

United States Patent

Foley

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[54] **ROCKER SWITCH INTERLOCK WITH SPRING LATCH MEMBER**

[72] Inventor: **David Foley**, Burnley, England

[73] Assignee: **Joseph Lucas (Industries) Limited**, Birmingham, England

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[51] Int. Cl. H01h 9/26

[58] Field of Search 200/6 R, 5 E, 50 C, DIG. 6, 200/172 A

[56] **References Cited**

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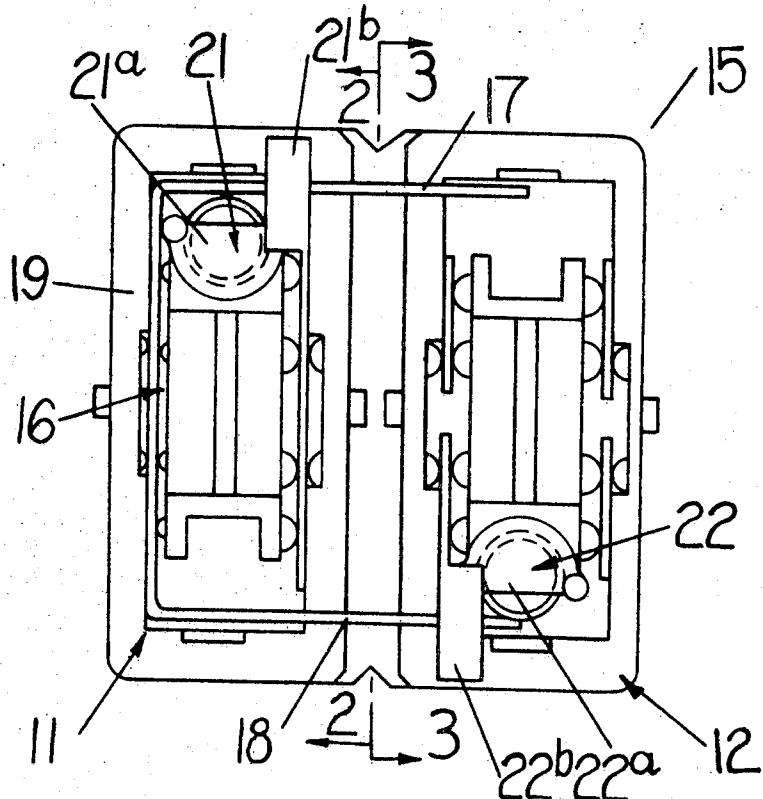
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Primary Examiner—Robert K. Schaefer
Assistant Examiner—M. Ginsburg
Attorney—Holman & Stern

[57] **ABSTRACT**

A rocker switch assembly includes first and second rocker switches positioned side-by-side, with the pivot axis of the operating member of the first switch aligned with the pivot axis of the operating member of the second switch. A U-shaped resilient member is carried by the switches with the parallel limbs of the U-shaped member extending parallel to and on opposite sides respectively of the pivot axis of the operating members of the switches. The limbs of the resilient member constitute first and second latch pieces, the first latch piece co-operating with the operating members of the first and second switches to prevent movement of the second switch from an off position to an on position until the first switch has been moved to an on position, and the second latch piece co-operating with the operating members of the first and second switches to prevent movement of the first switch from an on position to an off position until the second switch has been moved to an off position.

2 Claims, 4 Drawing Figures



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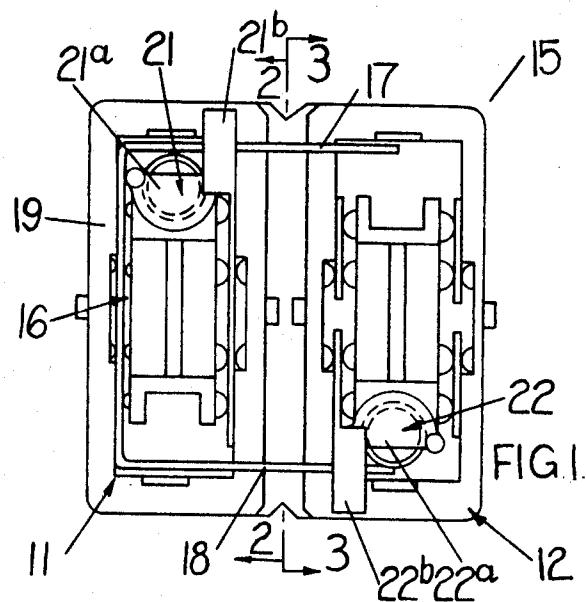


