

March 17, 1942.

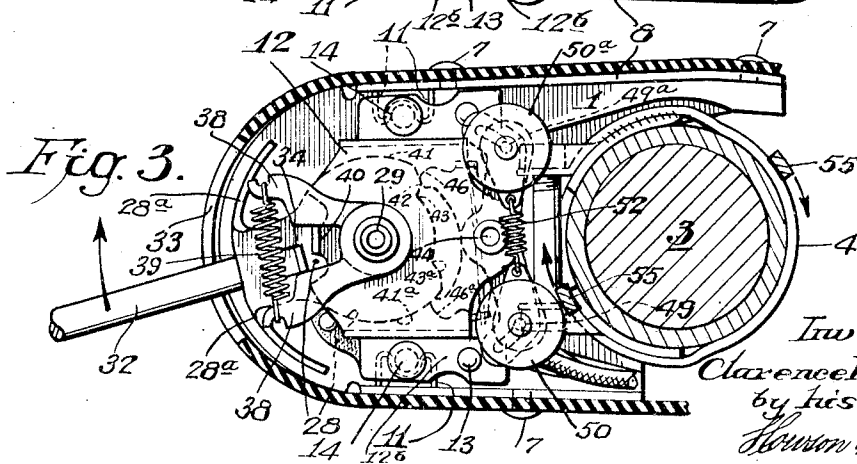
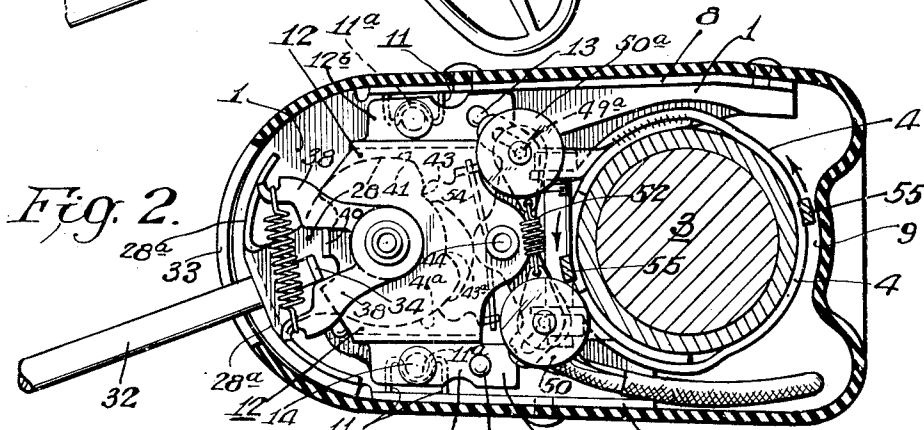
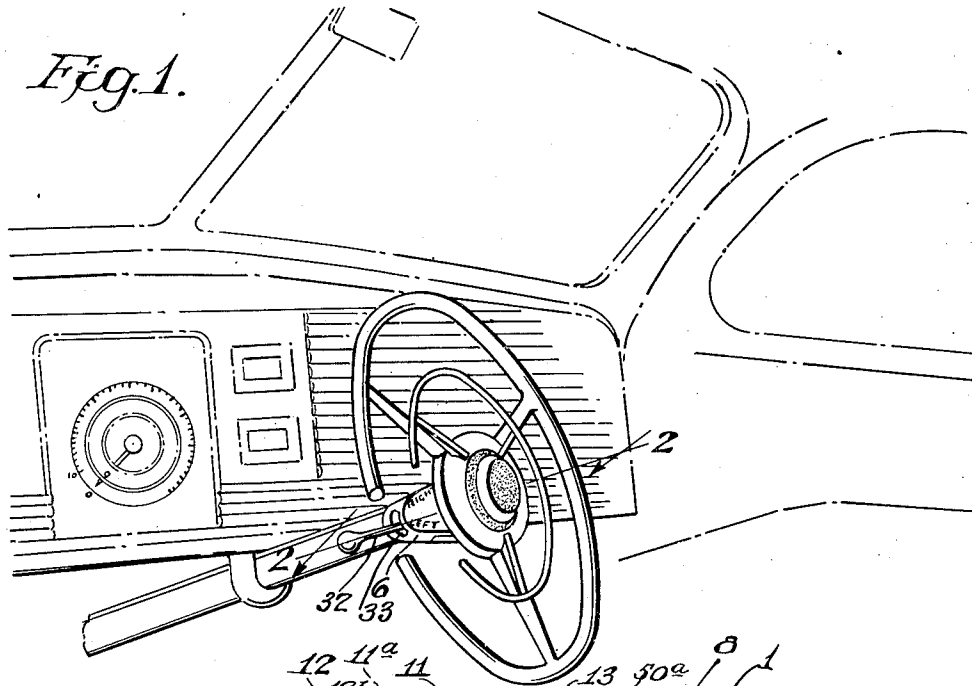
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2,276,413

SWITCH MECHANISM

Filed Oct. 7, 1941

6 Sheets-Sheet 1



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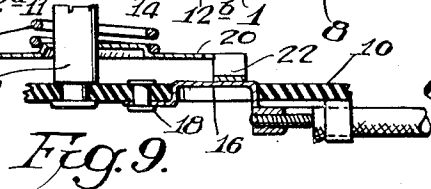
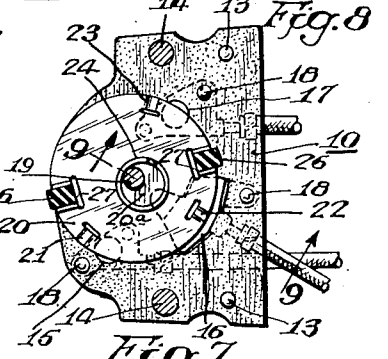
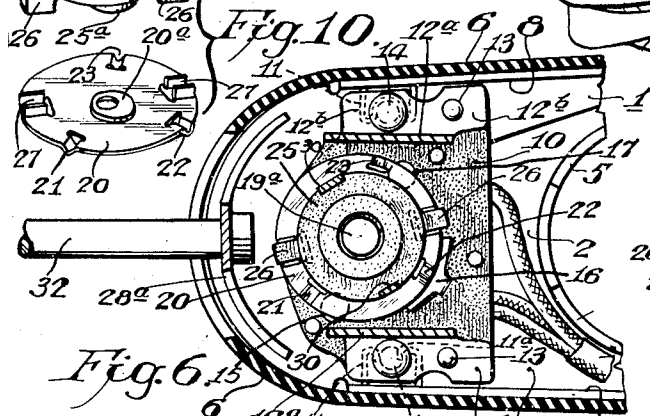
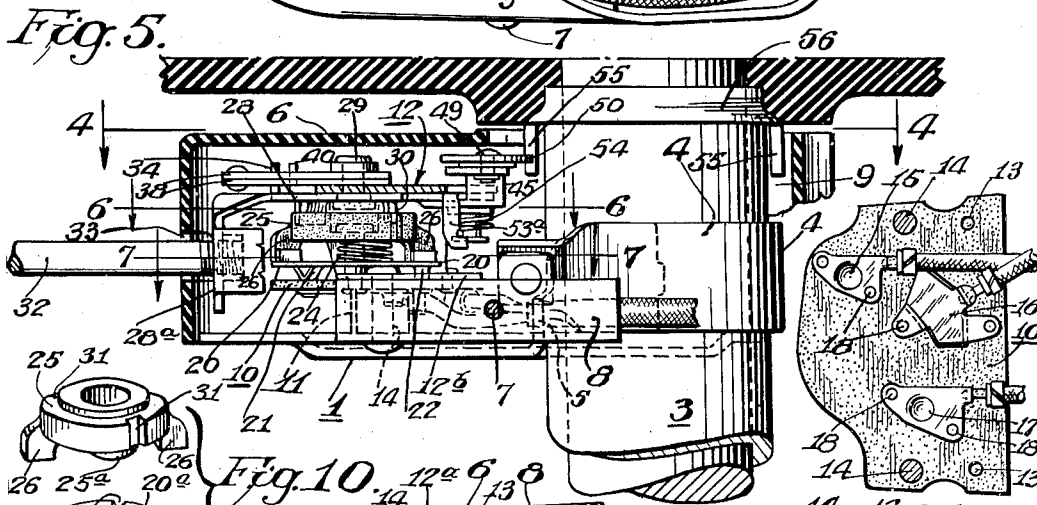
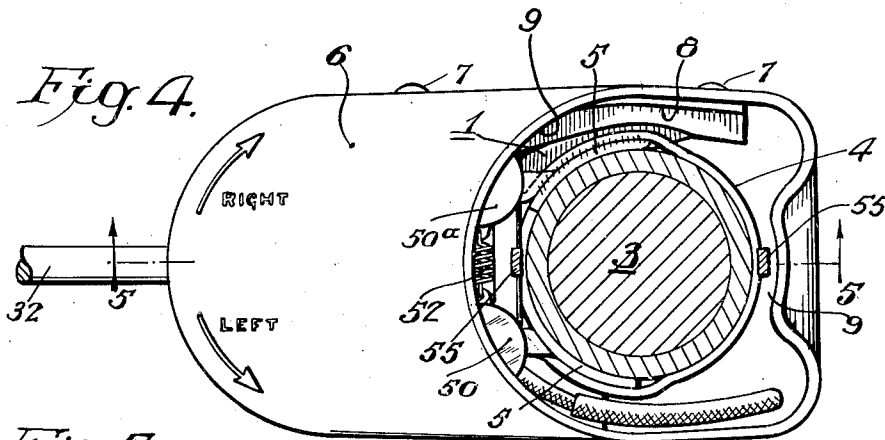
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SWITCH MECHANISM

