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3,606,111

TILTABLE FRAME SKI RACK FOR AUTOMOBILE TRUNK LIDS

Filed April 21, 1969

2 Sheets-Sheet 1

Fig. 1.

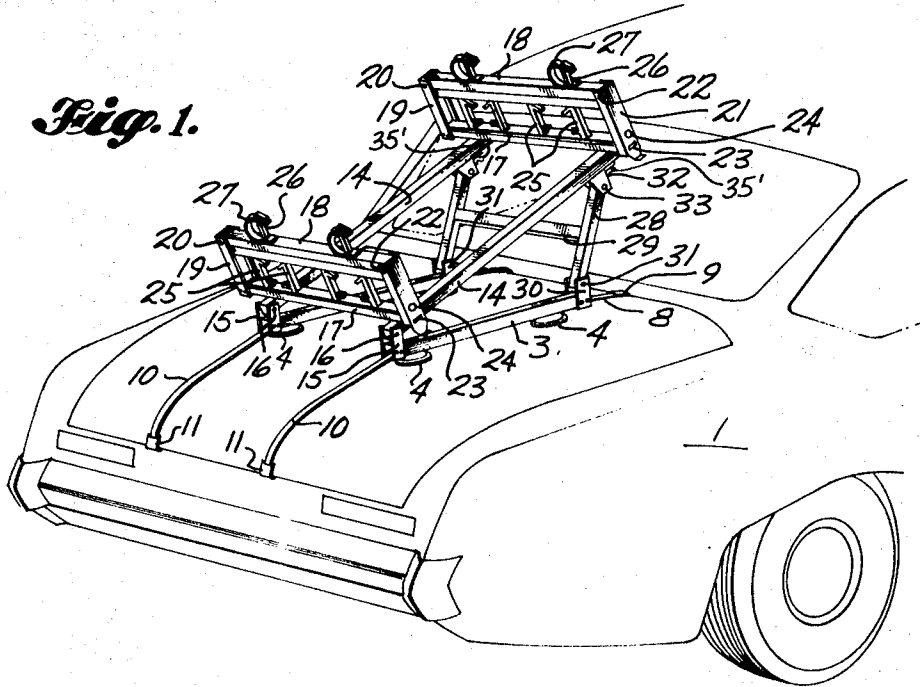


Fig. 2.

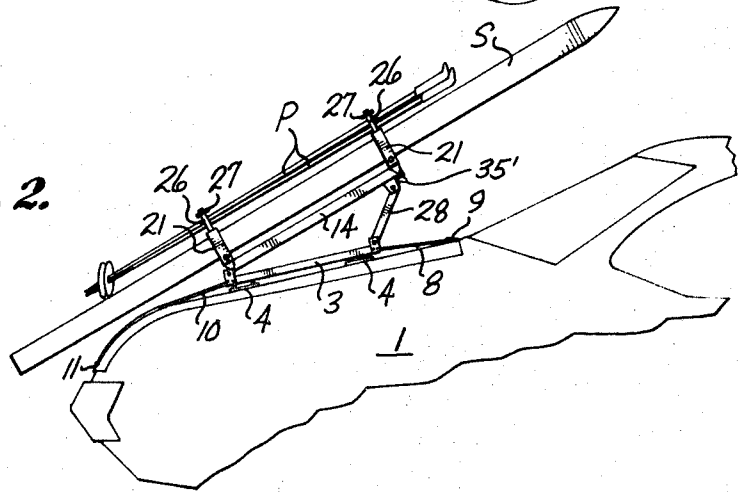
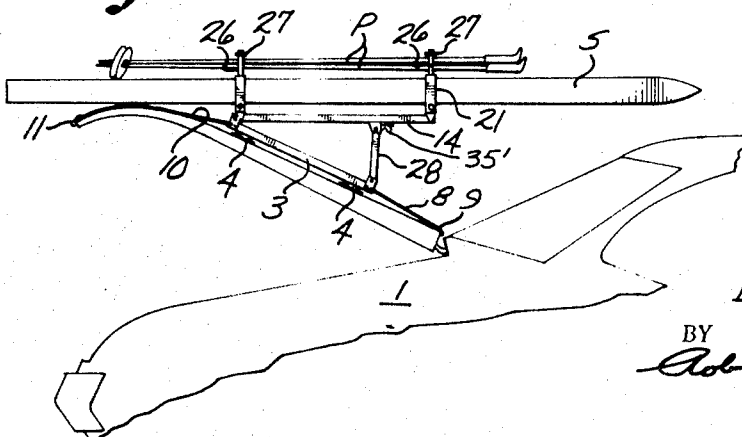


Fig. 3.