FIG. 1

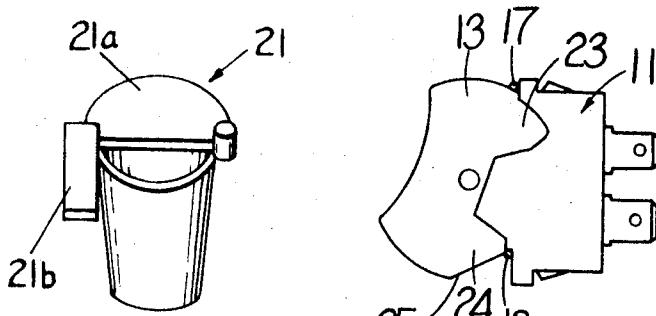


FIG. 2

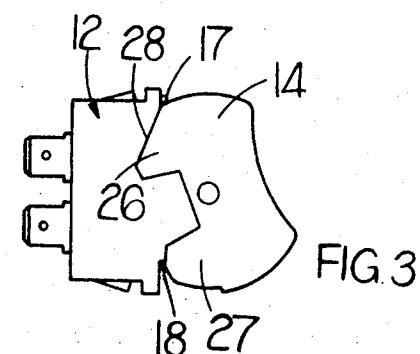


FIG. 3

INVENTOR
David Foley

Holman & Stern
ATTORNEYS

ROCKER SWITCH INTERLOCK WITH SPRING LATCH MEMBER

This invention relates to rocker switch assemblies.

An assembly according to the invention includes first and second rocker switches positioned side by side, with the pivot axis of the operating member of the first switch aligned with the pivot axis of the operating member of the second switch, and a U-shaped resilient member carried by the switches with the parallel limbs of the U-shaped member extending parallel to and on opposite sides respectively of the pivot axis of the operating members of the switches, the limbs of said resilient member constituting first and second latch pieces, the first latch piece co-operating with the operating members of the first and second switches to prevent movement of the second switch from an off position to an on position until the first switch has been moved to an on position, and the second latch piece cooperating with the operating members of the first and second switches to prevent movement of the first switch from an on position to an off position until the second switch has been moved to an off position.

Preferably, the operating members of the first and second switches include respective catches which are engageable by the first and second latch pieces respectively to prevent movement of the respective operating members relative to the body, and further include respective cam members operable to disengage said first and second latch pieces from their respective catches, movement of the operating member of the first switch to its on position causing its respective cam member to free the second switch for movement to its on position and movement of the operating member of the second switch to its off position causing its respective cam member to free the first switch for movement to its off position.

One example, of the invention is illustrated in the accompanying drawings wherein,

FIG. 1 is a plan view of a rocker switch assembly with the operating members of the switches omitted or clarify,

FIGS. 2 and 3 are sectional views on the lines 2-2 and 3-3 respectively in FIG. 1,

FIG. 4 is a perspective view to an enlarged scale of one of the spring retaining members shown in FIG. 1.

Referring to the drawings, the rocker switch assembly includes first and second rocker switches 11, 12 which are positioned side by side with the axis of movement of the operating member 13 of the switch 11 aligned with the pivotal axis of the operating member 14 of the switch 12. The switches 11, 12 are held in position relative to one another by a moulded nacelle 15 in which the switches 11, 12 are received as a snap fit. Secured to the bodies of the switches 11, 12 between the bodies of the switches and the operating members of the switches is a U-shaped wire spring 16, the pair of parallel limbs 17, 18 of which extend parallel to and on opposite sides of the pivotal axis of the operating members 13, 14. The base of the spring 16 which interconnects the limbs 17, 18 abuts against the inner surface of a wall 19 on the body of the switch 11, and the spring is trapped in position relative to the switch 11 and the switch 12 by a pair of restraining members 21, 22 engaged with the bodies of the switches 11, 12 respectively.

The restraining members 21, 22 are substantially identical, and each includes a post (indicated by the suffix a in the drawings) which is engaged as an interference fit in a corresponding bore in the body of the respective switch. Integral with the posts 21a, 22a are fingers 21b, 22b respectively, the fingers 21b overlying the limb 17 of the spring 16 and the finger 22b overlying the limb 18 of the spring 16. The member 21 engages the base of the spring 16 and the limb 17, and so traps the base of the spring against the wall 19. The fingers 21b, 22b which overlie the limbs 17, 18 respectively do not prevent flexure of the limbs 17, 18 in the plane of the spring 16, but prevent flexure of the limbs 17, 18 in a plane at right angles to the plane of the spring 16.