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6 Sheets-Sheet 2



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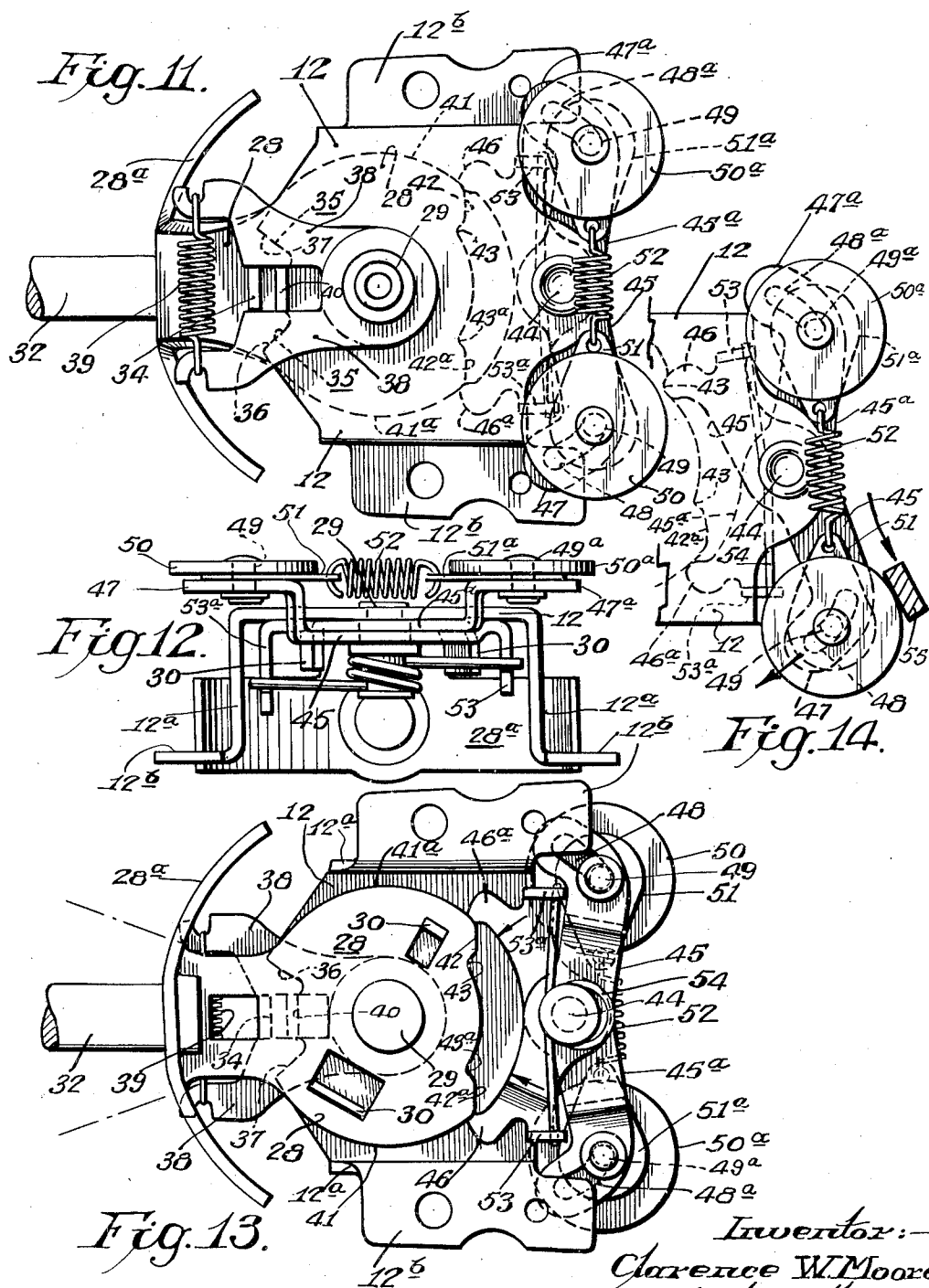
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SWITCH MECHANISM

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6 Sheets-Sheet 3



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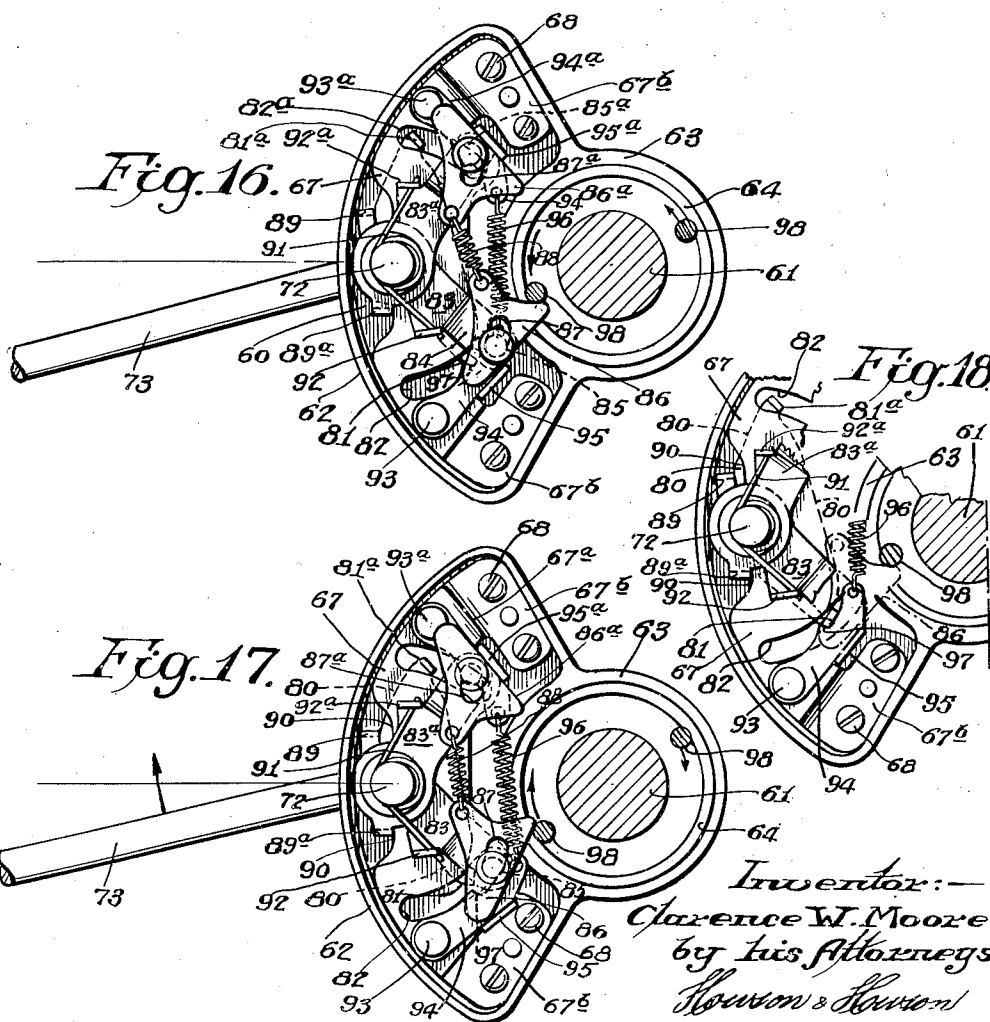
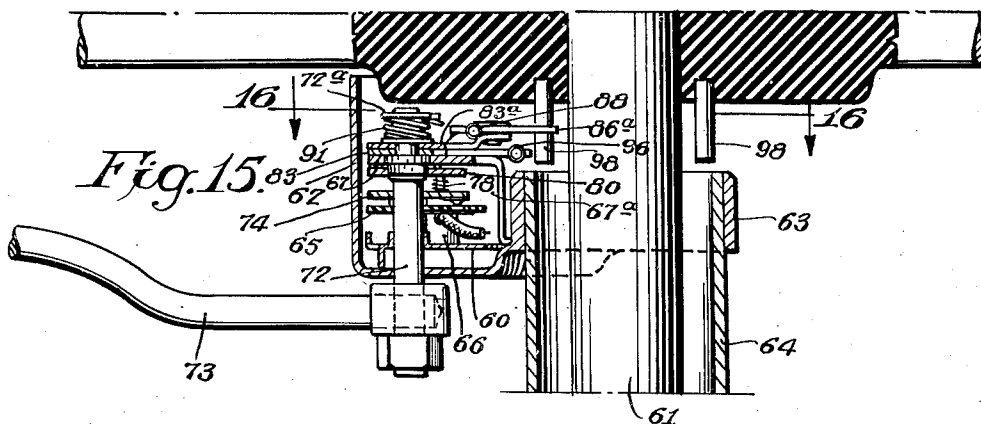
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2,276,413

SWITCH MECHANISM

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March 17, 1942.