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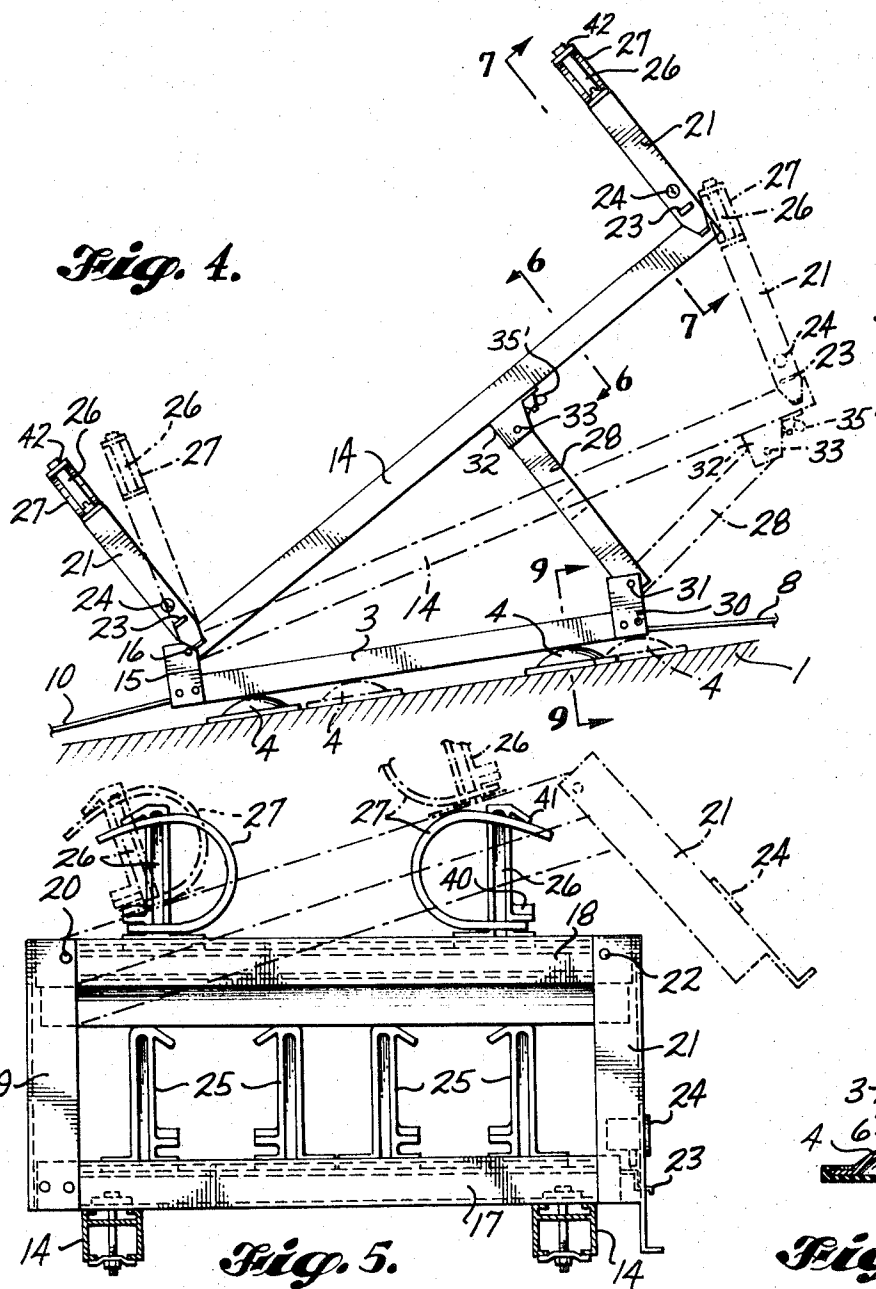


Fig. 4.

