Aug. 14, 1962 W. K. CRANE 3,049,273

LUGGAGE RACK

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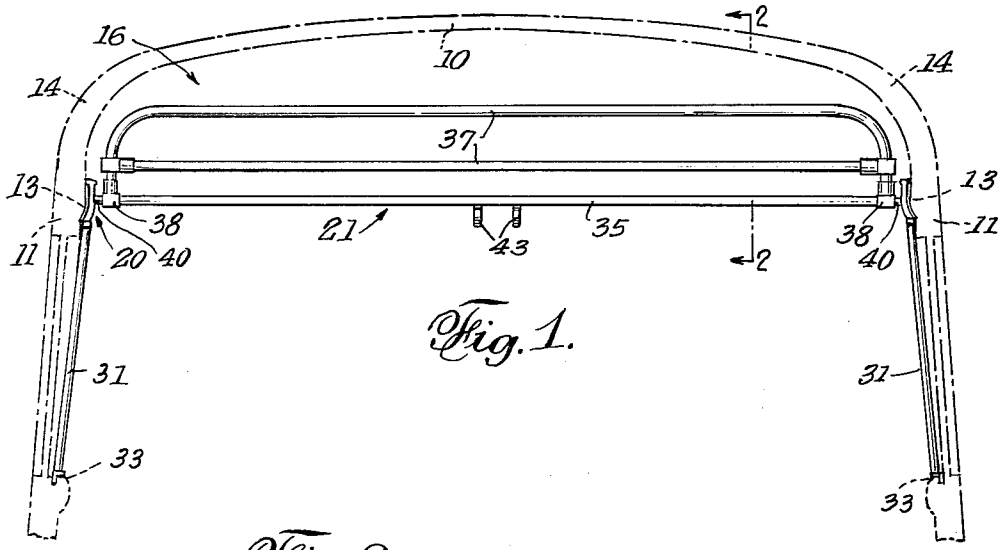


Fig. 1.

Fig. 2.

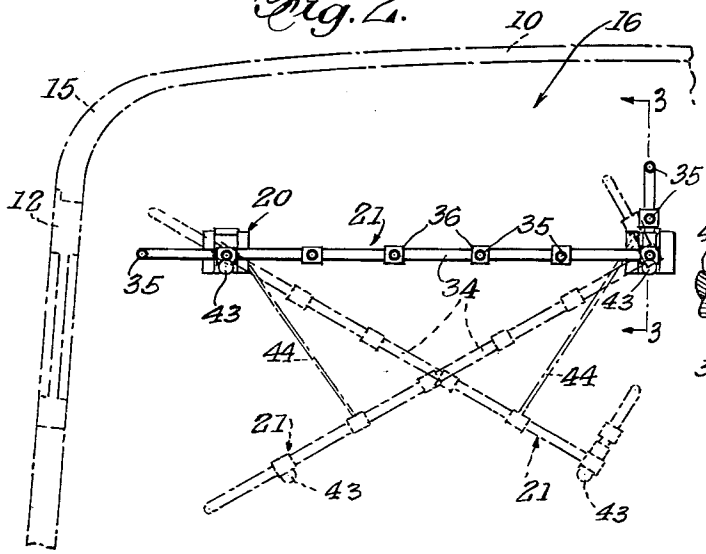


Fig. 3.

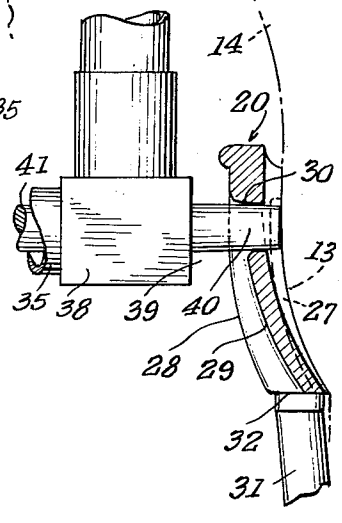
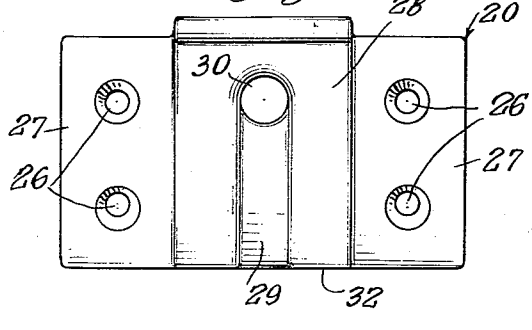


Fig. 4.