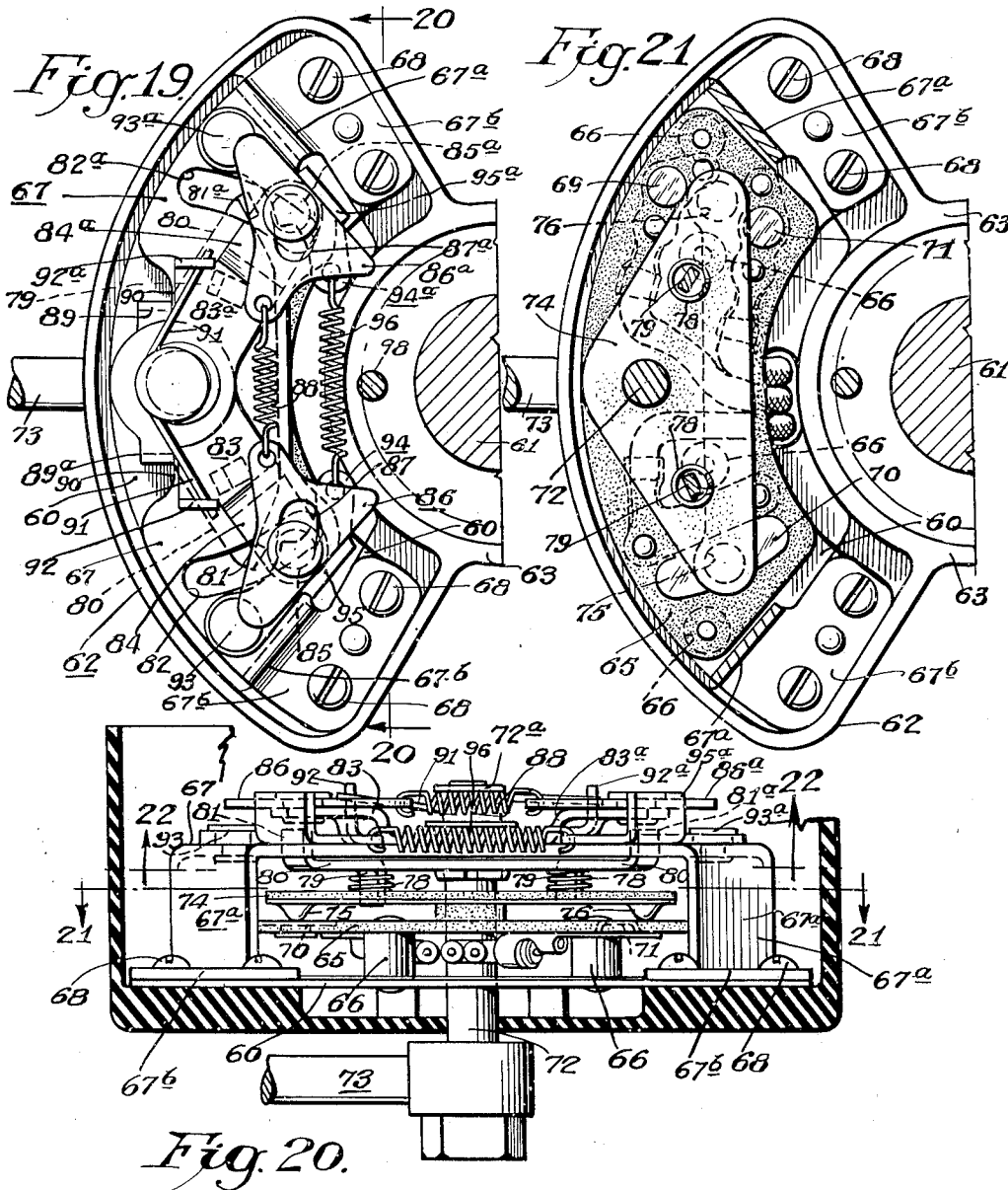
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SWITCH MECHANISM

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6 Sheets-Sheet 5



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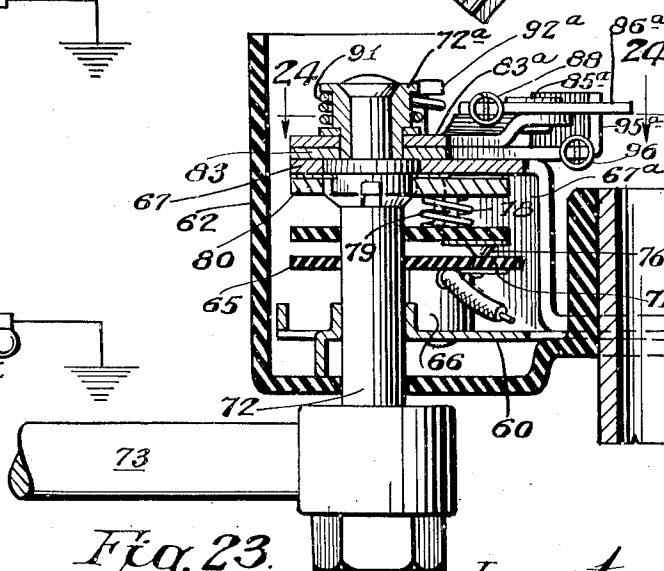
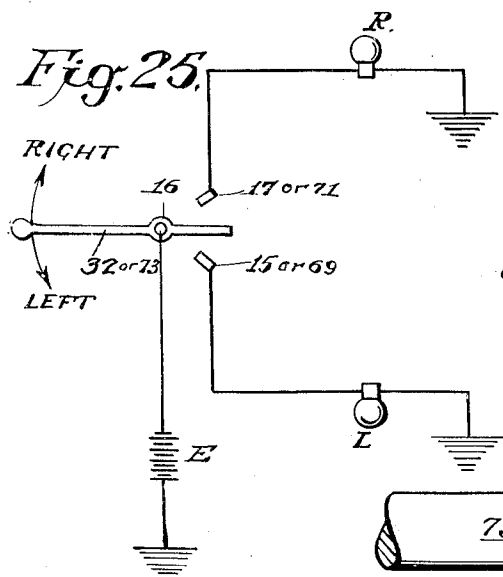
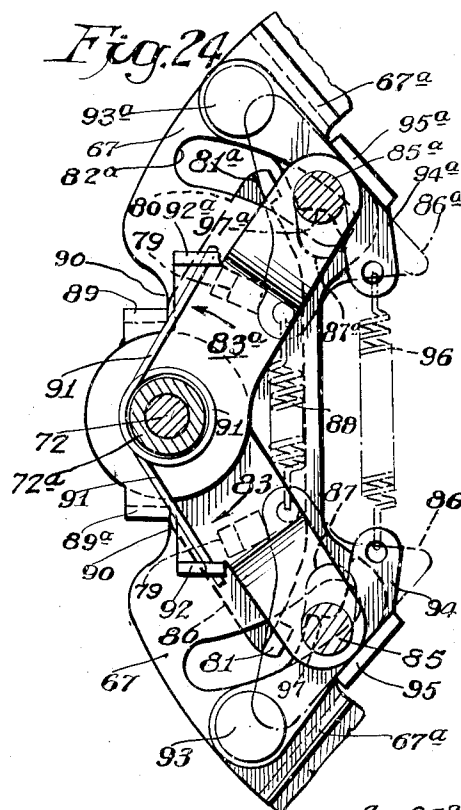
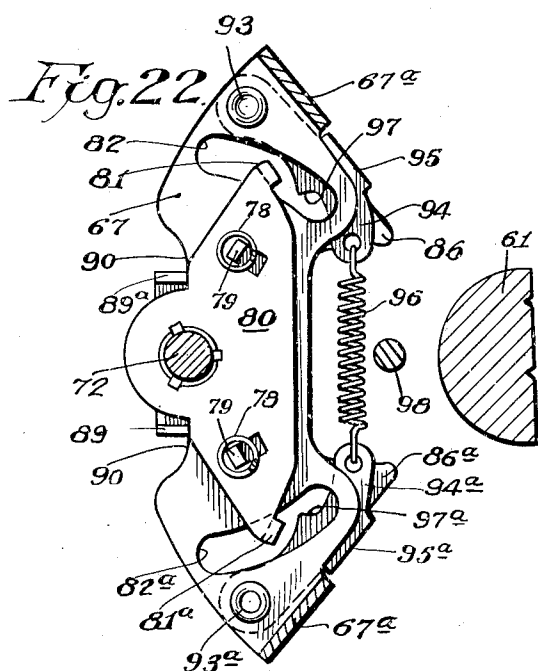
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SWITCH MECHANISM

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6 Sheets-Sheet 6



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UNITED STATES PATENT OFFICE

2,276,413

SWITCH MECHANISM

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Application October 7, 1941, Serial No. 413,987

21 Claims. (Cl. 290—59)

This invention relates to new and useful improvements in electric switch mechanisms adapted for use in conjunction with direction indicating signal systems for automobiles and like vehicles, and relates more particularly to switch mechanisms wherein the direction signal is set manually prior to making a turn, remains set during the making of such turn, and then is discontinued or canceled automatically upon the resumption of a straight course after the turn has been made.

The principal object of the invention is to provide a switch mechanism of the type described embodying various novel and improved features of construction and operation.

Another object of the invention is to provide a switch mechanism of the stated character which is yieldably maintained in the "on" positions by means releasable in response to actuation of a manual operator thereby permitting manual cancellation of the signal apart and independently of automatic cancellation thereof.

Another object of the invention is to provide a novel switch mechanism of the character set forth wherein the switch actuating means is spring biased to "off" position.

A further object of the invention is to provide a switch mechanism of the type described which is of relatively simple, foolproof and compact construction and capable of being installed readily on an automobile or like vehicle.

These and other objects and the various features and details of the construction and operation thereof are hereinafter fully set forth and described and shown in the accompanying drawings, in which:

Figure 1 is a view in perspective showing a direction signal switch embodying the present invention associated with the steering mechanism of an automobile or the like.

Figure 2 is a view in section taken on line 2—2, Figure 1, showing the direction switch set for a left hand turn of the vehicle.

Figure 3 is a view similar to Figure 2 showing the switch being returned to neutral or "off" position.

Figure 4 is a plan view showing the switch attached to and associated with the steering column of an automobile.

Figure 5 is a view in section taken on line 5—5, Figure 4.

Figure 6 is a view in section taken on line 6—6, Figure 5.

Figure 7 is a view in section taken on line 7—7, Figure 5, showing the switch contacts in neutral or "off" position.

Figure 8 is an inverted plan view of the disclosure in Figure 7.

Figure 9 is an enlarged fragmentary view in section taken on line 9—9, Figure 7.

Figure 10 is an exploded view in perspective of the switch plate and associated turning member.

Figure 11 is an enlarged top plan view of the switch actuating and automatic cancellation mechanism showing the parts thereof in neutral or "off" position.

Figure 12 is a right hand end elevation view of the disclosure in Figure 11.

Figure 13 is an inverted plan view of the mechanism shown in Figure 11.

