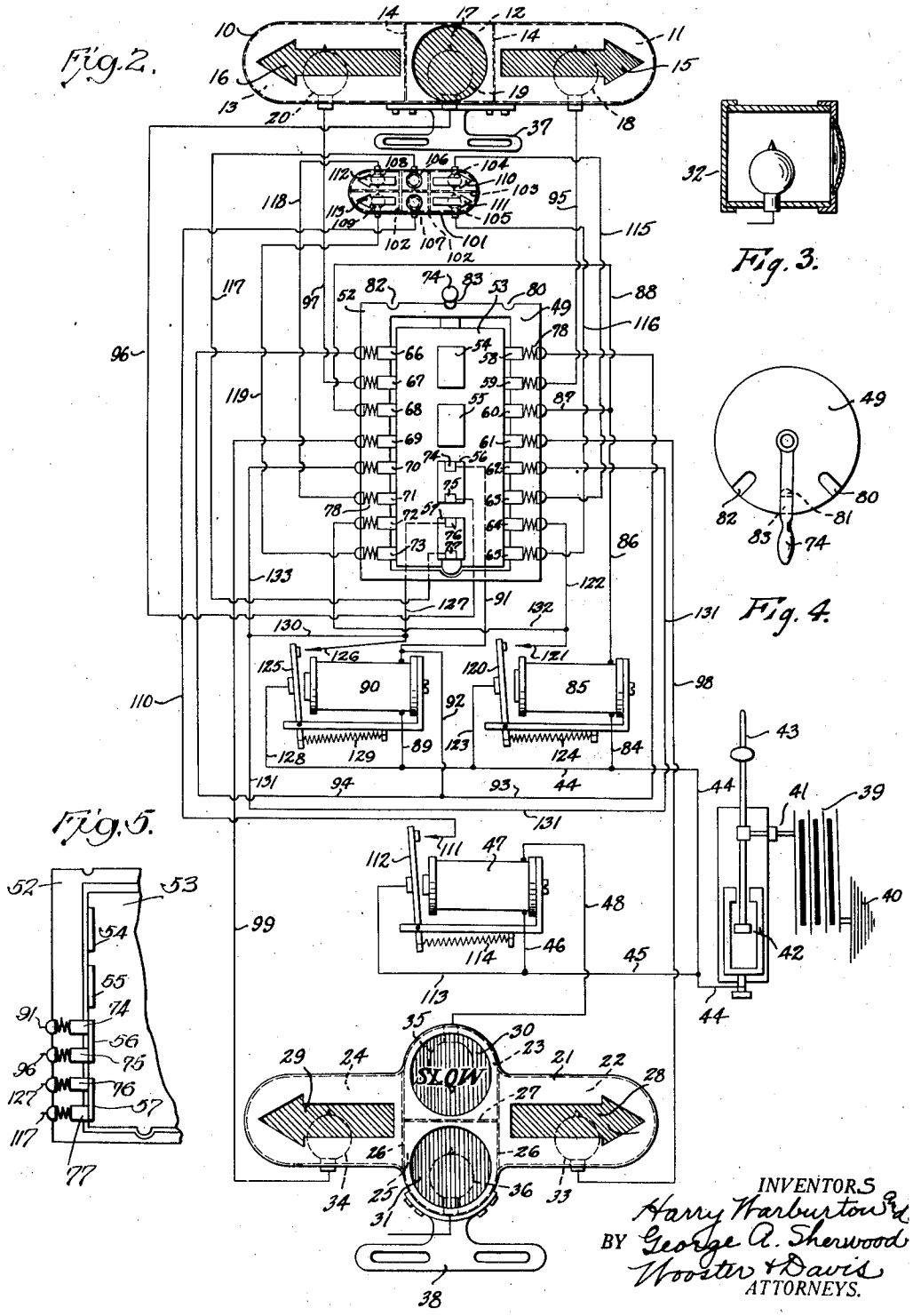


Fig. 3.

Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

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TRAFFIC INDICATOR.

Application filed August 1, 1923. Serial No. 655,056.

This invention relates to a traffic indicating device for motor vehicles, and has for an object to provide an efficient device for this purpose which will be very simple in construction and not easily gotten out of order, which will be accurate and reliable, and which will be practically fool proof due to the simplicity of control.

It is also an object to provide a device of this character which will reduce to a minimum confusion at crossings, both to the traffic director in front of the vehicle and also to the traffic in the rear.

It is a further object of the invention to provide a device of this character in which standard lighting bulbs and equipment may be used, and all of the same voltage as the source of supply.

