July 23, 1957 J. E. KUBACKA 2,800,361

DUAL CLOSURE INTERLOCK FOR VEHICLE LUGGAGE AND FOLDABLE-TOP STOWAGE-COMPARTMENTS

Filed Sept. 30, 1953 2 Sheets-Sheet 1

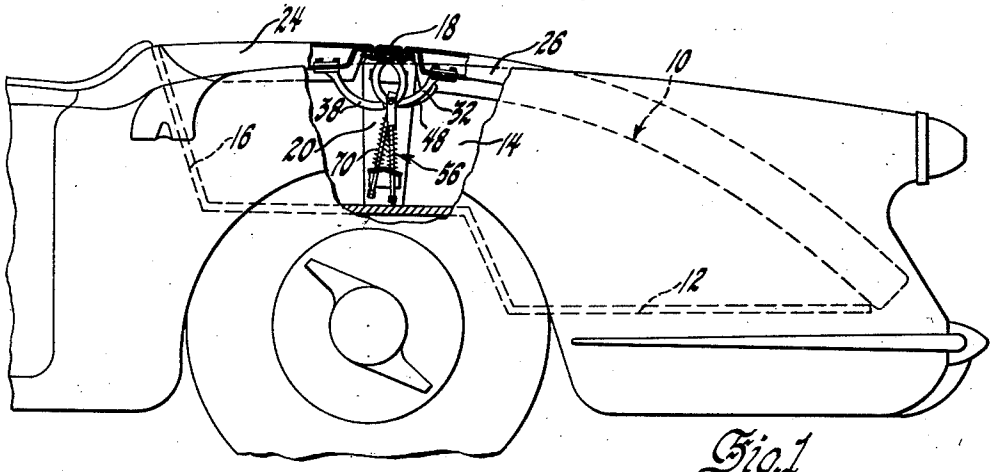


Fig. 1

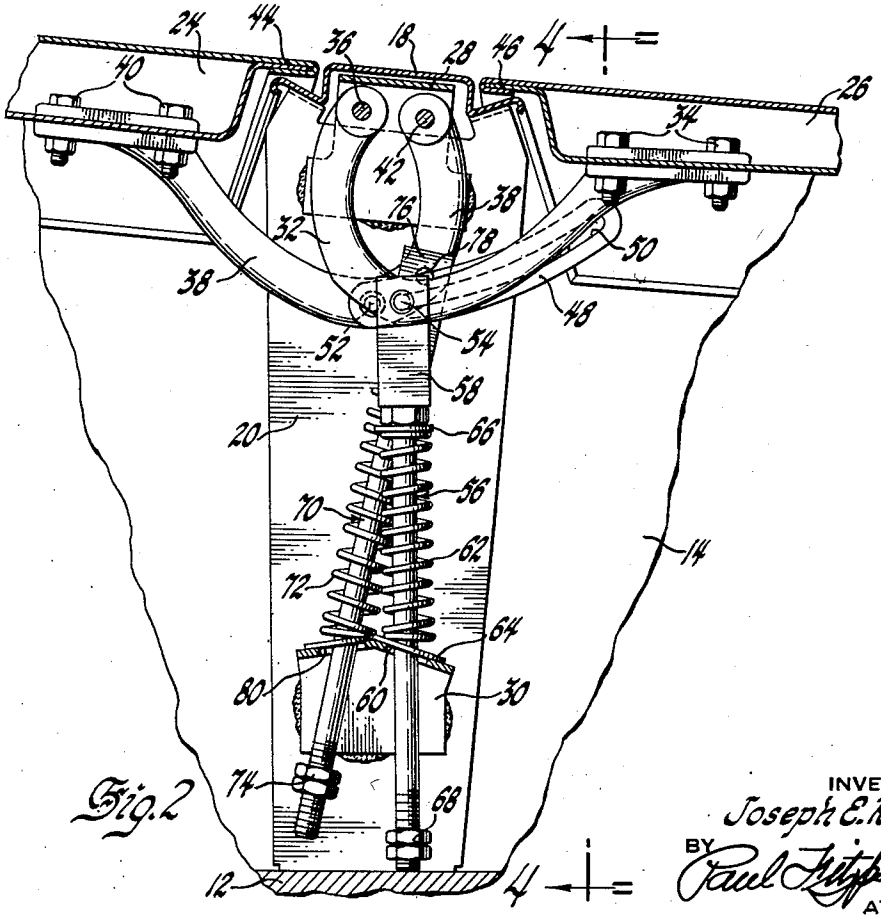


Fig. 2

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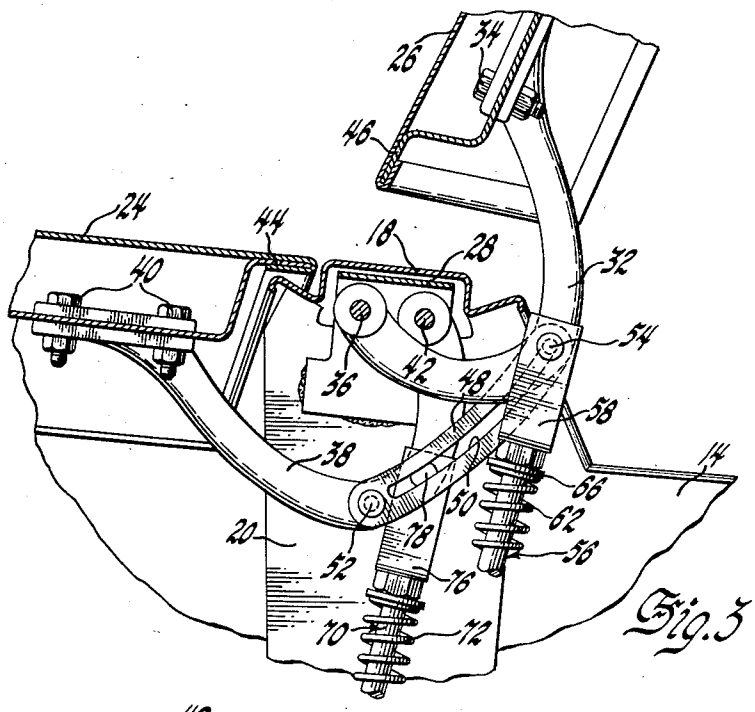


Fig. 3

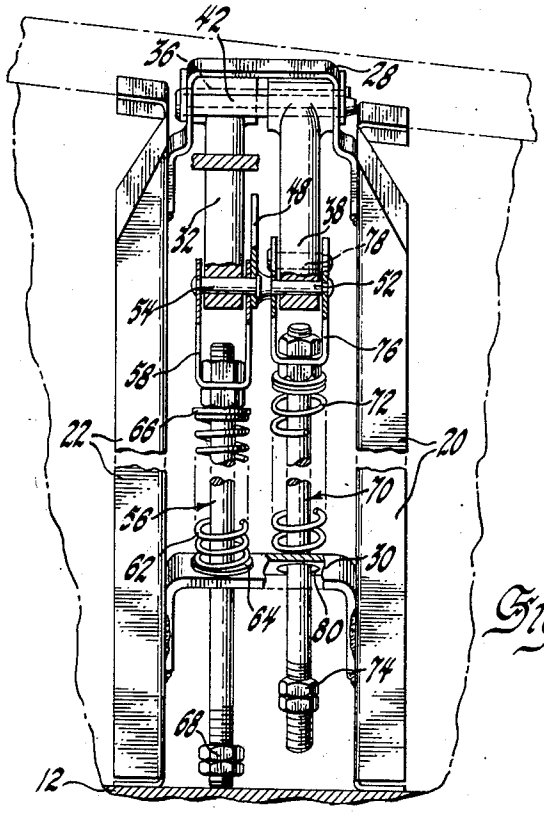


Fig. 4

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DUAL CLOSURE INTERLOCK FOR VEHICLE LUGGAGE AND FOLDABLE-TOP STOWAGE-COMPARTMENTS

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3 Claims. (Cl. 296—76)

This invention relates to dual closures of the type that open towards each other and more particularly to an interlocking arrangement for preventing the opening of either closure while the other is open to eliminate interference therebetween.

