

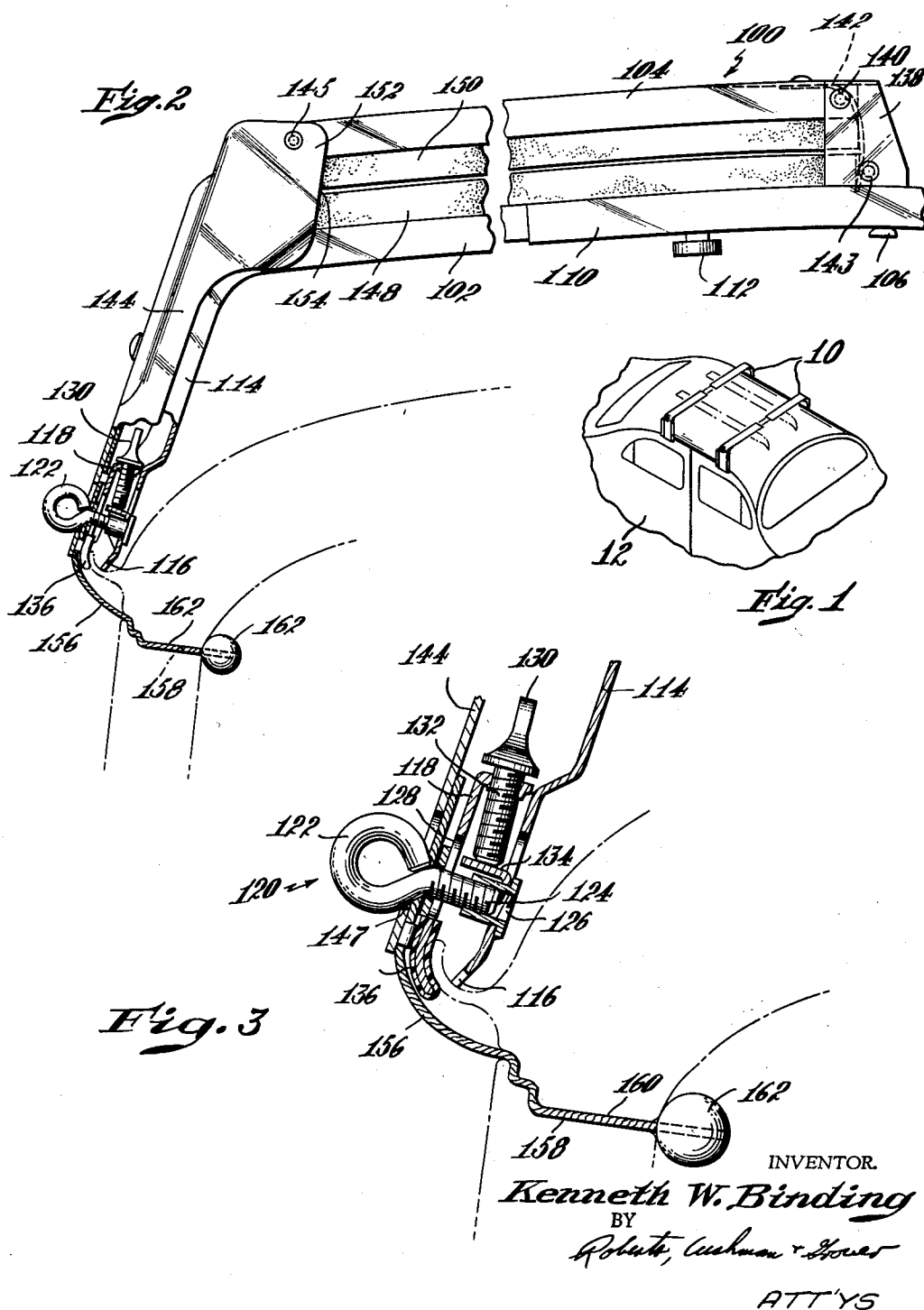
May 12, 1964

K. W. BINDING
VEHICLE-CARRYING RACK

3,132,780

Filed Jan. 27, 1961

2 Sheets-Sheet 1



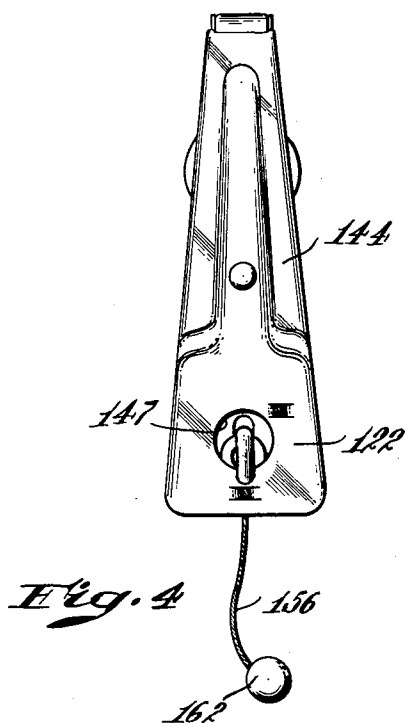
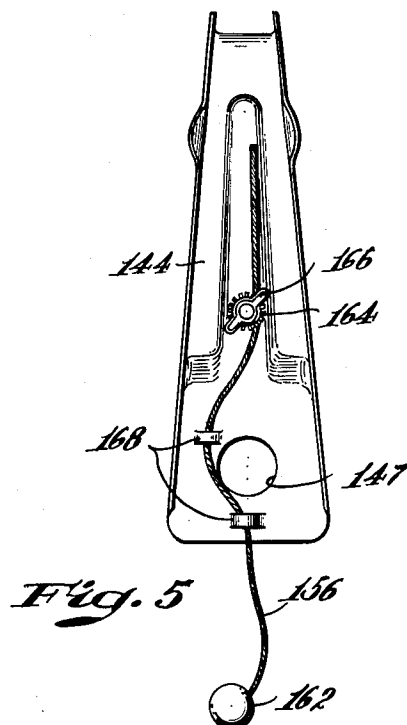
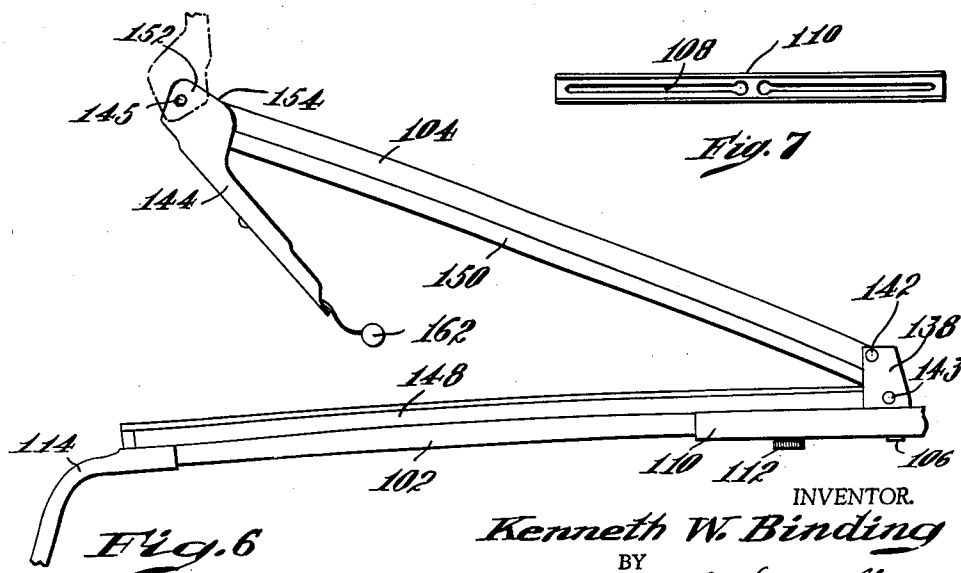
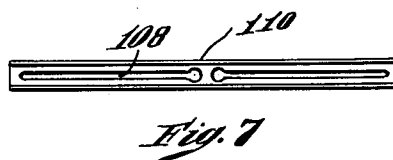
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3,132,780

VEHICLE-CARRYING RACK

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This invention relates to carrying racks for vehicles and especially to racks of the kind for supporting relatively long slender articles, such as skis, on the roof of an automobile.

The principal objects of the invention are to provide racks including article supports which can be clamped to the rain gutters at opposite sides of the roof of an automobile; to provide racks which have article clamps which may be manipulated independently of the clamping of the supports to the gutters; to provide racks with means for simultaneously locking the article clamps and the supports to the vehicle to prevent unauthorized removal; to provide racks with means for latching the article clamps in position preparatory to irremovably locking the racks in place; to provide racks in which the article clamps, when released, normally stand up at angles such that the latches are above the article supports so as to facilitate mounting or removing the articles to be carried; to provide racks in which there are means to prevent unauthorized removal of the articles from between the clamps by sliding them laterally or lengthwise; and to provide racks which are durable, pleasing in appearance and easy to manufacture.