Figure 14 is a fragmentary view in plan of the mechanism shown in Figure 11 but showing the same with the parts set for a left hand turn signal indication and illustrating the manner in which the switch mechanism operates during the making of such turn whereby automatic cancellation of the left hand turn signal is prevented prior to completion of the turn.

Figure 15 is a view in section similar to Figure 5 showing a modified form of switch mechanism embodying the present invention and in association with the steering column of an automobile or like vehicle.

Figure 16 is a view in section taken on line 16—16, Figure 15.

Figure 17 is a view similar to Figure 16 showing the switch mechanism being returned to neutral or "off" position.

Figure 18 is a fragmentary view in plan of a portion of the mechanism shown in Figure 16, wherein certain elements are shown in dot-and-dash lines to better illustrate the details of the construction and operation of the means for latching the mechanism in one of the "on" positions thereof.

Figure 19 is an enlarged fragmentary plan view of the mechanism similar to Figure 16 but illustrating the switch mechanism in neutral or "off" position.

Figure 20 is a view in section taken on line 20—20, Figure 19.

Figure 21 is a view in section taken on line 21—21, Figure 20.

Figure 22 is a view in section on line 22—22, Figure 20.

Figure 23 is a view in section similar to Figure 15 but substantially enlarged to better illustrate the various features of the construction thereof.

Figure 24 is a view in section taken on line 24—24, Figure 23; and

Figure 25 is a diagrammatical view of the electrical circuit for a direction indicating signal system comprising the switch of the present invention.

Referring now to the drawings, and more particularly to Figures 1 to 14 thereof, the switch mechanism there illustrated comprises a base member 1 which is concave at one end 2 to receive the steering column or post 3 of an automobile or like vehicle. The base member 1 is secured to the column 3 by a strap 4 which encircles the column and is fastened, for example, by welding or the like, to upstanding lugs 5 at the concave edge portion of said base 1 as shown in Figures 2 to 4. The base member 1 is secured within a housing 6 by means of screws or the like 7 which are threaded through the upstanding side flange portions 8 of said base 1, and this housing 6 has an opening 9 therein through which passes the automobile steering column 3.

Referring now to the construction of the switch mechanism, a contact plate 10 of suitable insulating material is secured upon the base 1 and is spaced thereabove by means of suitable spacers 11. Above this contact plate 10 is a bridge member 12 having depending leg portions 12a provided with feet 12b which rest upon said contact plate 10, and this bridge member 12 and the contact plate 10 are permanently secured together and to the base member 1 by means of rivets 13 and 14, respectively, the rivets 13 securing the feet 12b of the bridge member 12 directly to the contact plate 10, while the rivets 14 pass through said contact plate, bridge member and the base 1 securing these parts and the spacers 11 in the relation shown in Figure 2, the said spacers 11 having a generally U-shaped central portion 11a in which the rivets 14 are disposed thus preventing displacement of the spacers.

Projecting upwardly through suitable openings in the contact plate 10 are electrical contact terminals 15, 16 and 17, and these contact terminals are pressed from sheet metal and positioned in suitable openings formed in the contact plate 10 where they are secured by any suitable means such as rivets 18. The construction and arrangement of these contact terminals with respect to the contact plate 10 and the manner in which they are secured therein are shown in Figure 9 of the drawings.

Fixedly secured at its lower end to the contact plate 10 is a stud 19, and rotatably mounted on said stud 19 above the contact plate 10 is a switch plate 20 having at its periphery downwardly pressed-out contact elements 21, 22 and 23 arranged for selective contact with the aforesaid contact terminals 15, 16 and 17 of the contact plate 10. The contact 16 is of sufficiently large surface area that the contact 22 of the switch plate 20 is always in engagement therewith within the limits of movement of the said switch plate as hereinafter described.

The switch contacts of the switch reside more or less at one side of the switch plate 20 and in order to insure good contact thereby and also to prevent rocking of said switch plate, the same is eccentrically mounted about the stud 19. In addition, the plate 20 is urged downwardly by means of a coil spring or the like 24 and this spring likewise is eccentrically mounted about the stud 19 and is held in such relation by means of the pressed up portion 20a of plate 20 and by

a boss 25a at the underside of an overlying member 25.

This member 25 is of dielectric material and is rotatably mounted and retained upon the stud 19 by the head portion 19a at the upper end of the latter. Projecting from diametrically opposite sides of the dielectric member 25 are depending lugs 26 which more or less loosely engage correspondingly formed slots 27 in the previously described switch plate 20 (see Figure 10) whereby rotation imparted to the member 25 is in turn imparted to said switch plate 20.

Overlying the member 25 and underlying the bridge member 12 is a plate 28 which is rotatably mounted on a stud 29 fixedly secured in said bridge member 12, and this plate 28 is provided with diametrically arranged depending lugs 30 which engage slots or notches 31 in the periphery of said member 25 whereby rotation of the plate 28 is imparted to the member 25 and by the latter to the switch plate 20 as aforesaid. This construction may best be understood by reference to Figures 5, 10 and 12 of the drawings. Rotary movement or rotation is imparted manually to the plate 28 by means of a handle or like 32 which extends laterally through a slot 33 in the housing 6 and has its inner end threaded into the depending bracket portion 28a of said plate 28 which is located at the outer side or end of said plate as shown in Figure 5.

A lug 34 projects upwardly from the plate 28 and moves therewith within an arcuate recess 35 formed in the overlying portion of the bridge 12. Thus the end edge portions 36 and 37 of the recess 35 function as stops to limit movement of the lug 34 and consequently limit the extent of rotation of the plate 28 and the switch member 25 and plate 20 actuated thereby as aforesaid. The two extreme positions of movement of the plate 20 and the associated switch member 25 and plate 20, as limited by the stops 36 and 37, constitute the two "on" positions of the switch mechanism while the single "off" position thereof resides midway between the said two "on" positions and hence is within the limit of movement of the switch parts.

For the purpose of preventing the switch parts from passing through the neutral "off" position to the other "on" position when the switch is actuated to said "off" position from one of the "on" positions, there is provided a centering device which operates not only to tend to urge the switch parts to "off" position, but which also tends to oppose movement of said parts past the "off" position to the other "on" position. This mechanism comprises a pair of arms 38, 38 pivotally mounted upon the stud 29 above the bridge member 12, and extending outwardly from said stud in the direction of the handle 32. The outer ends of the arms 38, 38 are connected together by means of a coiled spring 39 which tends to pull the said arms together. However, these arms 38, 38 are positioned at respectively opposite sides of the lug 34 on plate 28 as well as at opposite sides of a lug 40 which projects upwardly from the bridge member 12 (see Figures 2, 3, 11 and 13), and since the lug 40 is fixed and the lug 34 movable, the spring tensioned arms 38, 38 tend to urge the movable lug 34 into alignment with the lug 40, or, in other words, the "off" position of the mechanism.

As shown in Figures 2, 3, 11, 13 and 14, the opposite side edge portions 41, 41a of the periphery of plate 28 comprise portions of the circumference of a true circle of fixed radius and the

edge portion of said plate 28 between these circumferential edge portions 41, 41a and adjacent the steering column 3 of the vehicle is formed to provide spaced correspondingly arranged substantially flat surface portions 42, 42a which terminate inwardly thereof in recesses or detents 43, 43a.

Pivotally mounted beneath the bridge member 12 upon a common pivot or stud 44 secured in said bridge 12 is a pair of levers 45, 45a, and the said stud 44 passes through these levers 45, 45a at a point between inner and outer end portion 46, 46a and 47, 47a respectively. The levers are arranged substantially cross-wise of each other at the stud 44 and their outer end portions 47, 47a thus extend in opposite directions both with respect to each other and with respect to their inner end portions 46, 46a.

The outer extremities of the levers 45, 45a are upwardly offset above the bridge member 12 and curve slightly away from the steering column 3 as shown in Figures 12 and 13 of the drawings. An arcuate shaped slot 48, 48a is formed in this upwardly offset end portion of each of the levers 45, 45a and slidable in such slots are pins 49, 49a on the upper ends of which and above the outer end portions of the levers there are rotatably mounted suitable actuator elements 50, 50a in the form of disks. Positioned more or less loosely about the pins 49, 49a and between the lever end portions and the overlying elements 50, 50a are relatively thin members 51, 51a and these are connected together by means of a coil spring 52 of proper tension so that normally the pins 49, 49a and their elements 50, 50a are held at the base end of the slots 48, 48a as best shown in Figures 11 and 13 of the drawings.

The extremities of the inner end portions 46, 46a of the levers 45, 45a are adapted to engage and ride upon the peripheral edge portion of the plate 28 previously described, and depending from the inner end portions 46, 46a of the levers are lugs 53, 53a engaged respectively by the opposite end portions of a spring 54 which has its intermediate portion coiled about the stud 44. Thus the arrangement is such that the spring 54 tends constantly to urge the levers 45, 45a in respectively opposite directions about the stud 44, as indicated by the arrows in Figure 13, and to urge the extremities of the inner end portions 46, 46a of said levers into engagement with the adjacent peripheral edge portions of the plate in the manner shown.

In the neutral or "off" position of the mechanism (see Figures 11 and 13) the extremities of the inner ends of the levers 45, 45a are in engagement with the circumferential peripheral edge portions 41, 41a of the plate 28 which operates to hold said levers apart against the action of their spring 54, and in this position of the levers 45, 45a their outer end portions 47, 47a are retracted so that the disk elements 50, 50a carried thereby are removed from the path of travel of a pair of lugs 55, 55 which depend from a collar 56 carried by and rotatable with the steering wheel and its shaft or column 3.

