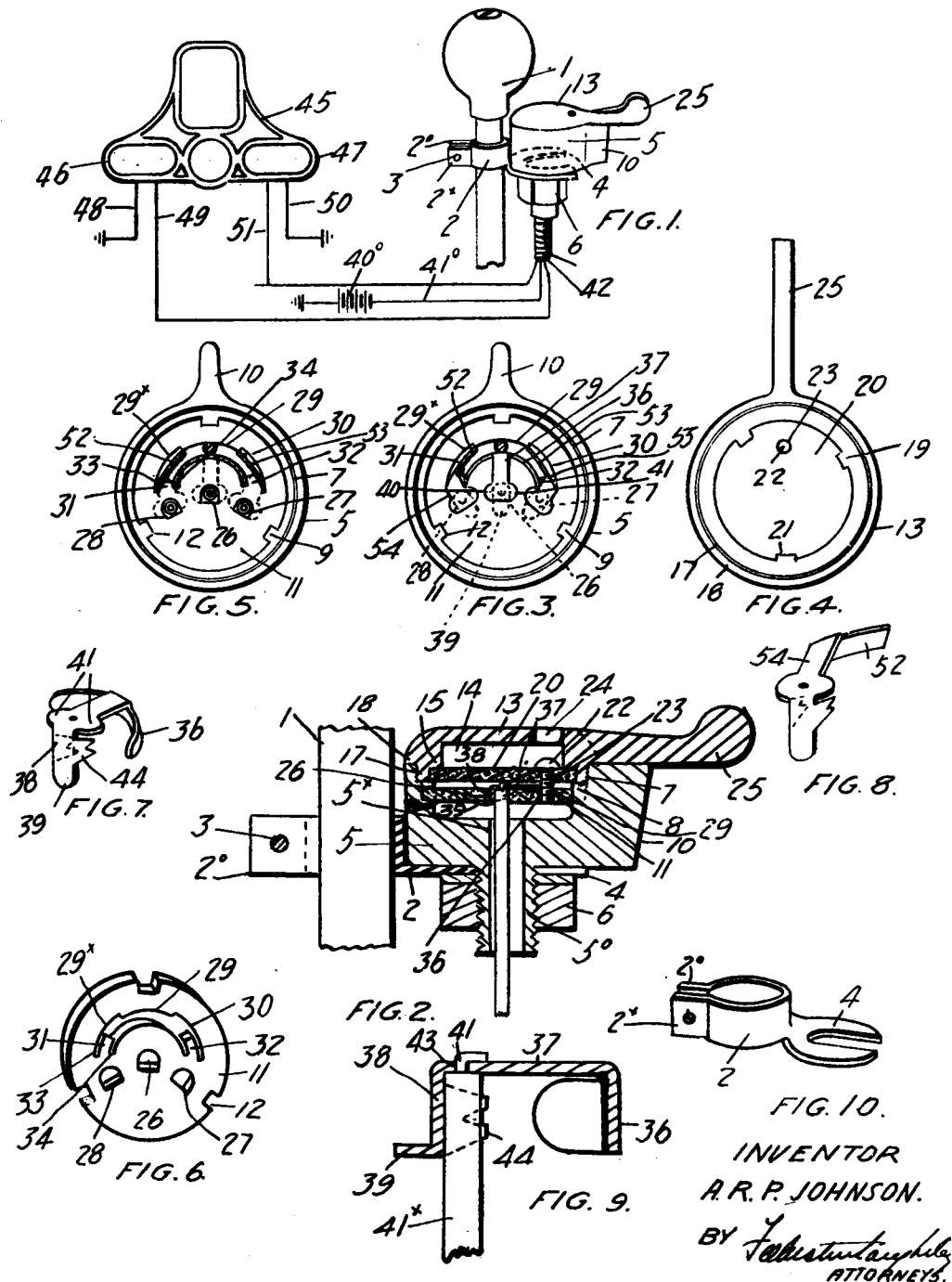


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DIRECTION INDICATOR SWITCH

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DIRECTION-INDICATOR SWITCH.