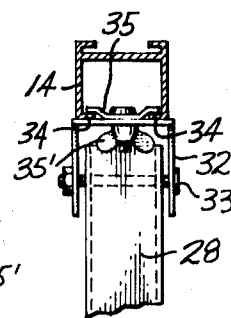


Fig. 6.

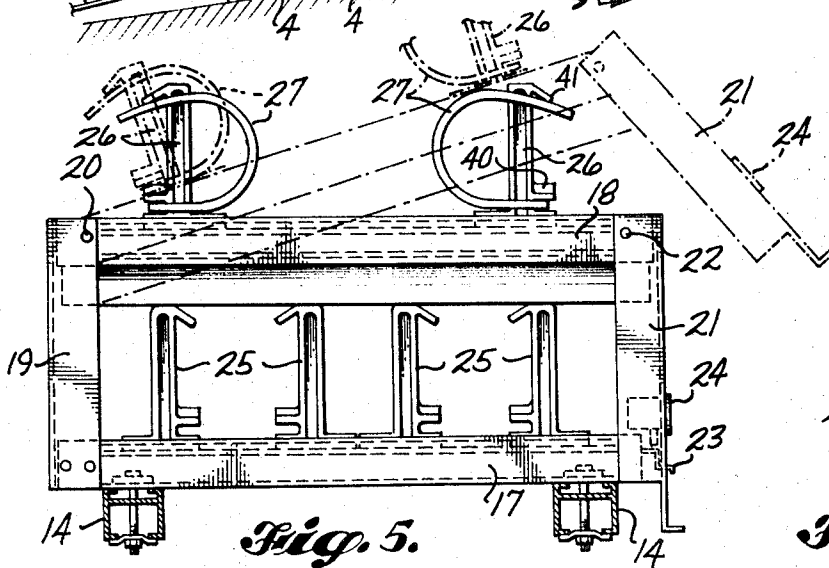


Fig. 5.

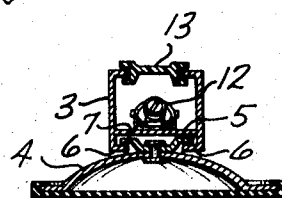


Fig. 9.

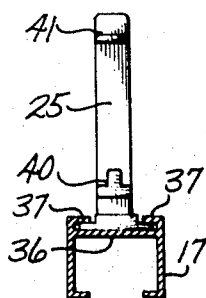


Fig. 8.

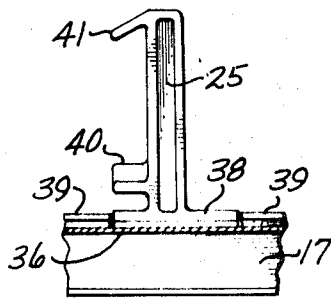


Fig. 7.

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1

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TILTABLE FRAME SKI RACK FOR AUTOMOBILE TRUNK LIDS

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1 Claim

ABSTRACT OF THE DISCLOSURE

A ski rack frame is mounted on base bars by direct pivots and pivoted struts which are spaced apart. At least one end of each strut is displaceable relative to the direct pivot so as to alter the angle between the strut and the ski rack frame for, in turn, changing the angle of tilt between such frame and the base bars. Posts of molded plastic can be secured in desired selected positions on the rack frame and an apertured stretchable strap can be applied easily to a post and secured in position on it by projections to bind an object to such post.

Conventional ski racks for mounting on automobile trunk lids have rigid frames so that the relationship between the ski-carrying portion of the rack frame and the trunk lid-engaging portion of the rack frame cannot be altered. The angle of inclination selected for such a rack frame is usually that which will enable the forward end portions of skis carried by the rack to extend forward over the car top but which will be disposed quite close to the car top. The forward end of the skis would be tilted downward by tilting of the ski rack resulting from opening movement of the trunk lid. Such tilting of the skis would cause their forward portions to engage the car top and limit the extent to which the trunk lid could be opened. If proper access is to be obtained to the car trunk where such ski racks are used, it is necessary to remove the skis from the ski rack.