Before describing in detail the operation of the various parts of the switch when actuated to either of the "on" positions of the mechanism, it is advisable to describe briefly the electrical circuit and signal system with which the switch mechanism of the present invention may be employed. This system is shown in Figure 25 of the drawings and is relatively simple, comprising, in addition to the switch mechanism, a bat-

tery or other source of electrical current "E," and a pair of lamps L and R for indicating respectively a turn in the left or right hand direction. These lamps are usually mounted at or upon either or both the front or rear of the vehicle so as to be readily visible to the driver of a vehicle travelling behind, or approaching in the opposite direction. As shown in said Figure 25, the contact 16 is connected to one side of the battery "E" while the contact 15 is connected to the lamp L and the contact 17 to the lamp R, the said lamps and the other side of the battery "E" being grounded to the vehicle chassis or body in the usual manner.

As previously stated, the contact 22 of switch plate 20 at all times is in engagement with the line contact 16 and the arrangement of the switch contacts and extent of movement of the switch as limited by the stops 36 and 37, previously described, is such that, when the switch is actuated by the handle 32 to the "on" position shown in Figure 2 to indicate a left hand turn, the contact 21 of said switch plate 20 engages the contact 15 to complete the circuit from the battery "E" through contact 16, plate 20 and contacts 21 and 15 to the lamp L. On the other hand, by moving the switch to the other "on" position, that is, for a right hand indication, the contact 23 of the plate 20 will engage the contact 17 thereby completing the circuit from line contact 16 through plate 20 and contacts 23 and 17 to the lamp R.

In addition to the foregoing, upon actuation of the switch as aforesaid to the "on" position to indicate a left hand turn, the plate 28 will be rotated in a counterclockwise direction (with respect to said Figures 2 and 14) whereupon the lever 45 likewise will be permitted to pivot in counterclockwise direction under the action of the spring 54 and the inner end portion of said lever will travel along the periphery of said plate 28 from the edge portion 41 along edge portion 42 and into engagement with the recess or detent 43 thereby latching the plate 28, the associated switch mechanism and the lever 45 in the "on" position as shown in Figure 2. Actuation of the switch into this one "on" position has no effect upon the other lever 45a and the inner end thereof merely rides back along the other peripheral edge portion 41a of the plate 28.

When the lever 45 is thus caused to pivot in a counterclockwise direction, as aforesaid, upon actuation of the switch to "on" position for a left hand turn, this serves to project the disk element 50 outwardly and into the path of travel of the lugs 55, 55 on the collar 56 that is carried by the steering post or column 3, the other disk element 50a of the other lever 45a remaining removed from the path of travel of said lugs as previously described (see Figure 2).

Now with the switch mechanism thus positioned, if the vehicle steering mechanism is turned to the left in accordance with the intention indicated by this left hand setting of the switch and signal system, the lugs 55, 55, travelling in a counterclockwise direction with said steering mechanism, will have no effect upon the switch since as the lugs 55, 55 engage the projected disk element 50 the latter will be actuated along slot 48 against the tension of the spring in the manner shown in Figure 14 and thereby permit the lugs to pass the disk element 50 without resultant operation of the switch.

However, after the left turn has been made and the vehicle then straightened out by a right

hand or clockwise turning of the steering mechanism, one or the other of the lugs 55, 55 moving in a like direction will engage the disk element 50 to actuate it and its lever 45 also in a clockwise direction sufficient to release the inner end 46 of said lever from the recess or detent 43 of the plate 28 as shown in Figure 3 of the drawings, whereupon the spring 39, acting through the arms 38, 38 and lugs 34 and 40, causes the plate 28 and associated parts of the mechanism to pivot or rotate into the neutral or "off" position shown in Figures 11 and 13, thereby automatically discontinuing the signal and resetting the switch mechanism for further use.

Also, by this construction and arrangement of the switch mechanism, it will be seen that, with the device set as aforesaid for a left hand turn, should the vehicle be turned to the right in a direction contrary to that indicated by the signal, the initial right hand turning of the steering wheel will operate as above to quickly cancel the inconsistent or incorrect signal.

It should be apparent that in the case of the setting of the mechanism for indicating a right hand turn, the operation of the device is the same as that above set forth except that the lever 45a and its disk 50a are involved, and the various operations are effected by movements of the steering wheel in directions opposite those given above for the left hand signal position of the said device.

A modified form of the switch mechanism embodying the present invention is shown in Figures 15 to 25, inclusive, of the drawings, and referring to these figures, the switch there illustrated comprises a base 60 of generally arcuate shape adapted for disposition concentrically adjacent the steering column or post 61 of an automobile or like vehicle. This base member 60 is secured within a housing 62 and this housing is of a corresponding generally arcuate configuration and includes an annular collar portion 63 constructed and arranged to embrace the tubular column 64 which encases the steering shaft 61 in the manner shown in Figures 15, 16 and 17 of the drawings.

Secured upon the base plate 60 is a contact plate 65 of suitable insulating material and this plate 65 is spaced above the base 60 by means of suitable spacing sleeves 66. Above the contact plate 65 is a bridge member 67 having depending leg portion 67a provided with feet 67b which rest upon the base plate 60 and this bridge member 67 is permanently secured thereto by means of screws or the like 68. Projecting upwardly through suitable openings in the contact plate 65 and constructed and arranged as in the case of the contact plate 10 in the form of switch previously described are electrical contact terminals 69, 70 and 71.

Extending vertically through and rotatably mounted with respect to the housing 62, base member 60, contact plate 65 and the bridge member 67, is a shaft 72 which projects below the bottom of said housing 62 and has secured thereon one end of a manual operating handle 73. Mounted upon this shaft 72 and above the contact plate 65 is a switch plate 74 which carries at its under side a pair of contact elements 75 and 76 arranged for selective contact with the aforesaid contact terminals 69, 70 and 71 of the plate 65. As in the case of the form of switch previously described, the contact 70 is of sufficiently large area that the contact 75 of switch plate 74 is always in engagement therewith with the

limits of movement of the switch plate as herein-after described.

The switch plate 74 is eccentrically mounted with respect to the shaft 72 and in addition is urged downwardly by means of coil springs or the like 78 held in place by means of lugs 79 which are pressed downwardly from a plate 80. This plate 80 is keyed to the shaft 72 for rotation therewith and is disposed above switch plate 74 and beneath the bridge member 67 as best shown in Figure 23 of the drawings. Thus manual operation of the handle 73 in either direction serves to rotate the shaft 72, the plate 80 and, in turn, the switch plate 74.

Projecting upwardly from opposite ends of the plate 80 are lugs 81, 81a and these are disposed and move within arcuate slots 82, 82a formed in the bridge member 67, the end edge portions of said slots 82, 82a functioning as stops to limit movement of the lugs 81, 81a, and consequently the extent of rotation of the plate 80 and switch plate 74 (see Figure 22). The two extreme positions of movement of plate 80 and the associated switch plate 74, as determined by the aforesaid slots 81, 81a, constitute the two "on" positions of the switch mechanism, while the single neutral or "off" position thereon resides midway between the two said "on" positions and hence is then within movement of the switch parts.

Pivotally mounted upon the shaft 72 above the bridge member 67, upon a bearing or sleeve 72a, is a pair of levers 83, 83a and these normally extend approximately at right angles to each other and have their outer end portions 84, 84a respectively, upwardly offset and disposed in positions overlying the aforesaid slots 82, 82a. Secured upon the outer end portions 84, 84a of the levers by means of pins 85, 85a are suitable actuator elements 86, 86a and these elements having arcuate slots 87, 87a therein through which said pins 85, 85a extend so that the elements 86, 86a are relatively slidable with respect to the levers 83, 83a. These actuator elements 86, 86a are connected together by means of a coil spring 88 of proper tension which operates constantly to draw or pull the said elements 86, 86a toward each other with the pins 85, 85a residing at the remote or outer limit of their slots 82, 82a as shown in Figures 19 and 20 of the drawings.

The inner or pivot ends of the levers 83, 83a terminate in downwardly turned lugs 89, 89a and the said levers are normally spring urged in the directions indicated by the arrows in Figure 24 to the full limit of their movement in such directions as positively limited by engagement of their respective lugs 89, 89a with the adjacent edge 90 of the bridge member 67 as best shown in Figures 22 and 24, which illustrate the neutral or "off" position of the switch mechanism. The levers 83, 83a are biased or urged as aforesaid by means of a spring 91 which has its midportion coiled around the bearing or sleeve 72a, and its end portions extending in generally opposite directions into engagement with suitably shaped lugs 92, 92a on the said levers, respectively (see Figures 23 and 24).

Pivotally mounted by means of rivets or the like 93, 93a upon the bridge member 67 outwardly beyond the slots 82, 82a therein are latch members 94, 94a having upstanding flanges 95, 95a constructed and arranged to engage inwardly against the actuator elements 86, 86a under the influence of a spring 96 which connects said latch members 94, 94a. As best illustrated in Figure 22, the inner edges of these latch members 94, 94a

are provided with notches 97, 97a, and these are normally disposed in overlying relation with respect to the slots 82, 82a and in the path of movement of the lugs 81, 81a of plate 80 which project through said slots as previously described.

With the switch mechanism, including the levers 83, 83a, in the neutral or "off" position as previously described and shown in Figures 22, 23 and 24, the actuator elements 86, 86a are removed from the path of travel of a pair of lugs 98, 98 which depend from and rotate with the steering wheel 99 of the vehicle in the manner shown, for example, in Figures 15 and 19 of the drawings.

The electrical circuit and signal system with which the present form of switch is employed may be identical to that previously described herein, in which case the contact 70 is connected to one side of the battery "E" while the contact 69 is connected to the lamp L and the contact 71 to the lamp R. The contact 75 of the switch plate 74 is at all times in engagement with the line contact 70 and upon actuation of the switch mechanism by the handle 73 to the "on" position shown in Figure 16 to indicate a left hand turn, the contact 76 of said switch plate 74 engages the contact 69 to complete the circuit from the battery "E" through contact 69, plate 74 and contacts 75 to the lamp L. On the other hand, by moving the switch mechanism to the other "on" position, that is for a right hand signal indication, the contact 76 of plate 74 will engage contact 71 thereby completing the circuit from line contact 70 through plate 74 and contacts 71 and 76 to the lamp R.