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My invention relates to improvements in direction indicator switch boxes, and the object of the invention is to devise a simple compact construction of switch box which may be readily assembled or disassembled, which is always convenient to the hand of the operator for closing a circuit through the light source of either a right or left hand indication, in which such operation may be performed automatically on the part of the driver without distracting his attention from the surrounding traffic, in which the contact connection will be definitely made and held in either a right or left hand position until manually returned to neutral, in which the switch can be readily brought back definitely to the neutral position without mental concentration on the part of the driver, in which the switch box is so constructed as to be either applied to a control lever such as a gear shaft lever or the instrument board as desired, in which there is no danger of contacts engaging to accidentally close the circuit, and in which the cable connection enclosing the lead-in wires may be made without the employment of nuts or bolts and which may be readily detached whenever desired, and it consists essentially of the arrangement and construction of parts as hereinafter more particularly explained.

Fig. 1 is a perspective view of my direction indicator switch box applied to a gear shift lever and showing the rear indicator casing and circuit wires leading thereto diagrammatically.

Fig. 2 is an enlarged sectional view through my direction indicator switch box.

Fig. 3 is a plan view of my switch box with the cover removed.

Fig. 4 is an inverted plan view of the switch box cover.

Fig. 5 is a plan view similar to that shown in Figure 3 showing the contacts in section.

Fig. 6 is a perspective detail of the insulating washer support for the switch stationary contacts.

Fig. 7 is an enlarged perspective detail of the central stationary switch contact permanently connected to the battery.

Fig. 8 is an enlarged perspective detail of one of the stationary left hand contacts contacting with the central contact illustrated in Figure 7.

Fig. 9 is an enlarged sectional detail through the central contact and the means of

connecting the terminal end of the wire thereon.

Fig. 10 is a perspective detail of one form of supporting bracket by which my switch box may be connected to a gear shift lever.

In the drawings like characters of reference indicate corresponding parts in each figure.

1 indicates a portion of a gear shift lever. 2 is my switch box supporting bracket comprising a split sleeve extending around the gear shift lever and provided with outwardly extending lugs 2* and 2° through which a clamping bolt 3 extends to clamp the bracket onto the lever. 4 is a forked lug extending through the body of the bracket 2 forming an open ended slot for the reception of the switch box stem as will hereinafter appear.

5 is the body of my switch box which is provided with an open top and a central orifice 5* in its bottom wall extending through a stem 5° depending from the bottom of the switch box. The stem 5° is passed into the open ended slot of the lug 4 and clamped therein by means of a clamping nut 6.

The internal periphery of the switch box is provided in proximity to its upper edge with an internally threaded enlarged portion 7 forming an internal shoulder 8 from which extend a series of projections 9 in suitably spaced apart positions.

10 is a projection or finger which extends outward from the casing body 5 and corresponding in position to the neutral position of the switch as will hereinafter appear.

11 is a washer formed of fibre or other suitable insulating material adapted to rest upon the shoulder 8 within the switch box body 5 and is provided in its periphery with a plurality of recesses 12 into which the projections 9 fit so as to definitely hold the washer in place from rotary movement. 13 is the cover or cap of the switch box body which is provided with an internal recess 14 around which extends an internal annular shoulder 15 from which depends an external annular flange 17 forming an external annular shoulder 18 adapted to bear upon the upper edge of the open end of the switch box body 5. The lower edge of the annular flange 17 of the cover bears upon the upper ends of the projections 9 above the washer 11 so as to hold the washer definitely from vertical movement.

19 are a plurality of projections extend-

ing from the internal shoulder 15 in a similar manner to the projections 9 extending from the shoulder 8 and 20 is a fibre washer fitting within the cap 13 against the shoulder 15 and provided with external peripheral recesses 21 into which the projections 19 fit so as to hold the washer from turning movement. 22 is a contact screw which is screwed through an orifice 23 formed in the washer 20, the screw being passed through the orifice 24 formed in the switch box cover so as to be inserted in the orifice 22. 25 is a finger lever by which the cover 13 is turned within the casing body 5, the engaging threads between the cover and the body being formed to permit of this movement which is limited by means which I will hereinafter describe.

26, 27 and 28 are a series of D-shaped orifices formed in the fibre washer 11. 29 is an arc-shaped slot also formed in the washer 11 concentrically with the centre of the orifice 26. 29* and 30 are recesses formed in the outer wall of the slot 29 extending from each end of the slot or to a point spaced apart and located at each side of the centre of the slot. 31 and 32 are projecting portions of fibre which extend from each end of the slot 29 so as to form saw cut recesses 33 and 34 at each side of the projection. 36 is an arc-shaped member forming oppositely extending contact fingers and forming the central contact of my switch and fitting around the arc-shaped inner wall of the slot 29 so as to extend at its ends within the saw cuts 34.

