June 25, 1940. A. CLAUD-MANTLE 2,205,682

BRACE FOR AUTOMOBILE REAR DECKS OR THE LIKE

Filed Jan. 22, 1936

Fig. 4

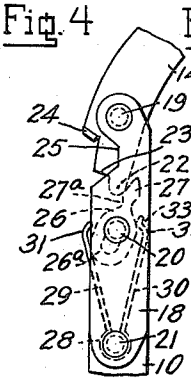


Fig. 5

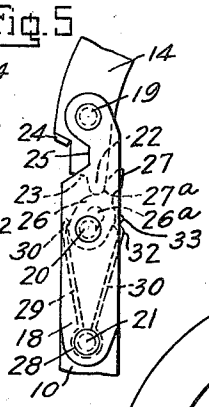


Fig. 2.

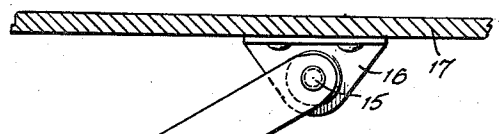


Fig. 1.

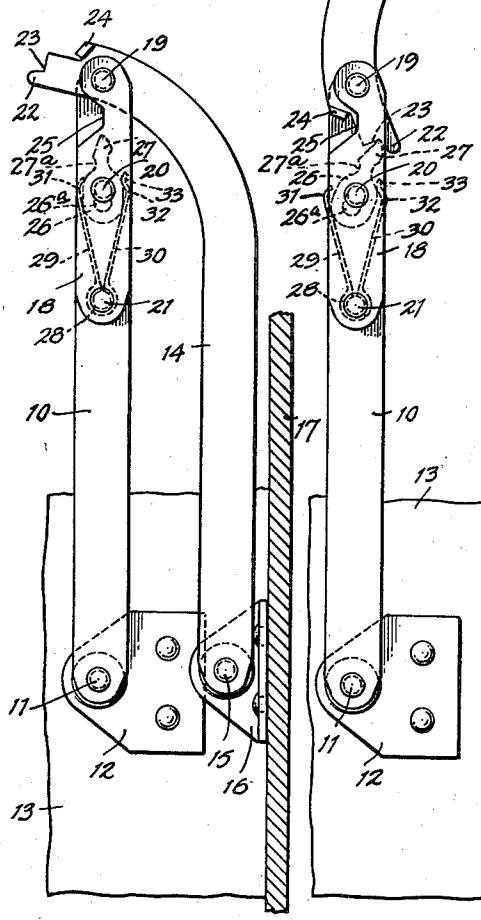


Fig. 3.

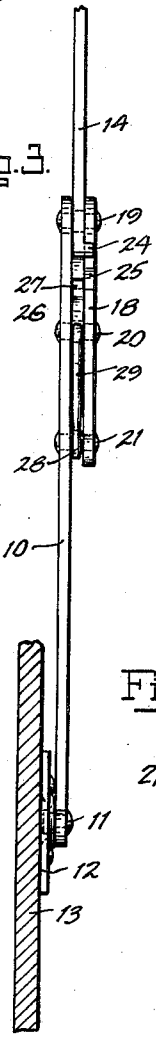


Fig. 6

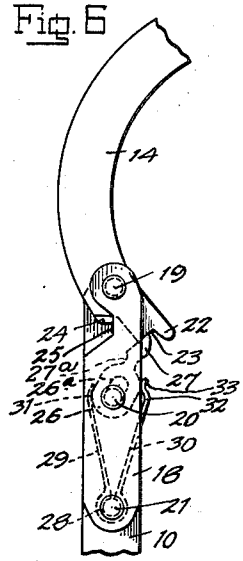
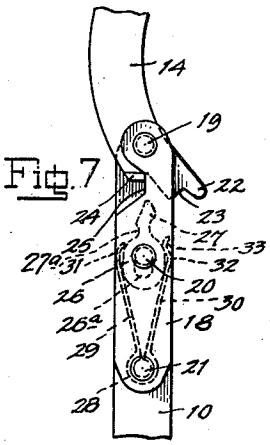


Fig. 7



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BRACE FOR AUTOMOBILE REAR DECKS OR THE LIKE

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Application January 22, 1936, Serial No. 60,225

3 Claims. (Cl. 217—60)

The present invention relates to an improved brace for an automobile rear deck, or other structure where it is desired to provide a hinged closure which is supported in open position by a brace. In the usual type of brace heretofore in use it has been necessary in order to close the deck to break the brace from its locked supporting position by manually pressing upon one of the arms, which was both inconvenient and dangerous, as it required the use of one hand and the hand was apt to be pinched by the folding arms. As it is usually necessary to use one hand for supporting the deck as it is being closed and the other for breaking the brace the use of braces at both sides of the deck has not been practicable because of the necessity in such cases for use of both hands for breaking the two braces.

