

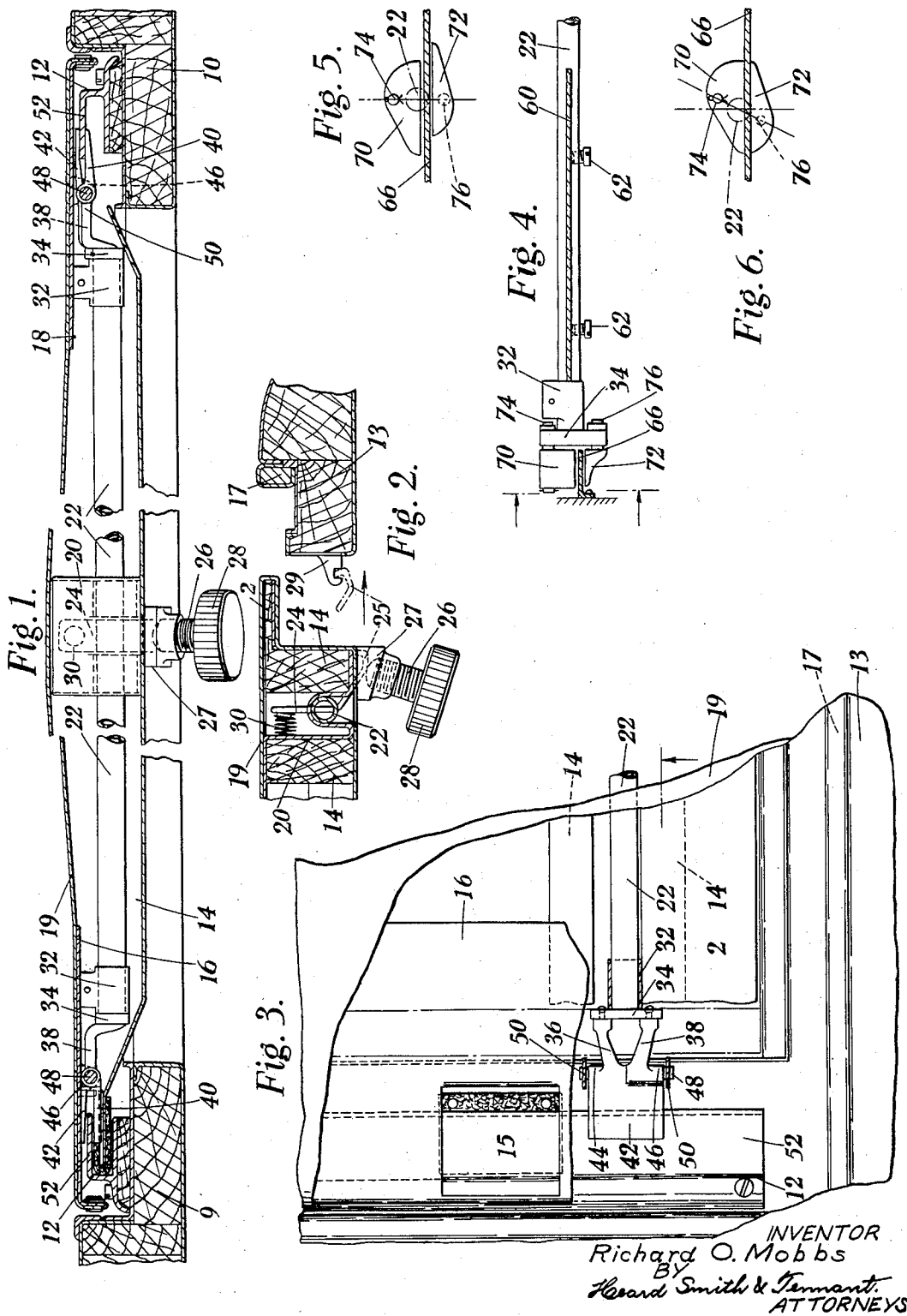
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FASTENING MEANS FOR VEHICLE ROOFS

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FASTENING MEANS FOR VEHICLE ROOFS

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This invention has reference to improvements in or relating to means for securing sliding roofs of vehicles in adjusted position.

Various constructional forms of vehicle roofs are known which comprise a fixed part and a movable part, the fixed part, which supports the movable part, having an opening which opening may be either completely closed or completely opened or opened to a partial extent by the adjustment of the movable part in relation to the opening in the fixed part.

My invention is for use with vehicle roofs having the features above set out and which roofs, whether they are provided with a panel form or a roll-top form or folding form of sliding member, are known generally as "sunshine roofs" and for the sake of brevity a roof having the said features is intended and included hereinafter, both in the descriptive part of the specification and in the claims, in the term "sunshine roof".