It is another object of the invention to in effect reproduce the direction indicators in front of the driver, as on the dash, at the same time each and every individual direction indicator is operated. Thus the driver knows immediately if the proper direction indicator has been operated and also whether it is functioning properly.

Still another object of the invention is to provide a system in which the same direction indicator operating mechanism and the corresponding tell-tale operating mechanism is used to operate a plurality of indicators and tell-tales; but to operate the individual direction indicators and tell-tales at different times. This is done by shifting the indicator operating means and the corresponding tell-tale operating means from one circuit to another at the proper time to operate the proper indicator and tell-tale. This arrangement greatly simplifies the system and reduces the number of parts required.

With the foregoing and other objects in view we have devised the construction, one embodiment of which is illustrated in the accompanying drawing, in which—

Fig. 1 shows in dotted outline a motor vehicle and our signal device shown conventionally as applied thereto.

Fig. 2 is a wiring diagram of the system.

Fig. 3 is a transverse section through one of the indicators.

Fig. 4 is a top plan view of one form of the control device, and

Fig. 5 is a detailed view showing the contacts intermediate the two sets of contacts on the opposite sides of the switch shown in Fig. 1.

Mounted on the vehicle so that it may be clearly visible from the front thereof is a unit indicated as a whole by numeral 10, and it is preferably mounted between the headlights and above the line of glare. It may be mounted for instance on the headlight tie-rod. The unit comprises a casing made of suitable material as sheet metal, and is divided into three compartments 11, 12, and 13 which are separated by suitable partitions 14 so that light rays cannot pass from one compartment to an adjacent compartment. In the walls of compartments 11 and 13 are transparent arrows 15 and 16 respectively, preferably colored green. The arrow 15 points to the right and the arrow 16 to the left, and in the wall of the center compartment is a green circle 17. In each one of these compartments are electric lights 18, 19 and 20 respectively which illuminate their respective indicators when these bulbs are lighted.

Mounted at the rear of the vehicle is a rear unit 21 comprising a similar casing divided into four compartments 22, 23, 24 and 25. These compartments are separated by partitions 26 and 27 to prevent light passing from one compartment to another. The wall of the compartment 22 is provided with a green transparent arrow 28 pointing to the right, and compartment 24 with a green transparent arrow 29 pointing to the left. The walls of compartment 23 have a round red circle 30 having the word "Slow" or "Stop", and compartment 25 has a red or amber circle 31. This latter light corresponds to the tail light now ordinarily employed and at the present time is red, but we think this will eventually be changed to amber as it is believed to be more appropriate than the red. The two units 10 and 21 may be made of any suitable construction desired. They are preferably made of sheet metal with a removable back, as indicated at 32 in Fig. 3, which has flanges overlapping the sides of the body and may be secured thereto by any suitable means such as screws, but there should be easy access provided to the various compartments to allow renewal of the lamp bulbs. In each of the compartments of the rear unit 21 are suitable lamp bulbs the same as in the former unit, one

bulb for each compartment as shown at 33, 34, 35 and 36. We have shown bracket supports 37 and 38 by which the units may be mounted on the vehicle, but the showing of these brackets is merely conventional as different types of brackets or securing means will be required for different makes of cars. When applied to the vehicle the front unit will be clearly visible from the front of the vehicle with the arrow 15 pointing to the right and the arrow 16 to the left, and the unit 21 will be so mounted to be clearly visible from the rear of the vehicle with the arrow 28 pointing to the right and the arrow 29 pointing to the left.

We will now describe the mechanism or the means for controlling the signals and operating them at the proper time. At 39 is indicated a source of current supply which may be either the battery or the generator and one terminal is grounded at 40 on the frame of the machine as is usual. The other terminal 41 leads to one element 42 of a switch which is operated by a control device for the vehicle, in the present instance the brake lever 43. This switch controls the "Slow" or "Stop" signal 30, the connection being such that the signal is flashed only when the brake lever is depressed to apply the brakes. The circuit for this light is shown at 44, 45, 46, through the magnet coil 47 and line 48 to the lamp 35, which is grounded in the usual manner. Thus this "Slow" or "Stop" signal will be flashed to warn the traffic in the rear every time the brake lever is depressed to slow up the vehicle.