It is an object of the present invention to provide a brace which may be released from its extended locked position merely by slightly lifting the rear deck closure prior to closing it. It is further proposed to provide a brace which will be set either for locking or releasing by merely moving the rear closure deck to its upper limit position so that no accuracy or skill will be required in causing the brace to operate. A further object is to provide a brace of simple and inexpensive construction in which the operative parts are protected against damage through rough usage, and which may be readily installed on existing types of rear deck structures.

With the above and other objects in view an embodiment of the invention is shown in the accompanying drawings and this embodiment will be hereinafter more fully described with reference thereto and the invention will be finally pointed out in the claims.

In the drawing:

Fig. 1 is a side elevation of a brace, according to my invention, and showing the same in closed position.

Fig. 2 is a side elevation showing the brace at open position.

Fig. 3 is an inner edge view in open position.

Fig. 4 is a side elevation, partially broken away, showing the position of the two arms of the brace at the point during the opening movement where the locking pawl is initially swung in clockwise direction in its lower position.

Fig. 5 is a similar view at a further point in the opening movement where the locking pawl has been moved to its upper position preparatory to locking.

Fig. 6 is a similar view, showing the position of the two arms of the brace in the fully extended position with the parts set for locking.

Fig. 7 is a similar view in which the arms are fully extended to trip the locking pawl prior to closing of the brace.

Similar reference characters indicate corresponding parts throughout the several figures of the drawing.

Referring to the drawing, the brace, according to the exemplary illustrated embodiment of the invention, comprises a lower arm 10 pivotally connected at 11 to a bracket 12 adapted to be secured to the interior of the side wall 13 of the rear deck compartment, and an upper arm 14 hingedly connected to the upper end of the lower arm, as will presently more fully appear, and pivotally connected at its outer end at 15 to a bracket 16 secured to the inner side of the rear deck closure member 17. It will be understood that the closure member 17 is hinged at its upper end to the rear deck in the usual manner.

At the upper end portion of the arm 10 a plate 18 is secured in parallel spaced relation by means of three equally spaced shouldered studs 19, 20 and 21, the ends of these studs being riveted upon the outer surfaces of the arm 10 and the plate 18 as clearly shown in Fig. 3. The arm 14 which is preferably curved at its end portion adjacent the upper end of the arm 10 is hingedly mounted upon the stud 19 between the inner surfaces of the arm 10 and the plate 18, being provided at one edge with a projecting finger portion 22 having a locking notch portion 23 at one side, and being provided at its other edge with a right angular bent lug 24 adapted to move into a cut-out 25 provided in the plate 18 below the stud 19 to limit the extension or opening movement of the arm 14 by abutment with the inner wall of this recess, as shown in Figs. 6 and 7.

A substantially oval-shaped pawl member 26 having a slot 26a is slidably engaged upon the stud 20 between the arm 10 and plate 18, and is provided at its upper end with a projecting inclined-faced pawl finger 27, for cooperation with the finger 22 and the locking notch 23 of the arm 14, as will presently more fully appear, there being a notch 27a at the lower end of the inclined face of the pawl finger 27. A hair pin spring comprising an eye portion 28 and side legs 29 and 30 is mounted between the arm 10 and the plate 18 through engagement of the eye portion 28 with the stud 21, the arms 29 and 30 engaging the pawl member 26 respectively at each side. These arms normally maintain the pawl in parallel relation to the arm 10 by exerting equal

pressure upon each side tending to swing it into such parallel relation. The arm 29 is provided at its upper end with an inwardly curved portion 31 which engages the upper rounded shoulder of the pawl to normally hold it in its downwardly removed position, and which when the pawl is swung in clockwise direction through engagement by the finger 22 of the arm 14 engages the rounded lower end portion of the pawl and tends to press it upwardly upon the stud 20. The upper end of the arm 31 is also provided with an inwardly curved portion 32 to engage the upper rounded shoulder of the pawl at the opposite side from the arm 29, the end of the curved portion 32 being curved outwardly, as at 33, to provide smooth bearing contact with the side of the detent.