A principal object of the present invention is to provide a ski rack for automobile trunk lids having a tiltable frame. The slope of such rack frame can be adjusted so that when the trunk lid is closed the forward portions of skis carried by the rack will be disposed close alongside the car top. When it is desired to open the trunk lid the slope of the ski rack frame can be increased so that opening of the trunk lid will tilt the rack to move the front portions of the skis closer to the car top but without contacting it.

A further object of the invention is to provide a ski rack for automobile trunk lids which can be tilted easily relative to a trunk lid and which will be retained in any desired inclined position.

Another object is to provide a mounting for the rack-supporting feet which will enable such feet to be adjusted fore and aft into various positions depending upon what portions of the lid are desired to be engaged by the supporting feet.

A further object is to provide a post arrangement for the ski rack which will be rugged and which will enable a strap to be applied to the post quickly and easily.

It is also an object to provide a ski rack having the capabilities specified above which will be economical construction, reliable in operation and quick and easy to manipulate for altering the slope of the ski rack.

FIG. 1 is a top perspective of the ski rack mounted on an automobile trunk lid. FIG. 2 is a side elevation of the ski rack in a low slope condition and FIG. 3 is a corresponding view with the ski rack in a high slope condition.

FIG. 4 is a side elevation of the ski rack on an enlarged

2

scale and illustrating different positions of adjustment of the ski rack.

FIG. 5 is a rear elevation of the ski rack.

FIG. 6 is a detail section through a portion of the ski rack taken on line 6—6 of FIG. 4 and FIG. 7 is a detail section of a different portion of the ski rack taken at the location of line 7—7 of FIG. 4, parts being omitted. FIG. 8 is a fragmentary section through a portion of the ski rack taken perpendicular to FIG. 7.

FIG. 9 is a vertical section through a portion of the ski rack on line 9—9 of FIG. 4.

FIGS. 1, 2 and 3 illustrate a typical mounting arrangement of the tiltable ski rack on the trunk lid 2 of an automobile 1. The ski rack includes base bars 3 supported on the trunk lid by padded or vacuum cup feet 4 which preferably are of circular shape. FIG. 9 shows that each base bar 3 is of asymmetrical H-bar construction in which the web 5 is located closer to the lower side of the bar than to its upper side. Also, the bar has lower intumed flanges 6 spaced from the web 5 to provide inwardly facing parallel grooves to receive edge portions of the foot-mounting plate 7. Consequently, the foot 4 carried by such plate can be adjusted to any desired position lengthwise of the base bar 3 simply by sliding the plate 7 along the bar.

FIG. 4 shows two feet 4 mounting each of the base bars 3 and indicates in broken lines different adjusted positions. Each base bar 3 is secured in the proper position on the trunk lid 2 by a front securing strap 8 having a hook 9 on its end engaged over the front edge of the trunk lid and a rear strap 10 having a hook 11 on its end engaged with the rear edge of the trunk lid. These straps extend into the upper channel of the base bar and can be suitably secured together or drawn together by strap-shortening mechanism 12 which will pull the hooks into firm engagement with the front and rear edges, respectively, of the trunk lid 2. If desired, a cover strip 13 can be provided to close the upper channel of the base bar 3.

The ski rack frame includes parallel longitudinal frame bars 14 which, as shown in FIG. 6, can be of the same asymmetrical H-beam section as the base bars 3. In this instance, however, it is preferred that the web be nearer the upper side of the bar than its lower side. The aft ends of these bars are mounted on lugs 15, secured to the aft ends of the base bars 3, respectively, by pivot pins 16. Frame crossbars 17 span between the forward end portions and the rearward end portions of the longitudinal bars 14, respectively. Upper rack crossbars 18 are swivable relative to the lower crossbars 17 to enable skis to be inserted between the crossbars.

