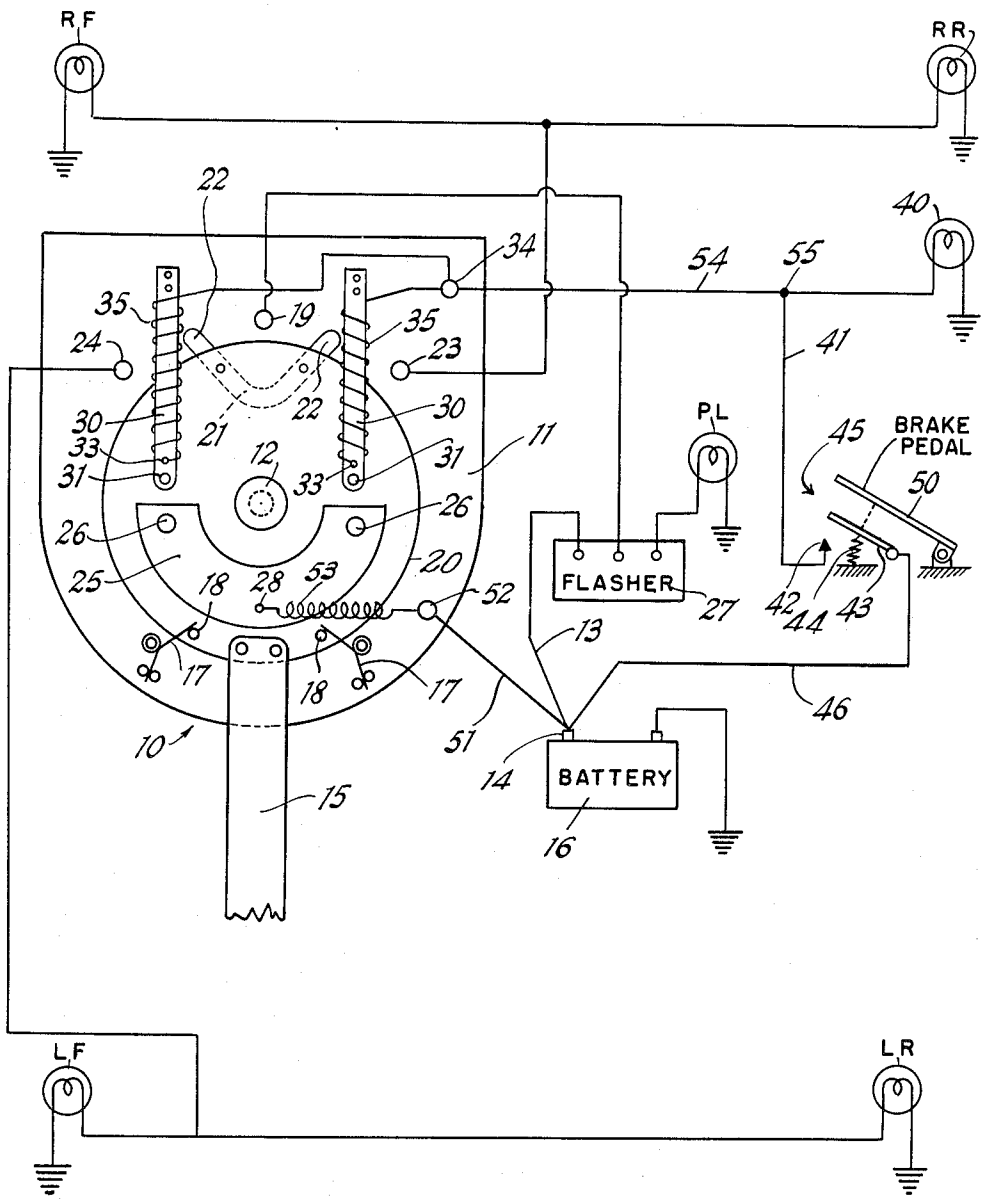
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DIRECTION SIGNALLING SYSTEMS

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INVENTOR
Jesse R Hollins
BY
Dan J Mason
ATTORNEY

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DIRECTION SIGNALLING SYSTEMS

Jesse R. Hollins, Brooklyn, N. Y.

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This invention relates to direction signalling systems for vehicles and, more particularly, to a novel signalling system of this type in which operation of timing means controlling cancellation of a direction signal is dependent upon a pre-selected operating position of one of the pedals or other elements controlling movement of the vehicle.

To this end, the invention arrangement comprises a signalling system in which operation of the timer effected cancellation means is made dependent upon the motion of the vehicle. Thus, if the turning movement is delayed by approaching or cross traffic, for example, the operating cycle of the timer is interrupted until the vehicle is in motion to make the intended turn. More specifically, operation of the timing means is made dependent upon whether or not the brake pedal is in the position it occupies when the vehicle is in motion.