The invention is particularly applicable to a convertible automobile construction wherein the stowage compartment for the foldable top is provided with a closure that is hinged from the same frame member as the closure of the luggage compartment. It is desirable that the spacing between the closures or deck lids be as narrow as possible so that fullest access to the compartments may be had. Reductions in the spacing eventually results in a condition wherein the adjacent edges of the deck lids collide with each other if both lids are opened. Such interference between the deck lids is undesirable as it is apt to be damaging thereto.

An object of the invention is to provide a dual closure arrangement of the forenoted or similar type with a simple means whereby damaging interference between the dual closures, as occasioned by an attempt to open both closures, is prevented by an interconnection between the closures that prevents the opening of either closure when the other closure is open.

A further object of the invention is to incorporate the interlocking arrangement in dual closures of the type that are spring loaded to open position as such closures are especially susceptible to damaging collisions therebetween.

The objects of the invention are accomplished in the embodiment shown herein by interconnecting the hinge arms of the closures with a lost motion connection that may take the form of a link pivoted to one arm and having a slot therein to receive a pin carried by the other arm.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred form of the present invention is clearly shown.

In the drawings:

Fig. 1 is a side elevation, partially broken away, of the rear portion of a convertible automobile incorporating the invention;

Fig. 2 is an enlarged view of the broken away portion of Fig. 1 and comprises a longitudinal section through the deck lids at one of the side hinges thereof with the lids in closed position;

Fig. 3 is a view similar to Fig. 2 but with the rear deck lid in open position; and

Fig. 4 is a rear elevation, partially broken away, of one of the side hinges taken substantially on the plane indicated by the line 4—4 of Fig. 2.

Referring now to the drawings, the automobile is provided with a rear compartment **10** that includes a floor **12**, side walls **14**, a front wall **16**, a transverse deck strip **18** between the side walls **14**, two sets of vertical uprights **20** and **22** connecting the floor **12** and deck strip

18 and a pair of deck lids **24** and **26**, each hinged at either side to the uprights **20** and **22**.

The rear deck lid **26** provides access to the rearward portion of the compartment **10** for the storage of luggage therein while the forward deck lid **24** provides entry to the forward portion of the compartment **10** for the stowage of the collapsible top (not shown) of the vehicle. A plastic bag or the like may be suitably suspended in the forward portion of the compartment **10** for the reception of the top, if desired. The hinging arrangements on either side of the vehicle are alike so only one hinging arrangement is shown.

The vertical uprights **20** and **22** are joined at their upper and lower ends by brackets **28** and **30** welded therebetween. The bracket **28** provides the fixed support for the hinging of the deck lids while the bracket **30** provides the fixed reaction member for the spring biasing means of the deck lids.

A U-shaped hinge arm **32** is secured to the rear deck lid **26** by bolts **34** and pivotally mounted on the clevis bracket **28** by a cross pin **36**. A similar U-shaped hinge arm **38** is secured to the front deck lid **24** by bolts **40** and is pivotally mounted on the clevis bracket **28** by a cross pin **42**. The deck lids open towards each other and their adjacent edges **44** and **46** are so close to each other as to render the full opening of both deck lids at the same time impossible because of interference between their adjacent edges, as is readily apparent from a consideration of Fig. 3. The deck lids are therefore provided with a lost motion interconnection between them that prevents either deck lid from being opened when the other deck lid is in open position.

The lost motion connection comprises an arcuate link **48** having an arcuate slot **50** therein and pivotally mounted to the front deck lid hinge arm **38** by a pintle which rides in the slot **50** between the opposite ends **52**. The rear deck lid hinge arm **32** carries a pin **54** thereof. The relative swing between the deck lids is determined by the length of the slot **50** in the interconnecting link **48**, as is apparent from a consideration of Figs. 2 and 3. The pin **54** moves from one end of the slot **50** to the other end of the slot when either of the lids is opened with the other lid closed and opening of one deck lid while the other deck lid is open is thus prevented.