In addition to the foregoing, upon actuation of the switch as aforesaid to the "on" position to indicate a left hand turn, rotation of the plate 80 will take place in a counterclockwise direction causing its lug 81 to move in a like direction in the slot 82 of the bridge member 67 where it engages over the notch 97 of latch member 94 as shown in Figure 18 of the drawings. Actuation of plate 80 as aforesaid operates also, through engagement of the lug 89 of the lever 83, to rotate the latter likewise in a counterclockwise direction in which position it is latched along with the plate 80 by engagement of the lug 81 over the notch 97 of the latch member 94.

Upon actuation of the lever 83 in this manner and direction, the actuator element 86 carried thereby is projected outwardly and into the path of travel of the lugs 98, 98 carried by the steering wheel of the vehicle, the other actuator element 86a remaining removed from the path of travel of said lugs 98, 98 in the normal position thereof previously described (see Figures 16 and 18).

Now with the switch mechanism thus positioned, if the vehicle steering wheel is turned to the left in accordance with the intention indicated by the left hand setting of the switch and signal system, the lugs 98, 98 travelling in a counterclockwise direction will have no effect upon the switch since, as the said lugs 98, 98 engage the projected actuator element 86, the latter, by reason of its slot 87, will merely be pushed out of the way against the action of the spring 88 thereby permitting the said lugs 98, 98 to pass the element 86 without resultant operation of the switch mechanism.

However, after the left turn has been made and the vehicle then straightened out by a right hand or clockwise turn of the steering mechanism, one of the other lugs 98, 98 moving in a like direction will engage the actuator element

86 causing it to pivot in a counterclockwise direction about its pin 85 (see Figure 17), and this counterclockwise pivotal movement of the actuator element 86 will operate to engage the flange 95 of latch member 94 thereby causing the latter to pivot in a clockwise direction to disengage its notch 97 from the lug 81 of the plate 80, whereupon the latter and the associated switch mechanism is returned to the neutral or "off" position under the influence of the spring 91 thus automatically discontinuing the signal and resetting the switch mechanism for further use. Operation of the device for signaling a right hand turn is the same as that above set forth except that the lever 83a and its actuator element 86a, together with corresponding associated parts, are involved and the various operations are effected by movement of the steering wheel in directions opposite those just described for the left hand signal indicating position of the device.

As is the case with the form of switch initially described herein, the construction and arrangement of the present form of switch is such that when the device is set to indicate a turn in a given direction should the vehicle then be turned in a direction opposite to that indicated, the initial turning of the steering wheel in that direction will operate immediately to cancel the inconsistent or incorrect signal.

The construction and arrangement of the switch mechanisms herein described is such that there will result no interference with the manual operation of the switch, and the operator of the vehicle, therefore, is able manually to operate and set the switch at will regardless of the relative positions of the steering mechanism lugs with respect to the switch actuator elements.

From the foregoing it will be seen that the several mechanisms of the present invention provide vehicle direction signal switches wherein the manually set signal remains set during the making of the indicated turn and then is automatically discontinued and the mechanism reset for further use, while at the same time effectively providing for discontinuance of the signal in the event the vehicle is turned in a direction opposite to that indicated by the signal. The switch mechanisms are further characterized by features of construction whereby manual cancellation of the signal may be effected apart and independently of automatic cancellation thereof and wherein the switch mechanism is spring-biased to the neutral or "off" positions. Additionally, the switch mechanisms of the present invention are relatively simple and of foolproof compact construction.

While certain embodiments of the invention have been herein illustrated and described, it is not intended to limit said invention to this disclosure but that changes and modifications may be made and incorporated within the scope of the annexed claims.

I claim:

1. A switch of the type described comprising a rotatable switch plate having contacts cooperable with a plurality of stationary contact terminals, a pair of spring biased levers rotatably mounted with their outer ends arranged for movement between retracted and projected positions respectively, actuator elements carried by the levers at their outer ends and mounted for relative movement with respect to said levers, spring means biasing said actuator elements to predetermined positions relative to the levers, and

mechanism for rotating the switch plate operable also upon movement in one direction to cause one of said levers only to move to its projected position and upon movement in the opposite direction to cause the other of said levers only to move to its projected position, said levers and their actuator elements being constructed and arranged so that when one of said levers is projected actuation of its actuator element in one direction only will affect actuation of said mechanism to operate the switch plate and cause said one lever to return to its retracted position and when the other of said levers is projected actuation of its actuator element in the opposite direction only will affect actuation of the mechanism to operate the switch plate and cause said other lever to return to its retracted position.

2. A switch of the type described comprising a rotatable switch plate having contacts cooperable with a plurality of stationary contact terminals, a pair of spring biased levers rotatably mounted about a common pivot with their outer ends arranged for movement between retracted and projected positions respectively, actuator elements carried by the levers at their outer ends and mounted for relative movement with respect to said levers, spring means biasing said actuator elements to predetermined positions relative to the levers, mechanism for rotating the switch plate operable also upon movement in one direction to cause one of said levers only to move to its projected position and upon movement in the opposite direction to cause the other of said levers only to move to its projected position, said levers and their actuator elements being constructed and arranged so that when one of said levers is projected actuation of its actuator element in one direction only will affect actuation of said mechanism to operate the switch plate and cause said one lever to return to its retracted position and when the other of said levers is projected actuation of its actuator element in the opposite direction only will affect actuation of the mechanism to operate the switch plate and cause said other lever to return to its retracted position, and a member for manually operating the mechanism.

3. A switch of the type described comprising a rotatable switch plate having contacts cooperable with a plurality of stationary contact terminals, a pair of spring biased levers rotatably mounted with their outer ends arranged for movement between retracted and projected positions respectively, actuator elements carried by the levers at their outer ends and mounted for relative movement with respect to said levers, spring means biasing said actuator elements to predetermined positions relative to the levers, and mechanism for rotating the switch plate operable also upon movement in one direction to cause one of said levers only to move to its projected position and upon movement in the opposite direction to cause the other of said levers only to move to its projected position, said mechanism including means for latching said switch plate and levers in the positions to which moved, and said levers and their actuator elements being constructed and arranged so that when one of said levers is projected actuation of its actuator element in one direction only will affect actuation of said mechanism to operate the switch plate and cause said one lever to return to its retracted position and when the other of said levers is projected actuation of its actuator element in the opposite

direction only will affect actuation of the mechanism to operate the switch plate and cause said other lever to return to its retracted position.

4. A switch of the type described comprising a rotatable switch plate having contacts cooperable with a plurality of stationary contact terminals, a pair of spring biased levers rotatably mounted about a common pivot with their outer ends arranged for movement between retracted and projected positions respectively, actuator elements carried by the levers at their outer ends and mounted for relative movement with respect to said levers, spring means biasing said actuator elements to predetermined positions relative to the levers, mechanism for rotating the switch plate operable also upon movement in one direction to cause one of said levers only to move to its projected position and upon movement in the opposite direction to cause the other of said levers only to move to its projected position, said mechanism including means for latching said switch plate and levers in the positions to which moved, and said levers and their actuator elements being constructed and arranged so that when one of said levers is projected actuation of its actuator element in one direction only will affect actuation of said mechanism to operate the switch plate and cause said one lever to return to its retracted position and when the other of said levers is projected actuation of its actuator element in the opposite direction only will affect actuation of the mechanism to operate the switch plate and cause said other lever to return to its retracted position, and a member for manually operating the mechanism.

5. A switch of the type described comprising a rotatable switch plate having contacts cooperable with a plurality of stationary contact terminals, a pair of spring biased levers rotatably mounted with their outer ends arranged for movement between retracted and projected positions respectively, actuator elements carried by the levers at their outer ends and mounted for pivotal and sliding movement with respect to said levers, spring means biasing said actuator elements to predetermined positions relative to the levers, mechanism for rotating the switch plate operable also upon movement in one direction to cause one of said levers only to move to its projected position and upon movement in the opposite direction to cause the other of said levers only to move to its projected position, said levers and their actuator elements being constructed and arranged so that when one of said levers is projected actuation of its actuator element in one direction only will affect actuation of said mechanism to operate the switch plate and cause said one lever to return to its retracted position and when the other of said levers is projected actuation of its actuator element in the opposite direction only will affect actuation of the mechanism to operate the switch plate and cause said other lever to return to its retracted position, and a member for manually operating the mechanism.

6. A switch of the type described comprising a rotatable switch plate having contacts cooperable with a plurality of stationary contact terminals, a pair of spring biased levers rotatably mounted with their outer ends arranged for movement between retracted and projected positions respectively, actuator elements carried by the levers at their outer ends and mounted for pivotal and

sliding movement with respect to said levers, spring means biasing said actuator elements to predetermined positions relative to the levers, mechanism for rotating the switch plate operable also upon movement in one direction to cause one of said levers only to move to its projected position and upon movement in the opposite direction to cause the other of said levers only to move to its projected position, said mechanism including means for latching said switch plate and levers in the positions to which moved, and said levers and their actuator elements being constructed and arranged so that when one of said levers is projected actuation of its actuator element in one direction only will affect actuation of said mechanism to operate the switch plate and cause said one lever to return to its retracted position and when the other of said levers is projected actuation of its actuator element in the opposite direction only will affect actuation of the mechanism to operate the switch plate and cause said other lever to return to its retracted position, and a member for manually operating the mechanism.