In accordance with the invention the racks have rigid, elongate article supports adapted to be disposed transversely of the top of the vehicle with legs at their ends, the lower extremities of which are adapted to rest in the rain gutters to hold the supports above and parallel to the top of the vehicle. Leg clamps are mounted at the lower ends of the legs for engagement with the outer sides of the gutters and there are screw bolts for drawing the leg clamps and legs into clamping engagement with the gutters. For securing the racks to the vehicle so that they cannot be surreptitiously removed there are elements at the ends of the racks adapted to be engaged between the lintels of the door frames and doors to be locked therebetween when the doors are closed. In the preferred form the elements are flexible cables adapted to extend between the lintels into the vehicle which have buttons at their inner ends which are too large to pass through the spaces between the lintels when the doors are closed. Article clamps are connected at one end to the supports and have at their distal ends latches adapted to extend downwardly along the legs when the clamps are parallel to the supports. Each latch contains a hole adapted to pass over the head of the clamping screw, the hole being so situated that, when engaged with the head of the screw, it holds the latch in clamping position. In one form, the latches are channel-shaped so that the walls along their opposite sides embrace the legs and the end portions of the article supports and clamps, thereby preventing lateral movement of the articles lodged between the supports and clamps into the spaces between the latches and legs. The supports and clamps have longitudinally disposed cushion members for engagement with the articles disposed therebetween and, in one form, these are so arranged as to resist movement of the articles lengthwise.

The invention will now be described in greater detail with reference to the accompanying drawings wherein:

FIG. 1 is a perspective view showing the top portion of a vehicle with a pair of carriers disposed in spaced parallel relation longitudinally thereof, and with skis dis-

posed between the supports and clamps of pairs of parallel racks;

FIG. 2 is an elevation, to larger scale, at one side of the carrier, broken adjacent the means for clamping it to the rain gutter;

FIG. 3 is an enlarged section of the means for attaching the carrier to the rain gutters, showing also the means for locking the carrier to the vehicle;

FIG. 4 is an outside elevation of one of the latches for securing the clamps in parallel relation to the supports;

FIG. 5 is an inside elevation of one of the latches;

FIG. 6 is an elevation at one side of the carrier showing a clamp elevated from the support and the two positions of the latch; and

FIG. 7 is a plan view of the stretcher bar.

Referring to the drawings, there is shown in FIG. 1 a pair of carriers 100 disposed transversely of the roof of a vehicle 12 in spaced parallel relation longitudinally thereof, with their end extremities fastened to the rain gutters along the opposite sides of the roof. Each carrier 100 is made up of two racks and each rack comprises a pair of spaced parallel, rigid channel-shaped bars 102 and 104 which constitute, respectively, article supports and article clamps. The supports 102 have at their inner ends downwardly projecting headed members 106 adapted to be slidably engaged with slots 108 in a stretcher bar 110. The adjacent ends of the slots have enlarged openings through which the heads of the members 106 can be inserted so that they may be slidably engaged with the slots. Clamping screws 112 are adapted to be screwed into each of the supports through the slots to bind the supports to the stretcher bar at the proper position. The opposite end of each of the supports 102 has an outwardly open channel-shaped leg 114 fastened to it which extends downwardly therefrom and has at its lower extremity a splayed foot 116 for engagement with the inner side of the gutter along the side of the top of the vehicle. A leg clamp 118 is mounted on the lower extremity of the leg by means of a screw bolt 120 having a head 122 and a shank 124, the latter being screwed into a ferrule 126 welded or otherwise secured to the leg. The leg clamp 118 has a slot 128 through which the shank of the screw passes to permit heightwise adjustment of the leg clamp and is adjustable by means of an adjusting screw 130 threaded through a flange 132 at its upper end, the lower end of the screw bearing against an abutment 134 on the leg. The lower extremity of each leg clamp has a covering 136 of a suitable plastic material to prevent scratching the outside of the gutter. By rotating the screw bolts the leg clamps may be drawn toward the legs to grip the gutters in such fashion as to hold the supports securely in place on the top of the vehicle.

Each support 102 has fastened to its upper side at its inner end vertically disposed, transversely spaced plates 138—138, the plates being the legs of a U-shaped bracket, the lower end of which is seated within the channel of the support 102 and rigidly fixed thereto by the headed member 106. The clamp 104 is pivotally connected at its inner end between the plates 138—138 by a pin 140. A flat leaf spring 142 is riveted to the inner side of the clamp 104, forwardly of the pin 140, extends between the clamp 104 and the pin 140 and downwardly at the forward side of a pin 143 fixed transversely of the plates 138—138 subjacent the pin 140, which holds the spring stressed so that normally the spring tends to hold the clamp 104 at an elevated position such as shown in FIG. 15.