The ends of the contact fingers 36 are slightly eccentric to the centre of the slot where they enter the saw cuts 34 so as to permit of a slight clearance between such ends and the opposing inner wall of the slot. The contact finger 36 is supported in position by means of an arm 37 bearing against the upper face of the washer 11 and terminating in a right angularly extending portion 38 extending through the orifice 26 so as to project therethrough, the projecting end being bent against the lower face of the washer as indicated at 39, see Figures 2 and 9.

The major portion of the arm 37 is provided with laterally extending lugs 40 and 41 which bear against the face of the washer 11 at each side of the orifice 26 so as to coact with the intumed portion 39 to prevent the vertical movement of the contact 36 in relation to the washer 11.

The screw 22 extending through the washer 20 as above described projects from such washer and into the slot 28 so as to be in permanent contact with the contact finger 36 which is in permanent connection with the energizing battery 40* by means of a wire 41* provided with an insulating cover 41* and extends into a flexible conduit 42 which extends through the orifice 26, the extremity of the wire passing through a perforation 43

so as to compress the insulating cover of the wire, the extremity of the wire being then down turned against the outer face of the arm 37 the compressed portion of the insulating cover being gripped by fingers 44 70 which are bent around the wire as clearly indicated in Figure 9 so as to grip the stem and hold it in position.

45 is a direction indicator casing provided with right and left indications 46 and 47 75 provided with suitable light sources, the right hand indicator being provided with lead wires 48 and 49 and the left hand indicator with lead wires 50 and 51. The lead wires 48 and 50 are grounded as indicated. 80 The lead wires 49 and 51 extend into my switch box and are connected to stationary contacts coacting with the central contact 36 and the construction of which I will now describe. 85

52 and 53 are the finger portions of the contacts which extend at their outer ends into the saw cuts 33 and extend at their opposite ends in proximity to the inner ends of the recesses 29 and 30. The fingers 52 90 and 53 are carried by arms 54 and 55 which are similar in construction to the arms 37 and which pass through the orifices 27 and 28 and are similarly secured therein, the lead wires 49 and 51 being connected thereto in a similar manner to the lead wires 41 and as illustrated in detail in Figure 9. 95

As before stated the screw 22 projects into the slot 29 and is in permanent contact with the finger 36. 100

When the finger lever 25 is swung in one direction the projection 22 passes between the finger contact 52 and the opposing portion of the contact 36 tending to force these portions apart so as to have a frictional grip 105 upon the screw to hold it definitely from return movement, the movement of the finger lever 25 being limited by the engagement of the screw 22 with the fibre projection 31 extending from the end of the slot 29. When 110 the finger lever 25 is swung in the opposite direction it is similarly held and limited in its movement by the projection 22 passing between the opposite end of the contact 36 and the opposing finger 53. 115

When it is desired to bring the finger lever back to its neutral position all it is necessary to do is to press against one side of the finger lever 25 and the opposite side of the projection 10 of the switch box body and press the 120 finger lever 25 between the thumb and finger into position in alignment with such projection. It will be readily understood that this can be done without carrying the eyes of the driver from the surrounding traffic. 125

It will be noted on referring to Figures 1 and 2 that the lead wires 49 and 51 and 41 pass through a metallic flexible cable 42 which is fitted into the orifice 5* of the stem 5* by contracting the cable with a centre 130

punch inserting it in the orifice and then releasing it so that it expands and grips the wall of the orifice. The cable may be readily removed by reversing this operation.

5 From this description it will be seen that I have devised a very simple construction of direction indicator switch box which may be readily assembled or disassembled, in which all the parts are securely held together, which
10 will be always convenient to the driver's hand and which may be operated by him without mental concentration on the part of the driver to light either the right or left hand indicating signal or return the switch to its neutral
15 position, and in which there is no danger of the contacts accidentally engaging to unintentionally close the circuit.