The operation is as follows:

As the rear deck closure member 17 is raised to its open position the projecting finger 22 of the arm 14 engages the inclined surface of the pawl finger 27 of the pawl member 26 causing it to swing in clockwise direction, as shown in Fig. 4. As the pawl member is further swung in clockwise direction the notch 27a comes into line with the finger 22, and as the rounded end 31 of the spring 29 is now in position to press the pawl member 26 upwardly the notch 27a snaps into engagement with the rounded end of the finger 22, the pawl member now being in raised locking position, as shown in Fig. 5. With the pawl member in this raised locking position the upward movement of the arm 14 is continued to the upper limit position, which is determined by abutment of the lug 24 with the wall of the recess 25, the finger 22 moving out of engagement with the notch 27a and beyond the end of the pawl finger 27, so that the pawl member 26, which is still held in raised position by the arm 29 of the spring, is swung in clockwise direction by the pressure of the arm 30 of the spring to bring the pawl finger 27 into the notch 23, as shown in Fig. 6. Upon release of the closure member 17 the arm 14 swings downwardly a short distance, the finger 22 forcing the pawl member 26 downwardly upon the stud 20 to the inclined locking position indicated in Fig. 2, where the end of the pawl finger 27 engages the locking notch 23 and forms with the arm 14 a rigid toggle which supports the arm 14 against further downward movement.

In order to close the closure member 17 it is only necessary to raise it from the position shown in Fig. 2 to the upper limit position as shown in Fig. 7, whereupon the notch 23 is swung clear of the pawl finger 27 which upon release is moved into upright relation by the pressure of the spring arm 30, the end 33 of which exerts inward pressure at a point above the pivotal axis of the stud 20. Thereupon the downward swinging of the arm 14 will cause the projecting finger 22 to snap past the projecting pawl finger 27 and the arm is free to move to the closed position indicated in Fig. 1.

I have illustrated and described a preferred and satisfactory embodiment of the invention, but it will be obvious that changes may be made therein, within the spirit and scope thereof, as defined in the appended claims.

Having thus described my invention what I do claim and desire to secure by Letters Patent is:

1. A brace of the character described comprising a pair of arms connected for relative movement between contracted and extended positions, stop means cooperating between said arms to limit the fully extended position of said arms, and means for releasably locking said arms in extended position comprising a locking pawl means carried by one of said arms having a slot and pivot connection therewith and whereby it has both pivotal movement and bodily projecting and retracting movement along a line transverse to the axis of said pivot, spring means normally maintaining said pawl means in a predetermined retracted position, actuating means on the other of said arms adapted as said arms are moved to said fully extended position determined by said stop means to engage said pawl means to pivotally move it into projected position, and detent means on said other arm adapted to lockingly engage said pawl means in retracted locking position upon limited return movement of said extended arm, secondary extension movement of said arm adapted to release said pawl means from locking position.

2. A brace of the character described comprising a pair of arms pivotally connected by a fixed pivot for relative folding and unfolding movement between contracted and extended positions, stop means cooperating between said arms to limit the fully extended position of said arms, and means for releasably locking said arms in extended position comprising a locking pawl means carried by one of said arms having a slot and pivot connection therewith and whereby it has both pivotal movement and bodily projecting and retracting movement along a line transverse to the axis of said pivot, spring means normally maintaining said pawl means in a predetermined retracted position, actuating means on the other of said arms adapted as said arms are moved to said fully extended position determined by said stop means to engage said pawl means to pivotally move it into projected position and detent means on said other arm adapted to lockingly engage said pawl means in retracted locking position upon limited return movement of said extended arm, secondary extension movement of said arm adapted to release said pawl means from locking position.

3. A brace of the character described comprising a pair of arms pivotally connected by a fixed pivot for relative folding and unfolding movement between contracted and extended positions, stop means cooperating between said arms to limit the fully extended position of said arms, and means for releasably locking said arms in extended position comprising a locking pawl means carried by one of said arms having a slot and pivot connection therewith and whereby it has both pivotal movement and bodily projecting and retracting movement along a line transverse to the axis of said pivot, spring means normally maintaining said pawl means in a medial retracted position parallel to said slot, actuating means on the other of said arms adapted as said arms are moved to said fully extended position determined by said stop means to engage said pawl means to pivotally move it into projected position, and detent means on said other arm adapted to lockingly engage said pawl means in retracted locking position upon limited return movement of said extended arm, secondary extension movement of said arm adapted to release said pawl means from locking position.

ARTHUR CLAUD-MANTLE.