Oct. 11, 1949. W. C. EAVES 2,484,021

BRACKET

Filed Sept. 5, 1946

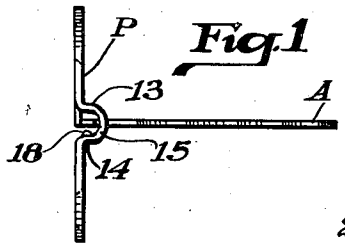


Fig. 1

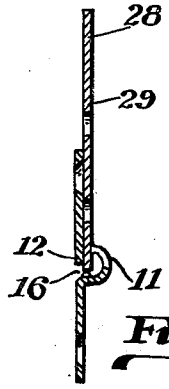


Fig. 2

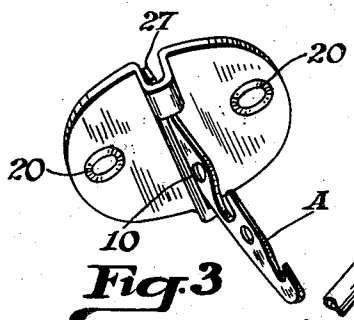
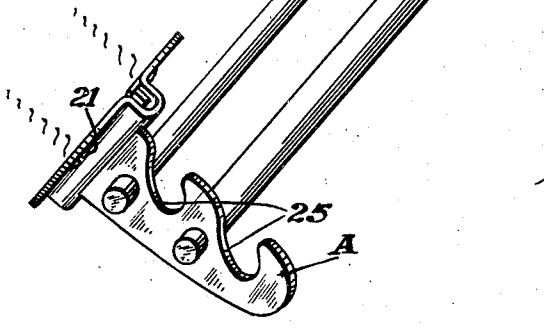


Fig. 3



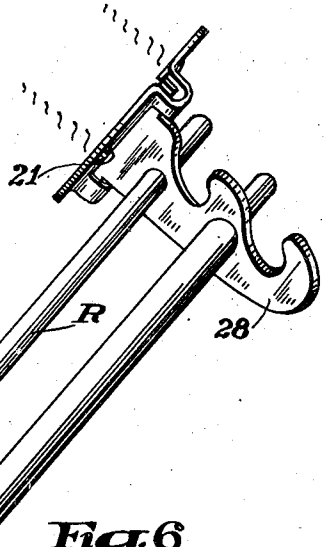
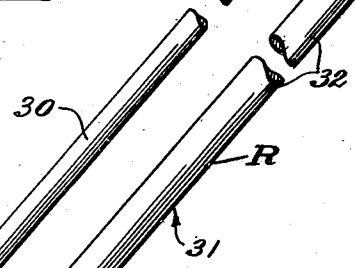


Fig. 6



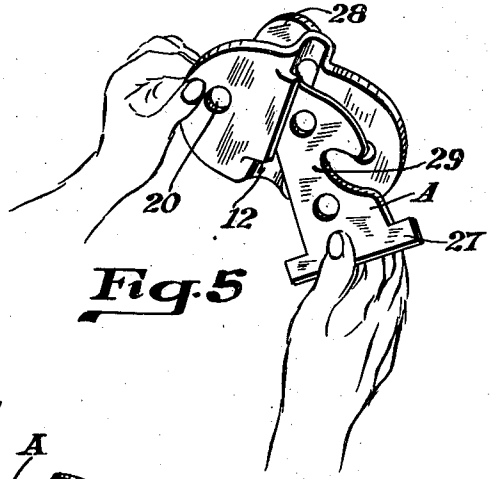


Fig. 5

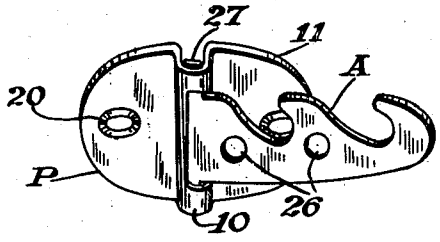


Fig. 4

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Patented Oct. 11, 1949

2,484,021

UNITED STATES PATENT OFFICE

2,484,021

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Application September 5, 1946, Serial No. 694,868

6 Claims. (Cl. 248—251)

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The present invention relates generally to supporting means and is particularly concerned with a novel bracket having a movable arm, and with a novel rack including such a bracket.

There has long been a demand for supporting means of small size suitable for use in passenger automobiles and similar places of limited space, which means would have a large load capacity and when not in use could be collapsed or otherwise moved out of the way for safety and space conserving reasons. To the best of my knowledge, no satisfactory means responding to this demand has ever been conceived or used, and in any event, none or presently available on the open market.