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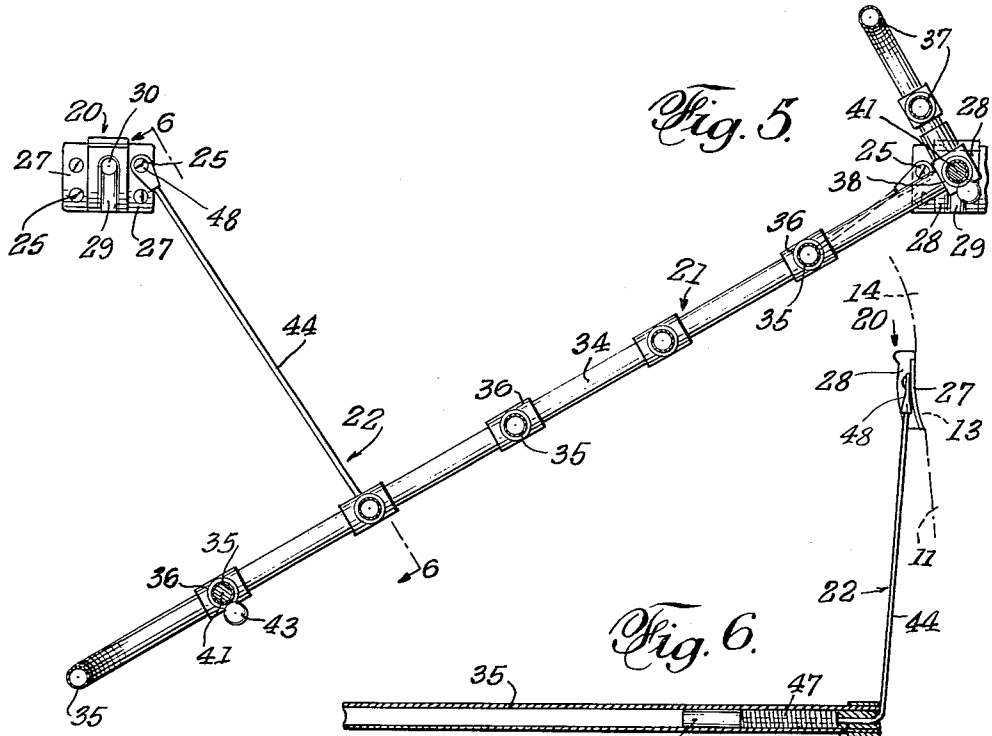


Fig. 5.

Fig. 6.

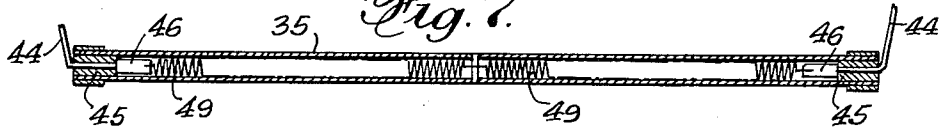


Fig. 7.

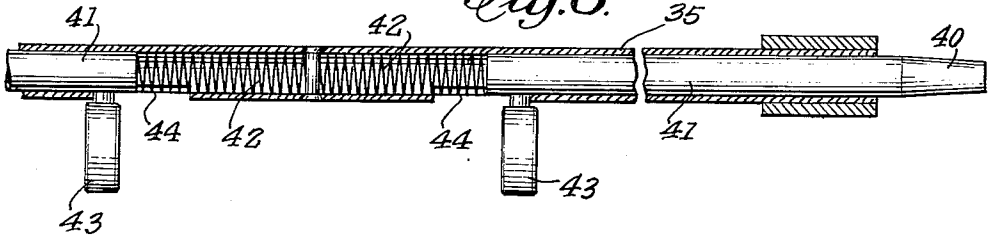


Fig. 8.

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LUGGAGE RACK

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3 Claims. (Cl. 224—42.1)

This invention relates to luggage racks, particularly for the interior of vehicles such as station wagons, for example.

The invention is characterized by simplicity, durability, faciilty and flexibility of use, and has for an object to provide a rack for luggage and other articles having the desired characteristics above mentioned.

Another object of the invention is to provied a luggage rack that, in operative position, holds articles in a safe out-of-the-way position adjacent the inner side of the roof of a station wagon, and is readily dropped to a loading or an unloading position providing access either from the rear of the wagon or from the inside thereof, optionally.

A further object of the invention is to provide a rack of the character above referred to that is installed with easy facility and as readily removed, the structure embodying means to safely support the rack in either of its lowered loading positions.

The invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and servicability.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawings merely show and the following description merely describes, preferred embodiments of the present invention, which are given by way of illustration or example only.

In the drawings, like reference characters designate similar parts in the several views.

FIG. 1 is an end view, as seen from the inside of a station wagon, of a luggage rack according to the present invention.