For an understanding of the invention principles, reference is made to the following description of typical embodiments thereof as illustrated in the accompanying drawing.

In the drawing, the single figure is a part schematic and part plan view of a selector switch and circuit embodying the invention.

Referring to the drawing, a selector switch **10** is illustrated as including a base **11** on which a dielectric disc component **20** is oscillatably pivoted at **12**. Disc **20** is movable from the illustrated neutral or "off" to either of a pair of operated positions, to provide a selected signal indication, by an operating lever **15**. The disc is biased to the neutral or signal cancelling position by centering springs **17** secured to base **11** and cooperable with stops or pins **18** on disc **20**.

Disc **20** has secured to its underside a V-shaped contact member **21** having arms **22** projecting beyond the disc periphery. Arms **22** are cooperable with contacts **19**, **23** and **24** on base **11**, intermediate contact **19** being spaced from contacts **23** and **24** by the distance between the outer ends of arms **22**. Contact **19** is connected to the main output terminal of a flasher **27** having its "live" terminal connected by conductor **13** to the "live" terminal of a grounded battery **16**. Contact **23** is connected to right front and right rear signal lamps RF and RR, and contact **24** is connected to left front and left rear signal lamps LF and LR.

In the neutral position shown, arms **22** lie between contact **19** and contacts **23**, **24**. When lever **15** is swung clockwise to rotate disc **20** to signal a right turn, arms **22** engage and interconnect contacts **19** and **23**, thus connecting lamps RF and RR to flasher **27** to "flash" a right turn. Lamps LF and LR are correspondingly energized to "flash" a left turn when disc **20** is rotated counter-clockwise by lever **15**. The third terminal of flasher **27** is the relay terminal connected to grounded pilot lamp PL, so that lamp PL is flashed whenever either set of signal lamps is flashed.

Secured to the outer or upper surface of disc **20** is a substantially flat member or strip **25**, of electrically conductive material, formed with spaced depressions **26** providing latching portions. These latching portions are respectively releasably engageable with buttons or pimples **31** on the free ends of individual bimetallic arms **30** mounted on a bar **32** on base **11**, the arms **30** thus forming latching means each individually cooperable with a different latching portion **26** in a selected operated position of disc **20**. For this purpose, the arms **30**, when cold, are biased to force their free ends into engagement with disc **20**. When an arm **30** has been heated for a predetermined period, the arm bows away from disc **20** and decreases pressures to disengage its button **31** from the associated recess **26** to allow springs **17** to restore disc **20** to the signal cancelling position.

To heat the thus operative arms responsive to movement of disc **30** to an operated, signal indication providing position, each arm has wound therearound a heating coil **35**. Coils **35** may be of insulated wire and wound directly on arms **30**, or each arm may have an insulating sleeve thereon around which a bare or insulated wire is wound to form the coils **35**. One terminal of each coil **35** is electrically connected, by soldering or the like, to its associated arm **30**, as at **33**. The other terminal of both coils **30** are connected to a terminal **34** on base **11**.

The vehicle stop lamp circuit is illustrated as including a grounded stop lamp or lamps **40** having its other terminal connected by a conductor **41** to the front contact **42** of a switch **45** including an arm **43** normally biased to the switch open position by a spring **44**. A conductor **46** connects arm **43** to live terminal **14** of battery **16**. Arm **43** is mechanically linked to brake pedal **50** so that switch **45** is closed to energize lamp **40** whenever brake pedal **50** is depressed to apply the vehicle brakes. Although only one lamp **40** is illustrated, it will be understood that many vehicles are provided with two or more stop lamps connected in parallel.

In accordance with the present invention, a conductor **51** connects battery terminal **14** to terminal **52** on base **11**, and a flexible lead **53** connects terminal **52** to conductive member **25** at point **28**. Also, a conductor **54** connects terminal **34**, and thus one end of each coil **35** to the ungrounded terminal of lamp **40** through junction **55** and conductor **41**.

The described arrangement operates in the following manner. When lever **15** is operated to provide a signal indication, disc **20** is moved to a position where one latch portion **26** of conductive member **25** is releasably engaged by the pimple or button **31** of the associated bimetallic arm **30**. This completes an energizing circuit for the associated heating coil as follows: battery terminal **14**, conductor **51**, terminal **52**, lead **53**, strip or member **25**, arm **30**, coil **35**, terminal **34**, conductor **54**, junction **55**, conductor **41**, lamp **40**, and ground. Due to the resistance of the coil **35**, the voltage drop across lamp **40** is insufficient to provide enough current flow to illuminate lamp **40**.