The brackets and racks of this invention fully meet this demand and are inexpensive because their manufacture requires neither expensive materials nor complicated or numerous operations. Furthermore, the devices of this invention comprise a minimum of simple parts which may be assembled and installed easily. In addition, because of the fact that the parts of the brackets or hooks of this invention are movable with respect to each other, two or more such hooks may be employed together with one or more rods to make a strong but easily assembled rack. Another advantage due to the design of these brackets is that a bracket collapsible by movement of the arm to the right or collapsible by movement to the left may be made from the same parts to meet space limitations in the places where the brackets are to be employed.

Those skilled in the art will gain a further understanding of this invention by referring to the drawings accompanying and forming a part of this specification, in which

Figure 1 is an edge view of a bracket embodying this invention;

Figure 2 is an edge view partly in section of the bracket of Fig. 1 with the parts disposed in alternative position;

Figure 3 is a perspective view of the same bracket with the parts disposed as illustrated in Fig. 1;

Figure 4 is a perspective view of the same bracket with the parts disposed as shown in Fig. 2;

Figure 5 is a perspective view of the bracket illustrating the manner in which the parts are assembled; and,

Figure 6 is a perspective view of a rack embodying this invention.

The brackets of this invention in general comprise a plate P and an arm A carried by the plate

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for limited motion relative to said plate. The racks in general comprise two or more such brackets and one or more rods R extending between and supported by arms A of adjacent brackets.

The illustrated plate P is formed from a substantially flat plate by cutting a U-shaped slit between the edges of the plate, and folding the plate to define a hollow rib 10 extending from edge to edge of the plate and having a longitudinally extending slot 11 intermediate of said edges. The slot 11 is produced by maintaining a tongue-like portion 12 defined by the slot in substantially its original position while the plate is folded. The rib 10 is thus open at the back of the plate and is defined by substantially parallel side walls 13 and 14 which extend upwardly from the face of the plate, and by an arcuate top wall 15 joining the side walls. These side walls are so spaced that they may constitute frictional means to engage a portion of the arm A and oppose movement of said arm relative to plate P. The lower portion of wall 14 carries a lug 16 which also constitutes frictional arm retaining means and is disposed between the walls to engage and lock the arm A in predetermined closed position as will be described. The tongue 12 extends partially across the open back of the rib 10 and defines a slot 18 with the opposed side wall 14. The slot 18 is slightly wider than the thickness of the arm A, while slot 11 is of substantially greater width, extending the full width of walls 13 and 15. The plate is further provided with two apertures 20 disposed on opposite sides of the rib 10 to receive screws 21 for securing the plate to a supporting member.

The arm A of the illustrated bracket is an elongated, relatively thin member having hook-like notches 25 cut into an edge surface and having also apertures 26. The arm is provided with end portion 27 of greater width than the length of slot 11 and another end portion 28 and central portion 29 of less width than the length of said slot and less thickness than the width of said slot. The relation of the thickness of the portions 28 and 29 to the slot 11 is such that arcuate movement of the arm with respect to the plate through substantially 90° is possible.

By "length," "width" and "thickness," in reference to the arm A, I mean, respectively, the dimension from the end 27 to end 28, the dimension between the edges of the arm (the vertical dimension), and the dimension between the sides or faces of the arm. In the illustrated arm,

length is the greatest and width is the smallest dimension.

The illustrated rack comprises a pair of brackets of the type described and two rods 30 and 31, each of which extends through a pair of registered apertures 26 in the arms A. Rod 30 is a relatively long and thin element having a diameter substantially equal to that of the apertures 26, through which it extends. Rod 31 is likewise relatively long, but has a central portion 32 of enlarged diameter and end portions of reduced diameter substantially equal to that of the apertures 26, through which said ends extend. The length of portion 32 is substantially equal to the distance separating the opposed surfaces of the arms A of adjacent pockets with which rod 31 is engaged. The ends of the rod, however, are relatively short portions so that the over-all length of the rod is only slightly greater than the length of the space between the arms.

In assembling the illustrated brackets, the end 28 of the arm is inserted in slot 18 and the arm is urged through the slot and through slot 11 until the enlarged end portion 27 is disposed within rib 10. The arm is then moved into a position either substantially at right angles to the plate for use as a hook or as part of a rack, or substantially parallel to the plate, where the arm is locked in closed position by forcing the edge of end portion 27 opposed to the lug 16 upon the lug.

When the bracket is to be secured to a wall or other supporting means, the plate is placed against the surface of the wall and with apertures 20 of the plate arm disposed out of the way the screws 21 are inserted in apertures 20 of the plate and are screwed into the wall.

Disassembly is accomplished by reversing the foregoing steps and removing the plate from the wall, ejecting the end 27 of the arm from within the rib through slot 16, and urging the arm in such direction that the remaining portions of the arm are disengaged from the plate.