7. A switch of the type described comprising a rotatable switch plate having contacts cooperable with a plurality of stationary contact terminals, a rotatable member movable in opposite directions for rotating said switch plate, a member for manually operating said rotatable member, a pair of pivotally mounted spring biased levers having their outer ends arranged for movement between retracted and projected positions respectively with their inner ends normally engaging said rotatable member and arranged so that upon rotation of the rotatable member in one direction one of said levers only is caused to move to its projected position and upon rotation of said rotatable member in the opposite direction the other of said levers only is caused to move to its projected position, and actuator elements carried by the levers at their outer ends and mounted for movement relative to said levers, said levers and their actuator elements being constructed and arranged so that when one of said levers is projected actuation of its actuator element in one direction only will affect actuation of said mechanism to operate the switch plate and cause said one lever to return to its retracted position and when the other of said levers is projected actuation of its actuator element in the opposite direction only will affect actuation of the mechanism to operate the switch plate and cause said other lever to return to its retracted position.

8. A switch of the type described comprising a rotatable switch plate having contacts cooperable with a plurality of stationary contact terminals, a rotatable member movable in opposite directions for rotating said switch plate, a member for manually operating said rotatable member, a pair of pivotally mounted spring biased levers having their outer ends arranged for movement between retracted and projected positions respectively with their inner ends normally engaging said rotatable member and arranged so that upon rotation of the rotatable member in one direction one of said levers only is caused to move to its projected position and upon rotation of said rotatable member in the opposite direction the other of said levers only is caused to move to its projected position, actuator elements carried by the levers at their outer ends and mounted for movement relative to said levers, and spring means biasing said actuator elements to pre-

terminated positions relative to the levers, said levers and their actuator elements being constructed and arranged so that when one of said levers is projected actuation of its actuator element in one direction only will affect actuation of said mechanism to operate the switch plate and cause said one lever to return to its retracted position and when the other of said levers is projected actuation of its actuator element in the opposite direction only will affect actuation of the mechanism to operate the switch plate and cause said other lever to return to its retracted position.

9. A switch of the type described comprising a rotatable switch plate having contacts cooperate with a plurality of stationary contact terminals, a member bridging the switch plate, a pair of spring biased levers rotatably mounted on said bridge member with their outer ends arranged for movement between retracted and projected positions respectively, actuator elements carried by the levers at their outer ends and mounted for relative movement with respect to said levers, spring means biasing said actuator elements to predetermined positions relative to the levers, and mechanism at the underside of the bridge member between it and said switch plate for rotating the latter and operable also upon movement in one direction to cause one of said levers only to move to its projected position and upon movement in the opposite direction to cause the other of said levers only to move to its projected position, said levers and their actuator elements being constructed and arranged so that when one of said levers is projected actuation of its actuator element in one direction only will affect actuation of said mechanism to operate the switch plate and cause said one lever to return to its retracted position and when the other of said levers is projected actuation of its actuator element in the opposite direction only will affect actuation of the mechanism to operate the switch plate and cause said other lever to return to its retracted position.

10. A switch of the type described comprising a rotatable switch plate having contacts cooperable with a plurality of stationary contact terminals, a member bridging the switch plate, a rotatable member mounted at the underside of said bridge member and movable in opposite directions for rotating said switch plate, a member for manually operating said rotatable member, a pair of pivotally mounted spring biased levers on the bridge member having their outer ends arranged for movement between retracted and projected positions respectively with their inner ends normally engaging said rotatable member, said levers being arranged so that upon rotation of the rotatable member in one direction one of said levers only is caused to move to its projected position and upon rotation of said rotatable member in the opposite direction the other of said levers only is caused to move to its projected position, and actuator elements carried by the levers at their outer ends and mounted for movement relative to said levers, said levers and their actuator elements being constructed and arranged so that when one of said levers is in projected position actuation of its actuator element in one direction only will affect actuation of said mechanism to operate the switch plate and cause said one lever to return to its retracted position and when the other of said levers is in projected position actuation of its actuator element in the opposite direction only will affect actuation of the mechanism to operate the switch plate and

cause said other lever to return to its retracted position.

11. A switch of the type described comprising a switch plate having contacts cooperable with a plurality of stationary contact terminals, a rotatable member, means for manually rotating said rotatable member in opposite directions, connections between the rotatable member and the switch plate for rotating the latter to operate the switch, a pair of spring biased levers rotatably mounted upon a common pivot and disposed crosswise of each other at said pivot with their inner ends engaging the adjacent peripheral surface of the rotatable member, said rotatable member having recesses predeterminedly located in the periphery thereof and said rotatable member and the levers being constructed and arranged so that upon movement of the rotatable member in either direction one or the other of said levers is caused to pivot and engage its inner end in the adjacent peripheral recess of the rotatable member to latch the latter and such lever in the position to which moved with the outer end of the lever disposed in a projected position, actuator elements carried by the levers at their outer ends and mounted for relative movement with respect to said levers, said levers and their actuator elements being constructed and arranged so that when one of said levers is latched in projected position actuation of its actuator element in one direction only will operate to disengage said lever from the rotatable element thereby causing the latter to rotate and actuate the switch plate and return the lever to retracted position and when the other of said levers is latched in projected position actuation of its actuator element in the opposite direction only will operate to disengage said other lever from the rotatable member thereby causing the latter to rotate and actuate the switch plate and return the said other lever to its retracted position.

12. A switch of the type described comprising a switch plate having contacts cooperable with a plurality of stationary contact terminals, a rotatable member, means for manually rotating said rotatable member in opposite directions, connections between the rotatable member and the switch plate for rotating the latter to operate the switch, a pair of levers rotatably mounted upon a common pivot and disposed crosswise of each other at said pivot with their inner ends engaging the adjacent peripheral surface of the rotatable member, spring means biasing said levers in respectively opposite directions so that their inner ends are maintained at all times in engagement with the periphery of said rotatable member and travel along the said periphery when the member is rotated, said rotatable member having recesses predeterminedly located in the periphery thereof in the paths of travel of the inner ends of the levers and said rotatable member and the levers being constructed and arranged so that upon movement of the rotatable member in either direction one or the other of said levers is caused to pivot and engage its inner end in the adjacent peripheral recess of the rotatable member to latch the latter and such lever in the position to which moved with the outer end of the lever disposed in a projected position, actuator elements carried by the levers at their outer ends and mounted for relative movement with respect to said levers, and spring means biasing said actuator elements to predetermined positions relative to the levers, said levers and their actuator elements being constructed and arranged so that

when one of said levers is latched in projected position actuation of its actuator element in one direction only will operate to disengage said lever from the rotatable element thereby causing the latter to rotate and actuate the switch plate and return the lever to retracted position and when the other of said levers is latched in projected position actuation of its actuator element in the opposite direction only will operate to disengage said other lever from the rotatable member thereby causing the latter to rotate and actuate the switch plate and return the said other lever to its retracted position.

13. A switch of the type described comprising a switch plate having contacts cooperable with a plurality of stationary contact terminals, a rotatable member, means for manually rotating said rotatable member in opposite directions, means for positively limiting movement of said rotatable member, connections between the rotatable member and the switch plate for rotating the latter to operate the switch, a pair of levers rotatably mounted upon a common pivot and disposed crosswise of each other at said pivot with their inner ends engaging the adjacent peripheral surface of the rotatable member, spring means biasing said levers in respectively opposite directions so that their inner ends are maintained at all times in engagement with the periphery of said rotatable member and travel along the said periphery when the member is rotated, said rotatable member having recesses predeterminedly located in the periphery thereof in the paths of travel of the inner ends of the levers and said rotatable member and the levers being constructed and arranged so that upon movement of the rotatable member in either direction one or the other of said levers is caused to pivot and engage its inner end in the adjacent peripheral recess of the rotatable member to latch the latter and such lever in the position to which moved with the outer end of the lever disposed in a projected position, actuator elements carried by the levers at their outer ends and mounted for relative movement with respect to said levers, and spring means biasing said actuator elements to predetermined positions relative to the levers, said levers and their actuator elements being constructed and arranged so that when one of said levers is latched in projected position actuation of its actuator element in one direction only will operate to disengage said lever from the rotatable element thereby causing the latter to rotate and actuate the switch plate and return the lever to retracted position and when the other of said levers is latched in projected position actuation of its actuator element in the opposite direction only will operate to disengage said other lever from the rotatable member thereby causing the latter to rotate and actuate the switch plate and return the said other lever to its retracted position.

14. A switch of the type described comprising a switch plate having contacts cooperable with a plurality of stationary contact terminals, a member bridging said switch plate, a rotatable member pivotally mounted at the underside of said bridge member and between it and said switch plate, means for manually rotating said rotatable member in opposite directions, connections between the rotatable member and the switch plate for rotating the latter to operate the switch, a pair of levers rotatably mounted on the bridge member upon a common pivot and

disposed crosswise of each other at said pivot with their inner ends engaging the adjacent peripheral surface of the rotatable member and their outer ends located beyond said bridge member, spring means biasing said levers in respectively opposite directions so that their inner ends are maintained at all times in engagement with the periphery of said rotatable member and travel along the said periphery when the member is rotated, said rotatable member having recesses predeterminedly located in the periphery thereof in the paths of travel of the inner ends of the levers and said rotatable member and the levers being constructed and arranged so that upon movement of the rotatable member in either direction one or the other of said levers is caused to pivot and engage its inner end in the adjacent peripheral recess of the rotatable member to latch the latter and such lever in the position to which moved with the outer end of the lever disposed in a projected position with respect to the bridge member, actuator elements carried by the levers at their outer ends and mounted for relative movement with respect to said levers, and spring means biasing said actuator elements to predetermined positions relative to the levers, said levers and their actuator elements being constructed and arranged so that when one of said levers is latched in projected position actuation of its actuator element in one direction only will operate to disengage said lever from the rotatable element thereby causing the latter to rotate and actuate the switch plate and return the lever to retracted position and when the other of said levers is latched in projected position actuation of its actuator element in the opposite direction only will operate to disengage said other lever from the rotatable member thereby causing the latter to rotate and actuate the switch plate and return the said other lever to its retracted position.