Resistance heating coil **35** heats the associated arm **30** and, after a preselected heating period determined by design considerations, the bimetallic arm bows outwardly to release the latching engagement with strip or member **25**. Springs **17** restore disc **20** to the neutral position, cancelling the signal indication, and the energizing circuit for the coil **35** is broken allowing the associated arm **30** to cool.

While the foregoing represents the normal or uninterrupted timing cycle of the signal switch, an important feature of the invention is the interruption of the timing cycle when the vehicle is held against motion, as when halted at an intersection preparatory to making a presignalled turn. In such case, with the brake applied, switch **45** is closed to energize brake lamp or lamps **40**, by completing a low resistance circuit from battery terminal **14** through conductor **46**, switch **45**, conductor **41**

and lamp 40. This shunts out the energizing circuit for the heating coil 35 of the then operative bimetallic latching arm 30, in effect, points 28 and 55 are both at substantially the potential of battery terminal 14, so that there is no potential drop across the then connected coil.

Consequently, if switch 10 has already been operated to signal the turn and thus connecting one heating coil 35 in circuit, the heating of said coil is interrupted and the associated bimetallic arm cools off to stay in the latching position. Similarly, if the switch 10 is operated while the brakes are applied, the thus connected coil 35 will not be energized and its associated arm will not be heated. However, as soon as the brakes are released, switch 45 is opened and an operating potential appears across the connected coil 35 through the stop lamp 40. The coil 35 thus heats or re-heats the associated arm 30, providing the timing cycle for release of the latching means of disc 20. This may be either a full cycle or a part of a cycle, dependent upon the extent to which the operative arm 30 has cooled during the brake application.

A further important feature is the provision of two latching arms 30, one operative only when signalling a right turn and the other operative only when signalling a left turn, and each having an individual heating coil 35. Thus, only one latch at a time is heated during a timing cycle, and the other latch remains cold and in a fully operative latching condition. Thereby, should a left turn be signalled initially and, it is desired to signal a right turn immediately thereafter, only the left turn latch arm 30 is heated, and the right turn latch arm 30 remains cold and in condition for immediate latching engagement with strip 25 when the right turn is signalled. Such signal operational sequence frequently occurs when passing other vehicles on a multi-lane highway. If only one latch arm were provided, it would have to cool off from its first turning cycle heating before it could be fully effective to latch disc 20 in the succeeding operated position.

While a specific embodiment of the invention has been shown and described in detail to illustrate the application of the invention principles, it will be understood that the invention may be embodied otherwise without departing from such principles.

What is claimed is:

1. A selector switch for use in an automotive vehicle turn signaling arrangement, said switch comprising, in combination a base; a dielectric component oscillatably mounted on said base and movable from a neutral position to either of a pair of operated positions; means biasing said component to the neutral position; a conductive element mounted on said component and having a spaced pair of latching portions; a first terminal on said base connected to said conductive element; a pair of bimetallic latch arms on said base each releasably engageable with a latching portion in a different operated position of said component and operable, after a predetermined heating period, to disengage the latching portion to provide for said biasing means restoring said component to the neutral position; a pair of heating coils each mounted on a different arm and having an end connected to its associated arm; a second terminal on said base connected to the opposite ends of said coils; a pair of end contacts and an intermediate contact on said base; and a circuit closer on said component operable to connect said intermediate contact to a different end contact in each operated position of said component; whereby, when said component is moved to an operated position, one heating coil is connected between said terminals through its associated arm and said conductive element, and the corresponding circuit for the other coil remains open so that its associated latch arm remains in a potential latching position.

2. A switch as claimed in claim 1 in which said component is flat and said conductive element is arcuate and on the outer surface of the component in concentric relation with the axis of oscillation.

3. A switch as claimed in claim 2 in which said latch arms comprise strips which overlie said component and extend toward the ends of said element.

4. A switch as claimed in claim 1 in which said component is flat and said conductive element is arcuate and on the outer surface of the component in concentric relation with the axis of oscillation; and said latch arms comprise strips which overlie said component and extend toward the ends of said element.

References Cited in the file of this patent

UNITED STATES PATENTS

1,108,036	Walsh	Aug. 18, 1914
1,530,641	Bennett	Mar. 24, 1925
1,887,469	Tallman	Nov. 8, 1932
2,040,923	Doane	May 19, 1936
2,106,643	Mellen	Jan. 25, 1938
2,300,571	Horton	Nov. 3, 1942
2,308,097	Murray	Jan. 12, 1943
2,657,293	Hopkin	Oct. 27, 1953