The lost motion connection is obviously such that both lids could be partially opened at the same time and such that a forceful opening of one lid while the other lid was open would result in a closing of the other lid. Such occurrences do not happen in ordinary operation of the lids as the lids are spring biased in open position by means to be described. It should be realized, however, that the lost motion connection between the lids absolutely prevents their interference or collision with each other regardless of the manner in which the lids are operated.

The deck lids would be unbalanced due to their hinging at one end were some form of counterweight arrangement not provided. The counterweight arrangement for the rear deck lid **26** comprises a toggle arm **56** having a clevis **58** at one end thereof that is pivotally secured to the hinge arm **32** by the pin **54**. The other end of the toggle arm **56** passes through a bore **60** in the bracket **30**. The bore **60** is of sufficiently greater diameter than the rod end of the toggle arm **56** so that the arm may both pivot and reciprocate therein. A compressed coil spring **62** reacts between a washer **64** on the bracket **30** and a washer **66** at the clevis end of the toggle arm **56** to urge the rear deck lid **26** to open position. The line of action of spring **62** moves away from the pivot **36** as the rear deck lid opens whereby the effective force of the

spring increases as its compression decreases and thus insures adequate opening bias of the deck lid in all positions. It is desirable that the rear deck lid be lightly urged towards open position on the unlatching thereof and for this reason the pivotal connection **54** is so located as to place the line of action of the spring **62** rearward of the pivot **36** in both open and closed positions of the deck lid. The lower end of the toggle arm is provided with adjustable nuts **68** which engage the underside of the bracket **30** to limit the opening movement of the lid.

The front deck lid **24** is provided with a counterbalancing means similar to that of the rear deck lid which comprises a toggle arm **70**, a spring **72** and adjustment nuts **74**. The clevis **76** of the front toggle **70** is pivotally secured to the front hinge arm **38** by a pin **78** while the lower end of the toggle is received in the bracket **30** for slidable rocking movement by an oversize bore **80**. It is desirable that the front deck lid **24** be lightly urged closed while in, or next to, closed position so the line of action of spring **72** is directed slightly rearward of the pivot **42** with the deck lid in closed position. The line of action of spring **72** crosses the pivot **42**, to the front thereof, as the deck lid is opened so that the deck lid is urged to open position during the major portion of its travel.

While the preferred embodiment of the invention has been described fully in order to explain the principles of the invention, it is to be understood that modifications of structure may be made by the exercise of skill in the art within the scope of the invention which is not to be regarded as limited by the detailed description of the preferred embodiment.

I claim:

1. An anti-collision device for dual closures comprising a closure support, a first closure, a first hinge connecting said first closure to said closure support for swinging movement from closed to open position, a second closure, a second hinge connecting said second closure to said closure support for swinging movement from closed to open position, said closures being hinged at adjacent edges so as to swing towards each other with a sufficient range of swinging movement at their hinges as to collide with each other when both are swung to full open position, and means to prevent such collisions comprising a lost motion connection between the closures including a link

pivoted to said first closure hinge, and a slidable connection between said link and said second closure hinge, said lost motion connection having a lesser range of movement than said range of movement at said hinges so as to prevent either closure from being swung open with the other closure in full open position.

2. A deck lid construction for the rear compartment of an automobile comprising supporting structure located between the front and rear of the compartment, a forward deck lid hinged at its rearward edge to said supporting structure so as to render the front portion of said compartment available for the stowage of a collapsible top, a rearward deck lid hinged at its forward edge to said supporting structure so as to render the rear portion of the compartment accessible for the reception of luggage and the like, and a link pivoted to one of said lids and slidably connected to the other of said lids for a predetermined range of movement.

3. A deck lid construction for the rear compartment of an automobile comprising supporting structure located between the front and rear of the compartment, a forward deck lid hinged at its rearward edge to said supporting structure so as to render the front portion of said compartment available for the stowage of a collapsible top, a rearward deck lid hinged at its forward edge to said supporting structure so as to render the rear portion of the compartment accessible for the reception of luggage and the like, and means interconnecting said lids for preventing the opening of either lid while the other is in open position to prevent collisions therebetween comprising a link pivoted to one of said lids and slidably connected to the other of said lids for a predetermined range of movement.

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