If a hook or bracket collapsible by arcuate movement of the arm to the right with respect to the plate is desired, the slot 11 is disposed to the right prior to insertion of the arm into the slots 11 and 18 with hook portions of the arm disposed upright, as described above. A left hand hook can be made from the same parts by disposing the slot 16 to the left before the arm is engaged with the plate as described.

In assembling the rack of Fig. 5, two brackets of the type described were assembled so that the arm A of each bracket could be moved toward the other bracket to collapse or close the bracket. With the arms each being disposed in the open position at substantially right angles to the plate, and with the plates P each being secured by screws 21 to a supporting wall, rods 30 and 31 were inserted in opposed pairs of registered apertures 26. Because rod 31 is slightly longer than the distance between arms A, the arms must be temporarily sprung to a small extent to enable insertion of the ends of rod 31 into apertures 26. Such springing, however, is not difficult to accomplish nor sufficient in extent to deform the arms permanently.

In the open position the arms of these brackets engage tongues 12 and are braced against the tongues so that soft backing surface of the supporting structure for the bracket will not be torn or damaged as a result of loads being applied to the arms and causing the edges and corners of ends 27 of the arms to bear directly against said

surfaces. When the distance between the upper surface of the tongue and the wall 15 of the rib opposed thereto is slightly less than the length of the end portion 27 of the arm, the arm in open position will be locked between these parts.

I am aware that a number of modifications of a routine nature may be made in the illustrated devices, but such are all contemplated by my invention and are within the scope of the appended claims. The frictional means for retaining the arm A in position relative to plate P may, for instance, comprise a plurality of lugs 16, or a rib, disposed along the lower edge of wall 15. A lug, or lugs, or a rib, likewise may be carried by tongue 12 to engage arm A in predetermined open position, or in partially open position, as desired.

Having thus described the present invention so that those skilled in the art may be able to understand and practice the same, I state that what I desire to secure by Letters Patent is defined in what is claimed.

I claim:

1. A bracket comprising a plate having a slotted hollow rib provided with substantially parallel side walls and an arcuate top wall, an arm engaged with the plate for limited motion relative to said plate, and frictional means including a lug carried by one of the side walls and disposed between said walls for locking the arm in predetermined position relative to the plate, said arm having an enlarged end portion retained within said walls and a central portion extending through the slot in the rib.

2. A bracket comprising a plate having a hollow rib extending substantially across the plate, and an arm engaged with said plate for arcuate motion in an arcuate path relative to the plate through substantially 90°, said rib being provided with a slot, and said arm having an end portion of greater width than length of said slot and disposed within said rib, and having another end portion and a central portion of less width than the length of the slot and of less thickness than the width of the slot, said central and end portion of reduced width being disposed outside of said rib.

3. A bracket comprising a plate having a hollow rib extending substantially across the plate and open on the back of said plate, and an arm engaged with the plate for movement through substantially 90° relative to the plate, said rib being provided with a longitudinally extending slot and having a lug carried by an inside surface portion of the rib, and said arm having an end portion of greater width than the length of said slot and disposed within said rib, and having a central portion and another end portion of less width than the length of the slot, said central and end portion of reduced width being disposed outside of said rib and said enlarged end portion engaging the lug and being locked against ready movement relative to the plate.

4. A bracket comprising a plate having a hollow rib extending substantially across the plate and open on the back of the plate, and having a tongue extending partially across the back of the rib and defining a slot, and an arm engaged with the plate for arcuate movement through substantially 90° relative to the plate, said rib being provided with a longitudinally extending slot in the top surface of the plate and having a lug carried by an inside surface portion of the rib to engage said arm in predetermined position and oppose movement from said position of

said arm relative to said plate, said arm having end portion adapted to be disposed in said rib while the remaining part of the arm extends through the slot in the top surface of the plate, and said tongue being disposed to engage the enlarged end portion of the arm and oppose movement of the arm relative to the plates when the arm is disposed in another predetermined position.

5. A supporting device comprising a pair of plates each having a hollow rib provided with a slot and each having an arm provided with an aperture and extending through said slot, and a rod having opposite end portions disposed in the apertures of said arms, said arms each being movable relative to said plates through an arc of substantially 90°.

6. A supporting device comprising a pair of brackets each including a plate having a hollow rib provided with a slot and an arm engaged with said plate and extending through said slot, the arms having transverse apertures and being movable toward each other from a position

substantially parallel to each other and perpendicular to the plates, and a rod extending between said brackets and having end portions of reduced thickness extending through said transverse apertures, said rod having shoulders adjacent the reduced end portions engaging said arms and substantially preventing motion of the arms toward each other.

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