The face of the operating member 13 of the switch 11 which is presented towards the operating member 14 of the switch 12 is formed with a pair of extensions 23, 24 respectively, which extend between the bodies of the switches 11, 12. The extension 23 constitutes a catch, and the extension 24 is provided with an inclined surface 25, and constitutes a cam member engaging the limb 18 of the spring 16. Similarly the face of the operating member 14 presented towards the operating member 13 includes a pair of extensions 26, 27 which extend parallel with the extensions 23, 24, between the bodies of the switches 11, 12. The extension 26 includes a surface 28, and constitutes a cam member engaging the limb 17 of the spring 16, the extension 27 constituting a catch.

With the operating members 13, 14 in the positions shown in FIGS. 2 and 3 both switches are in their off positions. The limb 17 of the spring 16 is stressed outwardly in a direction away from the limb 18 by the cam member 28, while the limb 18 of the spring 16 is in its rest position. When the limb 18 is in its rest position the limb 18 engages the catch 27 of the operating member 14, so that the operating member 14 cannot be moved from its off position. However, the cam member 24 of the operating member 13 is also engaged with the limb 18, and movement of the operating member 13 is not prevented by the limb 18. Thus upon movement of the operating member 13 from its off position to its on position the limb 18 is flexed outwardly in a direction away from the limb 17 by the cam member 24 of the operating member 13, the limb 18 thereby being moved out of engagement with the catch 27 of the operating member 14, and releasing the operating member 14 for movement from its off position to its on position.

Upon movement of the operating member 14 to its on position the cam member 26 is moved relative to the limb 17 of the spring 16, thereby permitting the limb 17 to return to its rest position. When the limb 17 is in its rest position, with the operating member 13 in its on position then the limb 17 engages the catch 23 of the operating members 13 in a manner to prevent movement of the operating member 13 from its on position to its off position. Thus before the operating member 13 can be returned to its off position the operating member 4 must be moved to its off position so that the limb 17 is once again flexed out of engagement with the catch 23 by the cam member 26 of the operating member 14.

In one practical embodiment the switch 11 controls the side lights of a road vehicle while the switch 12 controls the head lights of the road vehicle. By virtue of the arrangement, the headlamps of the vehicle cannot be switched on until the side lamps have been switched on, and the side lamps cannot be switched off until the headlamps have been switched off.

It will be appreciated, that although FIGS. 2 and 3 show the operating members 13, 14 in their off positions FIG. 1 does not show the limb 17 of the spring 16 in a position corresponding to the off position of the operating member 14. FIG. 1 shows the limbs 17, 18 of the spring 16 both in their rest positions for convenience.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A rocker switch assembly including first and second rocker switches positioned side by side on a body, with the pivot axis of the operating member of the first switch aligned with the pivot axis of the operating member of the second switch, and a U-shaped resilient member carried by the switches with the parallel limbs of the U-shaped member extending parallel to and on opposite sides respectively of the pivot axes of the operating members of the switches, the limbs of the resilient member constituting first and second latch pieces and the operating members of the first and second switches including respective catches which are engageable by the first and second latch pieces respec-

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tively to prevent movement of the respective operating members relative to the body in one direction, and the operating members of the first and second switches further including respective cam members operable to disengage said first and second latch pieces from their respective catches, movement of the operating member of the first switch to its on position causing the cam member of the first switch to move the first latch piece out of engagement with the catch of the operating member of the second switch so as to free the operating member of the second switch for movement to its on position, and movement of the operating member of the second switch to its off position causing the cam member of the operating member of the second switch to move the second latch piece out of engagement with the catch of the operating member of the first switch so as to free the operating member of the first switch for movement to its off position.

2. A switch assembly as claimed in claim 1 wherein said resilient member is engaged by a pair of restraining members carried by the first and second switches respectively, means whereby said restraining members allow flexure of the limbs of said resilient member in the plane of the resilient member whereby said first and second latch pieces can be engaged with and disengaged from their respective catches, and further prevent flexure of said limbs at right angles to the plane of the resilient member.

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