FIG. 2 is a vertical sectional view as taken on the plane of line 2—2 of FIG. 1, the view, in dot-dash lines, showing the two selective lowered positions of the rack.

FIG. 3 is an enlarged detailed sectional view of one of the mounting brackets of the rack and operatively engaged with the rack.

FIG. 4 is an elevational view of such a bracket.

FIG. 5 is a somewhat more detailed sectional view of the rack in one of its lowered positions.

FIG. 6 is a fragmentary sectional view as taken on line 6—6 of FIG. 5.

FIG. 7 is a similar view, completed at both ends, of a modification of the structure shown in FIG. 6.

FIG. 8 is an enlarged and broken sectional view of details of construction relating to means for separably engaging the mounting brackets of the present structure.

The station wagon that is shown typically comprises a roof 10, side walls 11, and a rear wall 12 that is usually upwardly and outwardly swingable, the latter in cooperation with a tail gate (not shown) and when open affording access to the interior of the wagon from the rear. Also, conventionally, garnish moldings 13 are provided along the sides 11 beneath the coved corners 14 that join said sides 11 and the roof 10. Also, as shown in FIG. 2, a coved corner 15 extends from the rear of the roof into blending connection with the rear wall 12 of the wagon. It will be realized from the foregoing regardless whether the coved portions 14 and 15 are present or whether the roof joins more sharply with the wagon sides and rear,

there is an interior space 16 above the garnish moldings 13.

This out-of-the-way space 16 is peculiarly adapted for storing articles either for transport from place to place or for longer periods of time.

The present luggage rack comprises, generally, a set of at least four brackets 20 that are affixed to the garnish molding 13 as permanent installations, a rack unit 21 separably connected to said brackets in a transverse horizontal position to substantially enclose the mentioned space 16, and retractable means 22 to support either end of the rack, selectively, in lowered loading or unloading position.

The brackets 20 are arranged in opposed pairs, as shown in FIG. 1 and are secured to the garnish moldings 13 as by screws 25 that pass through countersunk holes 26 in side portions 27 of each bracket. The bracket 20, as best seen in FIG. 3, is formed to conform to the outer shape of the garnish molding and the same has a middle part 28 that has a groove 29 additionally curved so that the distance between opposed or pairs of brackets is greater at the lower end of said groove 29 than at the upper end. A hole 30 is formed in said upper end of each groove 29. It will be clear that the curved face of said groove constitutes a cam that inwardly displaces a member engaged therewith and being moved upwardly toward the hole 30.

In instances where heavy articles are to be supported, the screws 25 may be supplemented by props or braces 31 that extend between the lower edges 32 of the brackets and the ledges 33 of windows ordinarily provided in vehicles of the character herein mentioned. To this end, said bracket edges 32 are somewhat widened or deepened, as shown best in FIG. 3, to provide ample support engagement with the upper ends of said props.

The rack unit 21 is shown as made up of side tube members 34 connected by a series of transverse tubes 35, either integrally, as at one end, or by means of T-fittings 36. At the inner end, as shown, or at both ends, if desired, an end wall may be provided on the flat rack floor thus provided. Said wall is here shown as formed of cross tubes 37 similar to the tubes 35. Fittings 38 rigidly connect said floor and wall. In practice, the rack unit above described is adapted to fit between the opposite pairs of brackets with considerable clearance, as suggested in FIG. 1 and at 39 of FIG. 3.

For each pair of brackets 20, the rack unit is provided with normally projected trunnions 40 for extending into the holes 30 of said brackets. As can best be seen in FIGS. 3 and 8, a tube 35, aligned with a pair of brackets, mounts oppositely extending rods 41 of which said trunnions are the outer ends. An expansion spring 42 biases each said rod to project the trunnion ends 41 thereof, and handle pieces 43 extend through limiting slots from said rods and afford means for manually retracting said trunnions 40.

It is a simple matter to place the rack unit 21 in operative position connected to the brackets 20. No manipulation of the handle pieces 43 is required since the spring-projected trunnions 40 may be placed in the wider-spaced lower portions of the bracket grooves 29 and, by simply pushing upwardly on the rack unit, the curved faces of the grooves 29 will cam the trunnions inwardly so they will retract against the bias of the springs 42. Finally, as the trunnions find and enter the bracket holes 30, they will be projected by the springs 42 into said holes, firmly mounting the rack unit in position supported by the brackets.

As can be seen from FIG. 2, the rack unit and the cooperating portions of the vehicle, namely, the roof 10 and the coves 14 and 15 so confine the space 16 as to prevent accidental displacement of articles on the rack unit. It

will be realized that the rack may be provided with a cover or lining of sheet material, as fabric, leather, plastic, etc., and that variations in the details of construction of the above-described rack may be resorted to for specialized use purposes.