Sunshine roofs are usually provided with means whereby the movable part may be secured in the position to which it has been adjusted, but as heretofore constructed the securing means are objectionable for one or other reason. In some cases the securing means are apt to put undue strain on the framework of the movable part or on some other part of the roof; in other cases they dislodge the movable part in relation to the fixed part and cause parts to jam, and/or they induce rattle or drumming by putting undue pressure at one, say the front, portion of the movable part whilst leaving the remainder of the movable part free; and in others, again, it is not possible to adjust the movable part precisely in any desired position. In none is it possible rapidly to effect the adjustment and efficient securement in adjusted position of the movable part of the roof.

An object of my invention is to provide sunshine roofs with improved means for securing the movable part of the roof in adjusted position, and to this end a feature of my invention consists in the provision in sunshine roofs of gripping means which are carried by the movable part and are adapted to take a sort of "finger-hold" or grip of a rail or bar carried by the fixed part of the roof. By effecting such a grip—brought about as will be explained in greater detail hereinafter—by causing two plates or jaws (one on either side of the rail) to approach each other so that they are made to press with equal force against the opposed sides of the rail, there is no tendency to bend the rail, nor to dislodge the movable part in any direction, nor to strain the

frame either of the movable part or of the fixed part of the roof. There will be in practice a rail on each side of the opening and a pair of jaws as aforesaid for engaging each of the rails, and means whereby both pairs of jaws may simultaneously be actuated to grip their related rail. The foregoing and other features of the invention will now be described with reference to the accompanying drawing which illustrates diagrammatically an exemplary form of the invention and in which Fig. 1 shows a constructional form of my invention in front elevation as I propose to apply it to a well known construction of motor car roof, only so much of the latter being shown (in section) as will enable the invention to be understood. Fig. 2 is a sectional side elevation showing means for actuating the gripping means to be described and also showing a portion of the front of the fixed roof. Fig. 3 is a plan view showing one form of gripping means. Fig. 4 is a front elevation of an alternative form of the gripping means and also showing a further feature of my invention, and Figs. 5 and 6 are side elevations in the open and closed positions respectively of the gripping means shown in Fig. 4.

Referring to Figs. 1 and 2, the numerals 9, 10, indicate the side portions of the fixed part of a well known constructional form of motor car roof, each of which portions has secured to it a slide 12, to receive the runners with which the usual sliding panel is provided, and 13 (Fig. 2), indicates the front portion of the fixed part of the roof from which the movable part of the roof is shown slightly removed. The numeral 14 indicates the front cross-bar of the sliding panel, and 16, 18, thin metal strips constituting with the usual cross-bars the frame of the panel, said frame being covered on the upper and lower faces with the usual covering materials 19. One of the runners is shown at 15 (Fig. 3) and is made by slitting the strip 16 so as to form a tongue which is then bent downwards and its end portion bent to the horizontal position said latter portion (which engages in the slide 12) being covered with felt or the like, as is well understood.

Secured centrally lengthwise to the front cross-bar of the panel, I provide a metal casing 20 through which passes a horizontal tubular spindle 22 through which spindle passes a narrow elbow-shaped strip of metal 24. The lower part of the casing 20 is provided with a boss 27 the aperture in which is screw threaded to receive a screw 26 having on its outer end a knurled head 28, the inner end of the stud engaging against the lower part of the strip 24. Between the up-

per part of said strip and the casing a spring 30 is interposed the arrangement of the parts being such that by turning the head 28 in one direction the screwed stud 26 will be made to enter further into the casing 20 and by pressure on the lower end of the strip 24 will cause this end to be raised whilst its upper end will compress the spring 30, this movement of the strip rotating the tubular spindle 22 through a small angle. When the stud 26 by its head 28 is rotated in the reverse direction so that its end recedes from the casing, the spring 30, pressing against the upper end of the strip will move this together with the spindle 22 in the reverse direction.

The spindle 22 extends on each side of the casing to near the respective ends of the cross-bar 14 and is received in bearings 32 the end of the spindle extending a short distance beyond its related bearing. Secured to each said extending ends of the spindle I provide a metal block 34 the ends of which are provided with apertures or slots to receive the ends of the shanks or stems 36, 38, of two jaws or fingers 42, 40 respectively, which jaws are formed with bosses 44, 46, in which a hinge-pin 48 is received. The ends of the hinge-pin may be supported in bearings, such as 50, secured to the cross-bar 14, the arrangement of the parts being such that one of the jaws or fingers (40) is below and the other (42) above the top member, rail or fixed bar 52 of the slide 12.