15. A switch of the type described comprising a switch plate having contacts cooperable with a plurality of stationary contact terminals, a member bridging said switch plate, a rotatable member pivotally mounted at the underside of said bridge member and between it and said switch plate, means for manually rotating said rotatable member in opposite directions, a lug projecting from the rotatable member and movable therewith between stop portions on the bridge member for limiting movement of said rotatable member, connections between the rotatable member and the switch plate for rotating the latter to operate the switch, a pair of spring biased levers rotatably mounted at the upper side of the bridge member upon a common pivot and disposed crosswise of each other at said pivot with their inner ends engaging the adjacent peripheral surface of the rotatable member and their outer ends located beyond said bridge member, said rotatable member having recesses predeterminedly located in the periphery thereof, and said rotatable member and the levers being constructed and arranged so that upon movement of the rotatable member in either direction one or the other of said levers is caused to pivot and engage its inner end in the adjacent peripheral recess of the rotatable member to latch the latter and such lever in the position to which moved with the outer end of the lever disposed in a projected position with respect to the bridge member, actuator elements carried by the levers at their outer ends and mounted for relative movement with respect to said levers, and

spring means biasing said actuator elements to predetermined positions relative to the levers, said levers and their actuator elements being constructed and arranged so that when one of said levers is latched in projected position actuation of its actuator element in one direction only will operate to disengage said lever from the rotatable element thereby causing the latter to rotate and actuate the switch plate and return the lever to retracted position and when the other of said levers is latched in projected position actuation of its actuator element in the opposite direction only will operate to disengage said other lever from the rotatable member thereby causing the latter to rotate and actuate the switch plate and return the said other lever to its retracted position.

16. A switch of the type described comprising a switch plate having contacts cooperable with a plurality of stationary contact terminals, a member bridging said switch plate, a rotatable member pivotally mounted at the underside of said bridge member and between it and said switch plate, means for manually rotating said rotatable member in opposite directions, a lug projecting from the rotatable member and movable therewith between stop portions on the bridge member for limiting movement of said rotatable member, connections between the rotatable member and the switch plate for rotating the latter to operate the switch, a pair of levers rotatably mounted at the upper side of the bridge member upon a common pivot and disposed crosswise of each other at said pivot with their inner ends engaging the adjacent peripheral surface of the rotatable member and their outer ends located beyond said bridge member, spring means biasing said levers in respectively opposite directions so that their inner ends are maintained at all times in engagement with the periphery of said rotatable member and travel along the said periphery when the member is rotated, said rotatable member having recesses predeterminedly located in the periphery thereof in the paths of travel of the inner ends of the levers, and said rotatable member and the levers being constructed and arranged so that upon movement of the rotatable member in either direction one or the other of said levers is caused to pivot and engage its inner end in the adjacent peripheral recess of the rotatable member to latch the latter and such lever in the position to which moved with the outer end of the lever disposed in a projected position with respect to the bridge member, actuator elements carried by the levers at their outer ends and mounted for relative movement with respect to said levers, and spring means biasing said actuator elements to predetermined positions relative to the levers, said levers and their actuator elements being constructed and arranged so that when one of said levers is latched in projected position actuation of its actuator element in one direction only will operate to disengage said lever from the rotatable element thereby causing the latter to rotate and actuate the switch plate and return the lever to retracted position and when the other of said levers is latched in projected position actuation of its actuator element in the opposite direction only will operate to disengage said other lever from the rotatable member thereby causing the latter to rotate and actuate the switch plate and return the said other lever to its retracted position.

17. A switch of the type described comprising

a switch plate having contacts cooperable with a plurality of stationary contact terminals, a rotatable member adjacent said switch plate mounted for movement in opposite directions, means for manually rotating said rotatable member and the switch plate to operate the switch, a pair of pivotally mounted spring biased levers arranged for movement between retracted and projected positions with their inner ends normally engaging the rotatable member and their outer ends diverging with respect to each other, said rotatable member and said levers being constructed and arranged so that upon movement of the rotatable member in either direction one or the other of the levers is caused to pivot to its projected position, latch means operable to engage said rotatable member and retain the latter, the switch plate and levers in the positions to which moved, actuator elements carried by the levers at their outer ends and movable relative to the levers, said levers, their actuator elements and said latch means being constructed and arranged so that when either of the levers is moved to and latched in its projected position actuation of its actuator element in one direction only operates to disengage the latch means from the rotatable member thereby causing the latter to rotate and operate the switch and return said lever to its retracted position.

18. A switch of the type described comprising a switch plate having contacts cooperable with a plurality of stationary contact terminals, a rotatable member adjacent said switch plate mounted for movement in opposite directions, means for manually rotating said rotatable member and the switch plate to operate the switch, a pair of pivotally mounted spring biased levers arranged for movement between retracted and projected positions with their inner ends normally engaging the rotatable member and their outer ends diverging with respect to each other, said rotatable member and said levers being constructed and arranged so that upon movement of the rotatable member in either direction one or the other of the levers is caused to pivot to its projected position, latch means operable to engage said rotatable member and retain the latter, the switch plate and levers in the positions to which moved, actuator elements carried by the levers at their outer ends and movable relative to the levers, means normally biasing said latch means into the path of movement of said actuator elements, said levers, their actuator elements and said latch means being constructed and arranged so that when either of the levers is moved to and latched in its projected position actuation of its actuator element in one direction only operates to actuate the latch means and disengage the same from the rotatable member thereby causing the latter to rotate and operate the switch and return said lever to its retracted position.

19. A switch of the type described comprising a switch plate having contacts cooperable with a plurality of stationary contact terminals, a member bridging said switch plate, a rotatable member adjacent said switch plate at the underside of said bridge member and mounted for movement in opposite directions, means for manually rotating said rotatable member and the switch plate to operate the switch, lugs on the rotatable member and movable within a pair of slots in the bridge member for limiting rotary movement of said rotatable member and the switch plate, a pair of pivotally mounted spring biased levers ar-

5 ranged for movement between retracted and projected positions with their inner ends normally engaging the rotatable member and their outer ends diverging with respect to each other, said rotatable member and said levers being constructed and arranged so that upon movement of the rotatable member in either direction one or the other of the levers is caused to pivot to its projected position, a latch member pivotally mounted adjacent each of the slots in said bridge member and operable one at a time to engage said rotatable member and retain the latter, the switch plate and one of said levers in the positions to which moved, actuator elements carried by the levers at their outer ends and movable relative to the levers, said levers, their actuator elements and said latch means being constructed and arranged so that when either of the levers is moved to and latched in its projected position actuation of its actuator element in one direction only operates to disengage the latch means from the rotatable member thereby causing the latter to rotate and operate the switch and return said lever to its retracted position.

20. A switch of the type described comprising a switch plate having contacts cooperable with a plurality of stationary contact terminals, a member bridging said switch plate, a rotatable member adjacent said switch plate at the underside of said bridge member and mounted for movement in opposite directions, means for manually rotating said rotatable member and the switch plate to operate the switch, lugs on the rotatable member and movable within a pair of slots in the bridge member for limiting rotary movement of said rotatable member and the switch plate, a pair of pivotally mounted spring biased levers arranged for movement between retracted and projected positions with their inner ends normally engaging the rotatable member and their outer ends diverging with respect to each other, said rotatable member and said levers being constructed and arranged so that upon movement of the rotatable member in either direction one or the other of the levers is caused to pivot to its projected position, a latch member pivotally mounted adjacent each of the slots in said bridge member and operable one at a time to engage said rotatable member and retain the latter, the switch plate and one of said levers in the positions to which moved, actuator elements carried by the levers at their outer ends and movable relative to the levers, means normally biasing said latch means into the path of movement of said actuator elements, said levers, their actuator elements and said latch means being constructed and arranged so that when either of the levers is moved to and latched in its projected position actuation of its actuator element in one direction only operates to actuate the latch means and disengage the same from the rotatable member thereby causing the latter to rotate and operate the switch and return said lever to its retracted position.

21. A switch of the type described comprising a switch plate having contacts cooperable with a plurality of stationary contact terminals, a member bridging said switch plate, a rotatable member pivotally mounted at the underside of said bridge member and between it and said switch plate, means for manually rotating said rotatable member in opposite directions, a lug projecting from the rotatable member and movable therewith between stop portions on the bridge member for limiting movement of said rotatable mem-

ber, another lug projecting from said bridge member intermediate the said stop portion thereof, a pair of spring biased pivotally mounted arms arranged at opposite sides of the lugs on the rotatable and bridge members and cooperable with said lugs to urge said rotatable member and its lug to a neutral position with respect to the stop portions of the bridge member, connections between the rotatable member and the switch plate for rotating the latter to operate the switch, a pair of spring biased levers rotatably mounted at the upper side of the bridge member with their inner ends engaging the adjacent peripheral surface of the rotatable member and their outer ends located beyond said bridge member, said rotatable member having recesses predeterminedly located in the periphery thereof, and said rotatable member and the levers being constructed and arranged so that upon movement of the rotatable member in either direction one or the other of said levers is caused to pivot and engage its inner end in the adjacent peripheral recess of the rotatable member to latch the latter and such lever

in the position to which moved with the outer end of the lever disposed in a projected position with respect to the bridge member, actuator elements carried by the levers at their outer ends and mounted for relative movement with respect to said levers, and spring means biasing said actuator elements to predetermined positions relative to the levers, said levers and their actuator elements being constructed and arranged so that when one of said levers is latched in projected position actuation of its actuator element in one direction only will operate to disengage said lever from the rotatable element thereby causing the latter to rotate and actuate the switch plate and return the lever to retracted position and when the other of said levers is latched in projected position actuation of its actuator element in the opposite direction only will operate to disengage said other lever from the rotatable member thereby causing the latter to rotate and actuate the switch plate and return the said other lever to its retracted position.

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