Because of the confinement of space 16, the rack cannot be comfortably loaded and unloaded except for quite small articles or those that are of thin, elongated form. To this end, the means 22 is provided. As shown, said means comprises a flexible member, such as a cable 44 extending from each end of one of the tubes 35 that is adjacent to a tube in which the rods 41 are disposed. Thus, for the two pairs of brackets 20 that are shown, there are two pairs of such cables 44 extending from opposite ends of the rack unit. As can be seen from FIG. 6, each cable 44 passes through a plug 45 in each end of a tube 35 and is provided with an enlargement 46 within the tube. An expansion spring 47 is interposed between said plug 45 and enlargement 46. Thus, by anchoring the other end of each cable, as at 48, either to a bracket, as shown, or to any other fixed part as to the garnish molding, one end or the other of the rack unit 21 may be lowered for loading and unloading. This lowering is simply accomplished by retracting the trunnions 40 at the end of the rack unit that is to be lowered and allowing the unit to swing down on the other trunnions. Since the springs 47 normally expand to draw the cables 44 into the tubes 35, the same will simply pay out, as the rack unit is lowered, until the enlargements 46 so compress springs 47 as to form a stop against the plug 45.

The modification of FIG. 7 directly abuts the enlargement 46 against the plug 45, a contraction spring 49 being substituted for the spring 47 for drawing the cable into the tube. In either form of the invention, there is no slack in the cables 44 when the rack unit is in raised position.

While the anchors 48 for the cables 44 are shown as one of the bracket fastening screws 25, the same is intended merely as an example of an anchor that supports the lowered end of the rack unit.

It will be clear that removal of the rack unit is readily accomplished by retracting both sets of pivotal trunnions 40, either together or one at a time. It will be understood that the cable anchors 48 may be made to be easily separable to enable complete removal of the rack from the vehicle. Because of the flexibility of use of the present structure, the same can be loaded and unloaded from either end as desired. Since the loaded rack is supported on one set of trunnions when being moved between raised and lowered positions, no great amount of strength is needed for controlling movement of the free end.

While the foregoing specification illustrates and describes what I now contemplate to be the best modes of carrying out my invention, the constructions are, of course, subject to modification without departing from the spirit and scope of my invention. Therefore, I do not desire to restrict the invention to the particular forms of construction illustrated and described, but desire to cover all modifications that may fall within the scope of the appended claims.

Having thus described my invention, what is claimed and desired to be secured by Letters Patent is:

1. A luggage rack comprising a set of four mounting brackets adapted to be secured to the garnish molding at the sides beneath the roof of a vehicle, each bracket having a hole and said brackets being adapted to be arranged, when mounted, as opposite pairs with the holes of said pairs aligned, a rack unit provided with normally projected trunnions equal in number to the number of holes in the mounting brackets and arranged and directed to enter said holes to hold the unit in position beneath said vehicle roof, resilient means biasing the trunnions to projected bracket-engaging position, handles provided on said trunnions affording retraction thereof for withdrawal from the bracket holes, each pair of aligned trunnions constituting a pivot on which the rack unit is adapted to be swung down to article-loading position upon retraction from their holes of the other pair of aligned trunnions, means inter-connecting the brackets and the rack unit to support the lowered end of the rack unit, comprising cables connecting said unit and the mounting brackets, and means drawing slack in said cables into interior portions of the rack as said slack tends to form during raising and lowering of the rack unit.

2. In a luggage rack having four mounting brackets arranged in pairs in rectangular arrangement and having a rack unit with projected retractable trunnions engaged with the brackets and supported in luggage-holding position thereby, the rack unit spanning between the pairs or brackets and being adapted to swing downwardly on one pair of trunnions, selectively, as the other pair is released, the improvement, that comprises a flexible element extending from each bracket to the rack inward of the connections between the brackets and rack, and means to draw slack in said elements into interior portions of the rack as said slack tends to form during swinging movement of the rack upwardly to luggage-holding position, said flexible elements constituting supports for the lowered end of the rack unit.

3. In a luggage rack having four mounting brackets arranged in pairs in rectangular arrangement and having a rack unit with projected retractable trunnions engaged with the brackets and supported in luggage-holding position thereby, the rack unit spanning between the pairs or brackets and being adapted to swing downwardly on one pair of trunnions, selectively, as the other pair is released, the improvement that comprises a flexible element extending from each bracket to the rack inward of the connections between the brackets and rack, said rack having tubular cross members, springs in said latter members connected to the ends of the flexible elements to draw any slack in the said elements into the cross members during swinging movement of the rack, and a stop provided at said end of each flexible element to engage the rack to arrest lowering thereof and to support the rack in lowered position.

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