As already stated the illustration is diagrammatic and the jaws or fingers 40, 42, on the left hand end of the spindle 22 are shown in the open position, that is to say in the position in which they exert no grip on the fixed bar 52, whereas the jaws or fingers 40, 42, at the right hand end of the spindle are shown in the closed position, that is to say the position in which they grip the bar 52 by bringing to bear equal pressure on the opposite sides, in the example illustrated the upper and lower faces of the fixed bar top member, or rail 52.

It will be seen therefore that the pressure brought to bear on the bars by the jaws or fingers will not tend to bend them, nor will there be any tendency to dislodge the panel in relation to the fixed part of the roof, nor will strain be put on the framework.

The movement of the jaws or fingers 40, 42, towards each other, to grip the relative fixed bars, top members or rails 52 and thereby retain the panel, against movement, in the position to which it has been adjusted, or on the other hand, their movement in the opposite direction to release the bars to permit of the adjustment of the panel to any position that may be desired, that is to say either to the most forward position to close the opening in the roof or to the extreme rearmost position in which the opening in the roof will be free or unobstructed to the fullest possible extent, or to any intermediate position when desired, is brought about (as will have been understood from the earlier description of the operation of the mechanism) by the rotation in one direction or the other of the screwed stud 26 by its head 28, which—together with the spring 30—rotates the spindle 22 in one or the other direction, thereby causing the blocks 34, by their swinging movement about their center thus brought about, to raise one and depress the other of the shanks or stems 36, 38, and thereby impart movement as described to the jaws or fingers 40, 42.

In order to avoid the necessity of extremely accurate making and fitting of the parts and yet

ensure that the two pairs of jaws 40, 42, shall grip their related rails 52, I may provide means whereby by a single adjusting means, e. g. 24, 26, 30, the two pairs of plates may be made to grip the fixed bars (52) successively, this being in the present example attained by so constructing the spindle 22 that it will permit of torsional movement of either end even after the other end of the spindle is prevented from further angular movement by reason of the related jaws or fingers 40, 42, already exerting a grip on their related fixed bar 52. A simple way in which this may be attained (although I do not limit the scope of my invention to the way about to be described) is to form each end of the spindle 22 with a fairly long axial slot and to insert in this a flat bar 60 (see Fig. 4) the blocks 34 being in this case secured to the end of the bar instead of to the end of the spindle. This constructional form has the further advantage that the flat bars may be adjusted in the axial direction in relation to the spindle 22 (the spindle and bars together serving as telescopic connections) so that the complete device may readily be adapted to panels of various widths, there being provided set screws 62 or the like to secure the bars 60 in adjusted position.

In constructions of vehicle roofs that are not provided with slides such as 12, it will be necessary to provide fixed bars such as shown at 56, Figs. 4, 5 and 6 in appropriate positions on the fixed part of the roof with which bars the plates or fingers may engage in the manner substantially as described. When such bars are provided and there is ample space above and below them it will be possible to provide jaws or fingers of different form. For instance in Figs. 4, 5 and 6, simple alternative constructional forms of jaws 70, 72 are illustrated. In these cases the jaws 70, 72 of each pair are mounted on studs 74, 76 that are carried by the corresponding blocks 34, the jaws being retained on the studs by split pins or the equivalent, one of the jaws (70) being above and the other (72) below the bar or rail 56 the operation of the jaws to grip the bars being similar to that previously described, viz. by imparting rotational movement in one or the other direction to a spindle such as 22 to bring the jaws 70, 72, into close contact with the bars or rails 56, as shown in Fig. 6 or to separate them as shown in Figs. 4 and 5.

Also if desired (see Fig. 2) the lower part of the metal strip 24 may be provided with an upwardly extending extreme end 25 which when the said lower part is raised by the operator of the screw stud 26 will engage in the hook 29 which I may provide on the front fixed part of the roof this engagement only taking place when the panel is in the extreme forward position.

What I claim is:—

1. Latching means for the movable part of a sunshine roof, said latching means comprising a spindle carried by said movable part and extending from one side edge thereof to the opposite side edge, a pair of jaws carried by said movable part of the roof at each side edge thereof, each pair of jaws being adapted to grip a rail carried by the fixed part of the roof, a connection between each pair of jaws and the spindle by which turning movement of the spindle in one direction opens the jaws and turning movement in the other direction closes the jaws and a spring acting on said spindle tending to turn it in one direction.

2. Latching means for the movable part of a sunshine roof, said latching means comprising a

spindle carried by said movable part and extending from one side edge thereof to the opposite side edge, a pair of jaws carried by said movable part of the roof at each side edge thereof, each 5 pair of jaws being adapted to grip a rail carried by the fixed part of a roof and each jaw also having a stem, a block carried by said spindle at each end thereof, each block engaging the stems of the corresponding pair of jaws, manually-controlled means for turning the spindle thereby to close the jaws of each pair together and a spring acting on the spindle tending to turn the latter 5 in a position to open the jaws.

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