What I claim as my invention is:—

1. In an automobile direction indicator
20 switch box, a cylindrical box body having an open top, a pair of stationary spring contact fingers insulated apart and forming the terminals of the right and left hand indicating light circuits and enclosed in the body,
25 a cover turnably mounted on the body, a projection of conducting material depending from the cover and designed to be gripped between the said contacts when the cover is swung in either direction.

30 2. In an automobile direction indicator switch box, a box body having an open top, a disc of insulating material supported within the box and having a concentric arc-shaped slot formed therein, a pair of contact fingers
35 located at each end of the slot and spaced apart, a turnable cover for the switch box, a projection of conducting material depending from the cover and adapted to pass between each pair of contacts when the cover is turned
40 in either one direction or another to close the circuit.

3. In a device of the class described, a two point contact member comprising a disc of insulating material having an arc-shaped
45 concentric slot formed therein, a metallic contact strip extending around the interior wall of the slot, metallic contact strips extending from each end thereof adjacent the exterior wall of the slot and extending towards the
50 centre thereof.

4. In a device of the class described, an open top cylindrical casing, a disc of insulating material secured in a stationary position within the casing and having a concentric
55 arc-shaped slot, a metallic contact strip extending around the interior wall of the slot, a metallic contact strip extending from each end of the slot towards the centre thereof, and against the exterior wall, a manually
60 turnable cover for the casing, an insulated depending projection of conducting material extending into the slot against the inner strip and adapted to be carried between the inner and each of the outer strips as the cover
65 is turned either in one direction or the other.

5. In a device of the class described, an open top cylindrical casing, a disc of insulating material secured in a stationary position within the casing and having a concentric
70 arc-shaped slot, a metallic contact strip extending around the interior wall of the slot, a metallic contact strip extending from each end of the slot towards the centre thereof, and against the exterior wall, a manually
75 turnable cover for the casing, an insulated depending projection of conducting material extending into the slot against the inner strip and adapted to be carried between the inner and each of the outer strips as the cover is
80 turned either in one direction or the other, and a limiting projection extending from each end of the slot between the aforesaid strips against which the conducting projection is carried by the limit of its movement.

6. In a device of the class described, a casing provided with an annular internal shoulder, projections extending upwardly from
85 such shoulder, a disc of insulating material adapted to rest upon the shoulder and having peripheral recesses into which the upwardly extending projections fit and having an arc-shaped eccentric slot, a metallic contact strip
90 extending around the inner wall of the slot, metallic contact strips extending from each end of the slot around the outer wall towards the centre of the slot, a cover turnably mounted upon the open top of the casing, a projection of conducting material depending and
95 insulated from the cover and extending into the aforesaid slot in contact with the inner contact strip and adapted to be carried between the inner and outer contact strips as the cover is turned either in one direction or the other.

7. In a device of the class described, an
105 open top casing, a concentrically slotted member secured within the casing, inner and outer contact strips extending from the ends of the slot adjacent the inner and outer walls, a cover turnably mounted upon the open top
110 of the casing having an internal annular shoulder and projections extending from the shoulder and the wall of the cover, a disc provided with peripheral recesses fitting upon the shoulder and into the recesses of
115 which the projections extend, and a screw extending through the disc so as to be insulated from the cover and extending into the aforesaid slot so as to pass between the inner and outer contact strips when the cover is
120 turned in either one direction or the other.

8. In a device of the class described, a contact holding piece provided with a plurality of D-shaped orifices and an arc-shaped slot
125 concentric with the central orifice, a metallic strip extending through the central orifice and secured therein and forming an arm extending radially of the slot and an arc-shaped strip carried by the outer end of the arm extending around the inner wall of the slot, a
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metallic strip extending through each orifice at each side of the central orifice and secured therein and forming an arm extending to each end of the aforesaid slot, and a strip contact formed integral with each arm and extending partially around the exterior wall of the slot and each end thereof.

9. In a device of the class described, a contact holding member provided with a central D-shaped orifice and a D-shaped orifice at each side of such central orifice and an arc-shaped slot concentric with the centre orifice,

a metallic strip extending through each orifice so as to project therethrough and having their projecting ends turned up against the face of the disc, lugs extending from the strip against the opposite face of the disc and contact strips formed at the extremity of the arms, the strip of the centre arm extending around the interior wall of the slot and the strips of the remaining arms extending partially around the exterior wall of the slot and each end thereof.

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