Mounted at any suitable position, where it will be convenient to the operator, is a selective switch device indicated as a whole by 49, and we have shown it as applied to the steering column 50 immediately under the steering wheel 51, but it may, if desired, be mounted on the instrument board or in any other suitable location. The showing of this switch is merely a diagrammatical one, and comprises a mounting or casing 52 of suitable insulating material in which is an insulating cylinder 53 which is mounted to rotate therein, and carried by this cylinder, preferably embedded therein, are four metal blocks 54, 55, 56 and 57 forming contacts insulated from each other, and which are adapted to engage other contacts carried by the casing as this cylinder is shifted. Indicated to the right of this cylinder are contacts 58 to 65 inclusive and to the left contacts 66 to 73 inclusive, and on the front or rear 74 to 77 inclusive. Each contact is preferably provided with a spring indicated at 78 tending to hold it against the cylinder 53 and to maintain a good contact with the blocks 54 to 57 when the cylinder is in proper position. For the purpose of shifting this cylinder a lever 79 is provided, and the top of the casing 52 is provided with three notches 80, 81 and 82 adapted to coact with a lug 83 to retain the lever in any one of the three different positions, this lug being yieldably mounted so that it may be forced from any one notch to another but will retain the lever in any one of the three different positions against accidental displacement.

The switch 42 is connected to certain contacts in the selective switch as follows: wires 44, 84, magnet coil 85, wires 86 and 87 to contact 60, and wire 88 to contact 68. Another circuit leads from wire 44 through 89 to magnet coil 90 and wire 91 to contact 74. A second wire 92 leads from wire 91, and from wire 92 a wire 93 leads to contact 58 and another wire 94 leads to contact 66. The various light bulbs in the front and rear indicator units are also connected to contacts on the selective switch. The light bulb 18 is connected by wire 95 to contact 59, bulb 19 by wire 96 to contact 75, bulb 20 by wire 97 to contact 67, bulb 33 by wire 98 to contact 61, and bulb 34 by wire 99 to contact 69.

Mounted in a position where it may be easily observed by the operator, preferably on the instrument board indicated at 100, is a tell-tale device indicated as a whole at 101. As shown this device comprises a casing divided into six compartments by walls 102 and 103 which are opaque to prevent passage of light from one compartment to another, and in each one of these compartments is a light bulb indicated at 104 to 109 respectively. In the front wall of each compartment is an indicator which will be illuminated by the respective bulbs. Illuminated by the bulbs 104 and 105 are two arrows 110 and 111 pointing to the right, and by bulbs 108 and 109 are two arrows 112 and 113 pointing to the left. Between these two sets of arrows is a round indicator for each of bulbs 106 and 107, with that for 106 above that for 107. With the exception of bulb 107 these bulbs in this tell-tale are connected to contacts in the selective switch device 49. Bulb 107 is connected through wire 110 with the contact 111 which may be closed by an armature 112 operated by magnet coil 47 when this coil is energized. Operation of this armature will close the circuit from wires 44 and 45 to lamp 107 through wire 113. The contact between wire 111 and armature 112 is normally broken by a spring 114. Bulb 104 is connected by wire 115 to contact 63, bulb 105 is connected by wire 116 to contact 65, bulb 106 is connected by wire 117 to contact 77, bulb 108 is connected by wire 118 to contact 71 and bulb 109 is connected by wire 119 to contact 73.

Each of the magnet coils 85 and 90 controls a switch. Coil 85 controls an armature

120 adapted to engage a contact 121 connected by wire 122 to contact 64. The armature 120 is connected to wire 44 by 123, and is normally held away from contact 121 by a spring 124. Coil 90 controls an armature 125 adapted to engage a contact 126 connected by wire 127 to contact 76, and the armature 125 is connected to wire 44 by wire 128. This armature is normally held out of engagement with contact 126 by a spring 129.

The operation is as follows:

When the vehicle approaches a traffic intersection the lever 74 is placed in a position corresponding to the direction the driver wishes to take at the intersection. Assuming that the driver wishes to go straight ahead the lever 79 is placed in the central position as indicated in Figs. 2 and 4 before the intersection is reached. In this position the block 56 carried by cylinder 53 will bridge the contacts 74 and 75, and block 57 will bridge contacts 76 and 77 but no signals will be flashed as the switch 42 is open. The lever 79 may be placed in this position at any time before the vehicle reaches the intersection and therefore is ready to give the proper signal at the proper time. Now as the vehicle approaches the intersection and the driver depresses the brake lever 43 to apply the brakes to slow down for the intersection, the switch 42 will be closed and signals will be flashed indicating both to the traffic director in front of the vehicle and the traffic in the rear that the driver wishes to proceed straight ahead, and it will also indicate to the traffic in the rear that the vehicle is slowing down. When the switch 42 is closed current will pass through wires 44, 46, coil 47 and wire 48 to lamp 35 flashing the "Slow" or "Stop" signal 30. At the same time current will flow through wires 44, 89, coil 90, wire 91, block 56 and wire 96 to lamp 19 at the front of the vehicle indicating to the traffic director that the operator wishes to go straight ahead, but the signal 17, 19 is flashed only when the "Slow" or "Stop" signal 30 is flashed. When the coil 47 is energized armature 112 is attracted thereby closing a circuit through wires 45, 113, 110 to bulb 107 which will indicate to the driver that the "Slow" or "Stop" signal 30 has functioned properly. When the coil 90 is energized, armature 125 is attracted thereby closing circuit 44, 128, 126, 127, block 57 and wire 117 to tell-tale 106, thus indicating to the driver that signal 19 at the front of the vehicle has functioned properly.

Now supposing the driver wishes to turn to the right at the intersection. At any time before arriving at this intersection he will then swing lever 79 to the right to bring lug 83 in engagement with the notch 80. This will swing the cylinder 53 to bring block 54 into engagement with contacts 58 and 59, block 55 into engagement with contacts 60 and 61, block 56 into engagement with contacts 62 and 63 and block 57 into engagement with contacts 64 and 65. No signals will be flashed, however, because the switch 42 is open. Now as the driver approaches the intersection he will depress the brake lever 43 in applying the brakes to slow down and will close the switch 42. This will operate the "Slow" or "Stop" signal 30 and the tell-tale 107 as described above in the flashing of the straight ahead signal 19. At the same time the circuit through wires 44 and 89, coil 90, wires 92, 93, contacts 58, 54, 59 and wire 95 to bulb 18 will be closed which will flash the signal 15 visible from the front of the machine and pointing to the right. This will indicate to the traffic director that the driver wishes to turn to the right. At the same time the circuit 44, 84, coil 85, 86, 87, contact 60, 55, 61 and wire 98 will be closed to bulb 33 and flash the rear signal 28 to also indicate to the traffic in the rear that the driver wishes to make the right hand turn. When the coil 85 is energized the armature 120 will be attracted thereby and will close a circuit as follows: 44, 123, 120, 121, 122, 64, 57, 65, 116, to bulb 105 and flash tell-tale 111 and indicate to the driver that the rear right hand indicator is functioning properly. As coil 90 is energized armature 125 will be attracted thereby and close the following circuit: 44, 128, 125, 126, 130, 131, 62, 56, 63, 115, to bulb 104 which will flash tell-tale 110 and indicate to the driver that the forward right hand signal is functioning properly.

If the driver wishes to turn to the left the lever 79 is moved to the left hand position with lug 83 in the notch 82. This will swing cylinder 53 to bring block 54 into engagement with contacts 66 and 67, block 55 into engagement with contacts 68 and 69, block 56 into engagement with contacts 70 and 71, and block 57 into engagement with contacts 72 and 73. Now as the vehicle arrives at the intersection and the brake lever 43 is depressed, the switch 42 will be closed to flash the various signals to indicate this intention as follows:

The "Slow" or "Stop" signal 30 and the tell-tale 107 will be flashed as in the first two positions. The following circuit will also be closed: 44, 84, 85, 86, 88, 68, 55, 69, 99 to bulb 34 and flash the rear left hand signal 29. The following circuit will also be closed: 44, 89, 90, 92, 94, 66, 54, 67, 97 to bulb 20 which will flash the left hand signal 16 at the front of the vehicle and indicate this direction to the traffic director.

As the coil 85 is energized it will attract armature 120 and close the following circuit: 44, 123, 120, 121, 132, 72, 57, 73, 119, to bulb 109 and flash tell-tale 113 to indicate

to the driver that the left hand rear indicator is functioning properly. When the coil 90 is energized it will attract armature 125 and will close the following circuit: 44, 128, 125, 126, 130, 133, 70, 56, 71, and 118 to bulb 108 flashing tell-tale 112 and indicating to the driver that the forward left hand indicator has functioned properly.