Posts 19 secured to corresponding ends of the lower crossbars mount the adjacent ends of the upper crossbars by pivots 20. A closure arm 21 is mounted by a pivot 22 on the opposite end of each upper crossbar. Such closure arm is secured in its lowered position shown in FIG. 1 by a latch 23 which can be locked in latched position by a lock 24. Posts 25 extending between each lower crossbar 17 and its corresponding upper crossbar 18 form partitions between ski-receiving pockets. Similar posts 26 mounted on and projecting upward from the upper crossbars 18 provide anchors to which ski poles can be secured by flexible stretchable straps 27.

As has been mentioned, an important feature of the present ski rack is the provision of supporting mechanism for it which will enable the inclination of the rack frame to be adjusted. For this purpose, the portion of the ski rack frame remote from pivots 16 is supported by adjustable strut links 28. Each strut link is located in the same plane as a base bar 3 and a longitudinal frame bar 14. The struts at opposite sides of the rack are connected by a crossbar 29 to coordinate adjustment of the two struts. The lower end of each strut is mounted on a base bar lug 30 by a pivot 31. The upper end of each strut is

3

connected to a ski rack frame lug 32 by a pivot 33. The mounting lugs 30 and 32 for the struts 28 are relatively movable so as to vary the angle between each strut and the bars which it connects.

The result of changing the angle between the struts 28 and the base bar 3 and longitudinal rack frame bar 14 is in turn to change the slope of the rack frame relative to the base bars 3 and trunk lid 2, such as between the positions shown in FIGS. 2 and 3. By increasing the slope of the frame from the position of FIG. 2 to that of FIG. 3, the trunk lid 2 can be opened without the forward portions of skis clamped in the ski rack hitting the car top, as illustrated in FIG. 3. While such change in angle of each strut to its base bar 3 and longitudinal rack frame bar 14 could be accomplished by shifting either or both of the strut-mounting lugs 30 and 32 fore and aft, in the particular rack shown the lug 30 is fixed on the base bar 3 and the upper lug 32 is slidable along the longitudinal bar 14 into any adjusted position within a predetermined length of frame bar 14.

FIG. 4 illustrates most clearly the adjustability in slope of the ski rack frame effected by changing the angle between the strut 28 and its base bar 3 and longitudinal frame bar 14. The angle between the base bar and the longitudinal bar is greatest when the angles between strut 28 and the two bars are equal. FIG. 6 shows preferred mechanism for guiding movement of the lug 32 along the longitudinal bar 14 as including the intumed bottom flanges 34 of the longitudinal bar and the clamping slide 35 secured to the lug 32 and having grooves engaged with such bar flanges. Such lug can be secured in any adjusted position by clamp 35 secured by tightening wing nut 35'.

The webs 36 of the crossbars 17 and 18 serve to support the bases 38 of posts 25 as shown in FIGS. 7 and 8. The intumed top flanges 37 and the spacer strips or decorative strips 39 fitting between the post bases, as shown in FIG. 8, anchor the posts in place. FIG. 8 shows the post base as having opposed flanges received respectively in the oppositely-opening grooves between the upper bar flanges 37 and the bar web 36. The spacer or decorative strips 39 can

4

have similar oppositely-extending flanges received in such opposed grooves.

The post 25 preferably is molded of strong plastic material and may have a lug 40 projecting from its lower portion and a second lug 41 projecting from its upper portion at the same side. A hole 42 in one end portion of a strap 27 can be passed over the upper lug 41 and the post 26 and stretched over the lower lug 40 to anchor that end of the strap to the post base. Another hole 42 in the strap can be passed over the upper lug 41 and the upper portion of the post to bind a ski pole or other article to the post.

I claim:

1. A tiltable ski rack for automobile trunk lids comprising base means, means for securing said base means to an automobile trunk lid, a tiltable ski-holding frame including a grooved portion, a post having a base received in and movable along said grooved portion of said frame and said post having a lug projecting laterally therefrom adjacent to its base, a retaining strap having an aperture therein engaged with said post between said lug and said base, and means connecting said ski-holding frame and said base means and adjustable to support said ski-holding frame in any tilted position relative to said base means within a predetermined range.

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U.S. Cl. X.R.

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