At the distal end of the clamps 104 there are channel-shaped latches 144 which are pivotally connected by pins

145 to the clamps 104 and extend downwardly along the legs 114 when the clamps are parallel to the supports. The lower end of the latch 144 contains an opening 147 which is large enough to pass over the head 122 of the bolt 120 so that it does not interfere with rotation of the bolt. Yieldable strips 148 and 150 of sponge rubber, or the like, are disposed in the channels of the supports and clamps for engagement with the articles to be clamped in place. The hole 147 in the latch 144 is so disposed that the distance from the normally uncompressed plane of contact of the strips 148 and 150 to the center of the hole is slightly shorter than the distance from this plane to the axis of the screw bolt, so that, to engage the latch hole with the head of the bolt, the clamp 104 has to be squeezed downwardly with reference to the support 102. When released the latch is stressed upwardly by the elasticity of the strips 148 and 150 so that the hole is held firmly engaged with the underside of the screw bolt beneath the head 122 and hence there is no danger of the latch becoming disengaged accidentally.

At the upper ends of the latches the walls have portions 152—152 which extend inwardly so as to conceal the end portions of the supports 102 and clamps 104. The inner edges 154—154 of the portions 152—152 provide barriers which prevent lateral movement of the articles disposed between the supports and clamps. The lower corners of the portions 152—152 are flared to facilitate engagement with the supports when the latches are swung downwardly into parallelism with the legs.

To prevent unauthorized removal of the rack as a whole from the vehicle, flexible elements in the form of hardened steel cables 156 are attached at one end to the inner sides of the latches 144 which have portions adapted to extend downwardly from the legs between the lintels of the doors and door frames 158 and 160. Buttons 162 are secured at the extremities of the flexible elements which are of such size that they cannot pass through the space between the lintels when the doors are closed. The flexible elements are preferably adjustably attached to the inner sides of the latches by means of toothed washers 164 and wing nuts 166 and pass through eyes 168 which slidably support them in the proper position.

The latches 144, as can be seen by reference to FIG. 15, are free to swing inwardly beneath the clamps or upwardly above the clamps. Either position of the latch permits placing an article on the support without having manually to hold the latch out of the way.

The interengaged channel-shaped structure of the legs and latches prevents access to the flexible members and provides a neat and attractive appearance.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. A vehicle-carrying rack for the top of a vehicle having drain gutters at opposite sides, comprising an article support adapted to be disposed parallel to and transversely of the top of the vehicle, legs formed at the outer ends of the support extending downwardly therefrom, the lower ends of said legs providing feet which rest in the gutter and hold the support spaced from the top of the vehicle, a leg clamp mounted near the lower end of each leg having a part engaged with the underside of the gutter, a screw extending through the leg clamp from the outside into threaded engagement with the leg, said screw

being operative to draw the leg clamp and leg together to bind the gutter therebetween, article clamps mounted on the support parallel to its upper side, means hingedly connecting the adjacent ends of the article clamps to the support, latch members pivotally connected to the distal ends of the article clamps for securing the article clamps in clamping engagement with the support, each latch member comprising a channel-shaped member mounted with its open side facing the leg, said channel-shaped member extending downwardly along the leg over the leg clamp, the back and flanges of said channel-shaped member covering the distal ends of the support and article clamp at that end and, in conjunction with the edges of the leg, forming an enclosure about the leg clamp rendering it inaccessible, the edge portions of the flanges crossing the distal ends of the support and article clamp preventing access to the space between the latch member and the leg at their upper ends, said latch member containing a hole adjacent its lower end adapted to be engaged with the head of the screw to hold the article clamp in engagement with the article support, and means for securing the latch member in engagement with the head of the screw comprising a flexible cord attached at one end to the inner side of the latch member, said cord being of a length to extend between the lintels of the door and door frame of the vehicle and having at its inner end a rigid part too large to pass between the lintels of the door and door frame when the door is closed.

2. A vehicle-carrying rack according to claim 1, wherein the legs are outwardly open channel members having spaced parallel flanges engageable within the flanges of the latch members.

3. A vehicle-carrying rack according to claim 1, wherein the flanges at the proximal ends of the latch members are substantially parallel to the sides of the article support and article clamps and extend inwardly beyond the inner side of the legs, the upper corners of said flanges containing transversely registering openings for receiving the pivot pins for hingedly connecting the latch member to the article clamp, and the lower corners being flared outwardly and constituting means for guiding the latch members into telescoping engagement with the legs.

4. A vehicle-carrying rack according to claim 1, wherein the flexible elements are adjustably anchored to the inner sides of the latches.

5. A vehicle-carrying rack according to claim 1, wherein the article clamps, when released, stand upwardly at angles to the article support, and the latches can be rotated to positions resting on and parallel to the upper sides of the article clamps.

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