From the foregoing description it will be seen that with this device signals will simultaneously be flashed at the front and rear of the vehicle to indicate, to the traffice director in front and the traffic following, the direction the driver wishes to take, and that there is absolutely no chance of confusing these signals. Also that if these signals are properly operated this fact will be indicated to the driver. Attention is also further directed to the fact that the signals are all controlled by a single lever which is positioned so as to be easily accessible to the driver, and that this lever may be shifted to the proper position to indicate the direction desired at any time prior to the arrival of the vehicle at the intersection. Thus the driver may properly set the direction indicators when there is nothing else to attract his attention and there is no chance of his getting them confused. The signals, however, are not flashed until the vehicle approaches the intersection and the brake lever is depressed to slow down for the intersection. Thus at the intersection the driver's hands are both free for use on the steering wheel, gear shift or emergency brake, and the direction signals are flashed automatically without any further thought on his part after the selective or control lever 79 has been shifted. The position of lever 79 will clearly indicate what signals will be flashed. Furthermore, as the signals are flashed only when the brake lever is depressed there is no waste of current. There is also no strain on the battery as the lights are usually flashed when the vehicle is in motion and generating current.

We wish it to be distinctly understood, however, that altho we prefer to have the indicators controlled by the brake lever or other control device for the vehicle, as this arrangement saves current, automatically flashes the indicators as soon as the brake lever is depressed and extinguishes the lights as soon as the brake lever or control device is released, still the system of direction indicators and the method of operating the tell-tales is not limited to use therewith. For instance some drivers may prefer to have a hand operated switch corresponding to switch 42 and locate it in some convenient position, in which case it would probably be closed before reaching the intersection in order to leave his hands free at that time. Or the switch 42 may be omitted and the indicator lights controlled entirely by the lever 74 and switch 49. In the latter arrangements, however, as the indicators are not operated automatically there is danger the driver might not operate them at all, or might leave the switch closed after passing the intersection.

The lights used in the various signals should be of sufficient candle power to properly illuminate the signals so that they will be easily visible in the day time as well as at night. It has been found in practice that about a 21 candle power lamp will do this, but of course lamps of different candle power may be used if found more satisfactory. It is especially to be noted that with a system as disclosed all the lamps in the direction indicators and also in the tell-tale may have the same voltage rating, and that, the rating of the current supply. Thus all the lamps including the tell-tale lamps may be standard lamps, no special lamps being required as would be the case were any of the lamps connected in series. The special lamps are very difficult and often impossible to secure, and besides where the lamp voltage is cut down illuminating power is accordingly reduced. With the present system the lamps are all of standard rating and of the same rating and as they are standard may be easily secured and are interchangeable. It is also to be noted that the tell-tales cannot be flashed unless the proper signals at the front and rear of the vehicle are operated, but should a tell-tale fail this will not prevent operation of the corresponding signal. This system is thus much more reliable and less liable to fail than a series system.

It is to be noted that the construction and layout as illustrated is merely illustrative, and the specific construction of the switches and arrangement of the wires may be varied as desired to perform the functions required. It is contemplated that the wires for the various circuits will be given different colored insulation so that the various circuits may be easily traced and the proper connections quickly and easily made by one not skilled in electrical devices.

Having thus set forth the nature of our invention, what we claim is:

1. In a traffic indicator for motor vehicles, a plurality of similar electrically operated vehicle direction indicators located at the front and rear of the vehicle, an electrically operated tell-tale for each indicator located adjacent the driver's position, each tell-tale corresponding in position and character to its respective indicator, and means for controlling said indicators and tell-tales including a switch for selectively closing circuits for simultaneously operating similar front and rear indicators and their corresponding tell-tales in parallel with the corresponding indicators, said controlling means also including circuits and connections whereby the opening of any indicator circuit will prevent

the operation of the corresponding tell-tale.

2. In a traffic indicator for motor vehicles, a plurality of similar electrically operated vehicle direction indicators located at the front and rear of the vehicle, an electrically operated tell-tale for each indicator located adjacent the driver's position, each tell-tale being arranged to indicate the position and character of its respective indicator, circuits for the respective indicators and tell-tales, and means for controlling said indicators and tell-tales including a switch having a single rotary member carrying contacts for selectively closing circuits for simultaneously operating similar front and rear direction indicators and also closing circuits to simultaneously operate the tell-tales corresponding to the indicators operated.

3. In a traffic indicator for motor vehicles, a plurality of similar electrically operated vehicle direction indicators located at the front and rear of the vehicle, an electrically operated tell-tale for each indicator located adjacent the driver's position, each tell-tale corresponding in position and character to its respective indicator, circuits for the respective indicators and tell-tales, and means for controlling said indicators and tell-tales including a switch for selectively closing circuits for simultaneously operating similar front and rear indicators and their corresponding tell-tales, said controlling means also including a control switch for each tell-tale circuit and means in the circuit to each direction indicator to operate the control switch for the corresponding tell-tale.

4. In a traffic indicator for motor vehicles, a plurality of electrically operated direction indicators, circuits for said indicators, an electrically operated tell-tale for each indicator, circuits for said tell-tales, a switch, electrical means for operating said switch, and a control device comprising a selective switch having connections to place the electrical switch operating means in either indicator circuit and to place the switch operated by said means in the corresponding tell-tale circuit.

5. In a traffic indicator for motor vehicles, a plurality of direction indicators, circuits for said indicators, a plurality of electrically operated tell-tales for said indicators, circuits for said tell-tales, a switch, electrical operating means for said switch, and a selective device for placing the switch operating means in either indicator circuit and at the same time placing the switch operated by said means in the corresponding tell-tale circuit.

6. In a traffic indicator for motor vehicles, electrically operated right and left hand direction indicators at the front and rear of the vehicle, circuits for said indicators, an electrically operated tell-tale for each indicator, circuits for said tell-tales, a pair of switches, an electrical operating means for each switch, and a control device comprising a selective switch adapted to assume a plurality of positions and having connections when in one position to place said switch operating means in the right hand indicator circuits one in each circuit and the switches operated by said means in the corresponding tell-tale circuits, and said selective switch also having connections when in another position to place said switch operating means in the left hand indicator circuits, one in each circuit and the switches operated by said means in the corresponding tell-tale circuits.

7. In a traffic indicator for motor vehicles, electrically operated right and left hand direction indicators, circuits for said indicators, an electrically operated tell-tale for each indicator, circuits for said tell-tales, a switch, an electrical operating means for said switch, and a control device comprising a selective switch adapted for movement to a plurality of positions and having connections when in one position to place the switch operating means in the right hand indicator circuit and the switch operated by said means in the corresponding tell-tale circuit, said selective switch also having connections when in another position to place the switch operating means in the left hand indicator circuit and the switch operated by said means in the corresponding tell-tale circuit.

8. In a traffic indicator for motor vehicles, electrically operated right and left hand direction indicators at the front and rear of the vehicle, circuits for said indicators, an electrically operated tell-tale for each indicator, circuits for said tell-tales, a pair of switches, an electrical operating means for each switch, and a selective device for placing one of said switch operating means in one of the rear direction indicator circuits and at the same time placing the switch operated thereby in the corresponding tell-tale circuit, said selective device being also provided with means for at the same time placing the other switch operating means in the corresponding front indicator circuit and the switch operated by said means in the corresponding tell-tale circuit.

9. In a traffic indicator for motor vehicles, electrically operated right and left hand direction indicators at the front and rear of the vehicle, circuits for said indicators, an electrically operated tell-tale for each indicator, circuits for said tell-tales, a pair of switches, an electrical operating means for each switch, and a control device comprising a selective switch movable to a plurality of positions and having connections when in one position for placing one of said switch operating means in one of the rear direction indicator circuits, the other switch operat-

ing means in the corresponding front indicator circuit and the switches operated by said means in the corresponding tell-tale circuits; said selective switch also having connections when in another position to place one of said switch operating means in the other rear indicator circuit, the other switch operating means in the corresponding front indicator circuit and the switches operated by said means in the corresponding tell-tale circuits.

10. In a traffic indicator for motor vehicles, electrically operated right and left hand direction indicators at the front and rear of the vehicle, an electrically operated straight ahead indicator at the front of the vehicle, circuits for said indicators, an electrically operated tell-tale for each indicator, circuits for said tell-tales, a pair of switches, an electrical operating means for each switch, and a control device comprising a selective switch movable to a plurality of positions and having connections when in one position for placing one of said switch operating means in the rear right hand direction indicator circuit, the other switch operating means in the corresponding front indicator circuit, and the switches operated by said means in the corresponding tell-tale circuits; said selective switch also having connections when in another position to place one of said switch operating means in the rear left hand direction indicator circuit, the other switch operating means in the corresponding front indicator circuit and the switches operated by said means in the corresponding tell-tale circuits; said selective switch still further having connections when in a third position to place one of said switch operating means in the front straight ahead indicator circuit and the switch operated by said means in the corresponding tell-tale circuit.

11. In a traffic indicator for motor vehicles, a plurality of electrically operated direction indicators, circuits for said indicators, a plurality of tell-tales for said indicators, an electrically operated relay, and a single switch having connections to place the relay in either indicator circuit and at the same time to place the relay switch in the corresponding tell-tale circuit.

In testimony whereof we affix our signatures.

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