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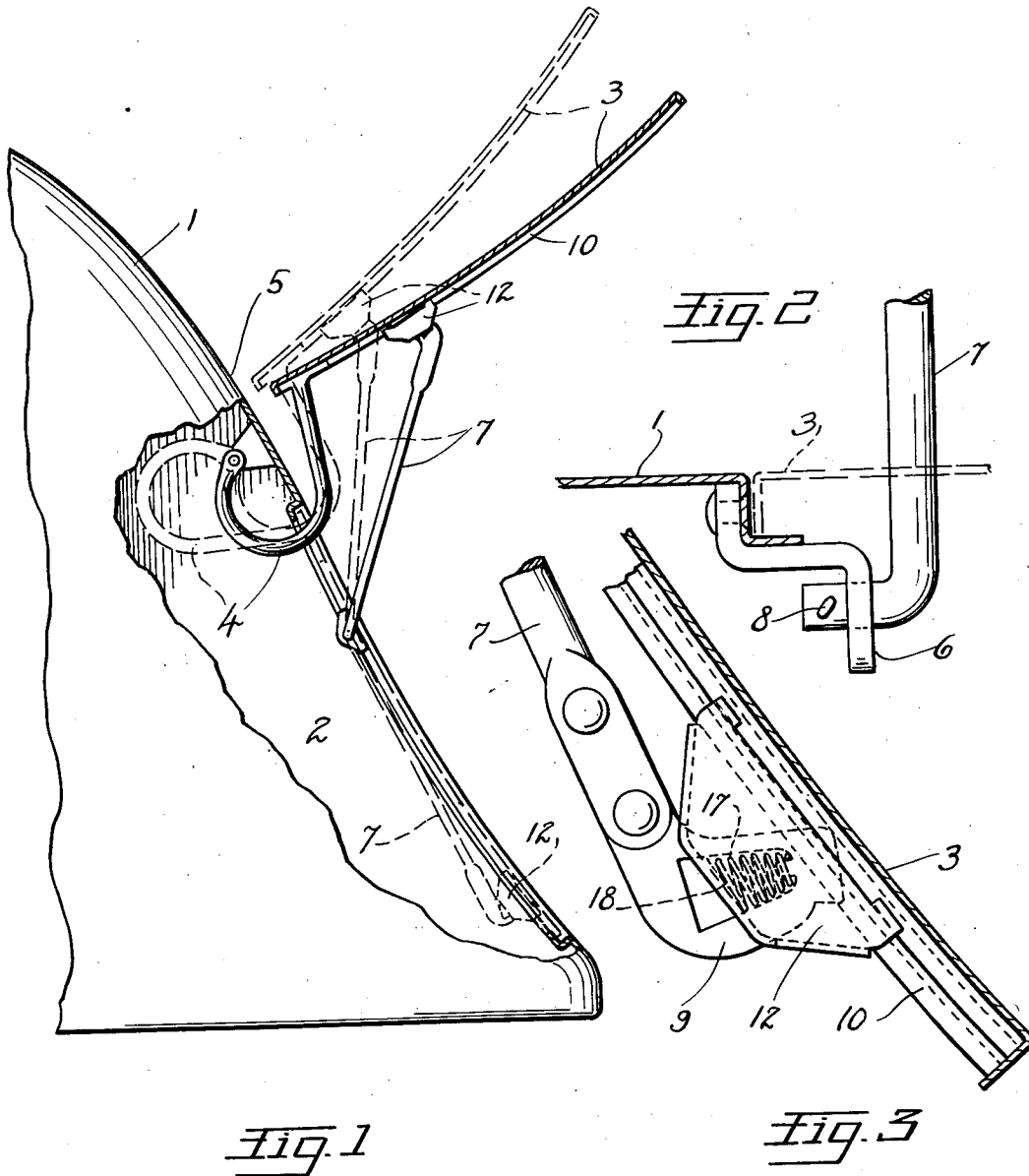
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DECK LID SUPPORT

Filed Aug. 3, 1934

2 Sheets-Sheet 1



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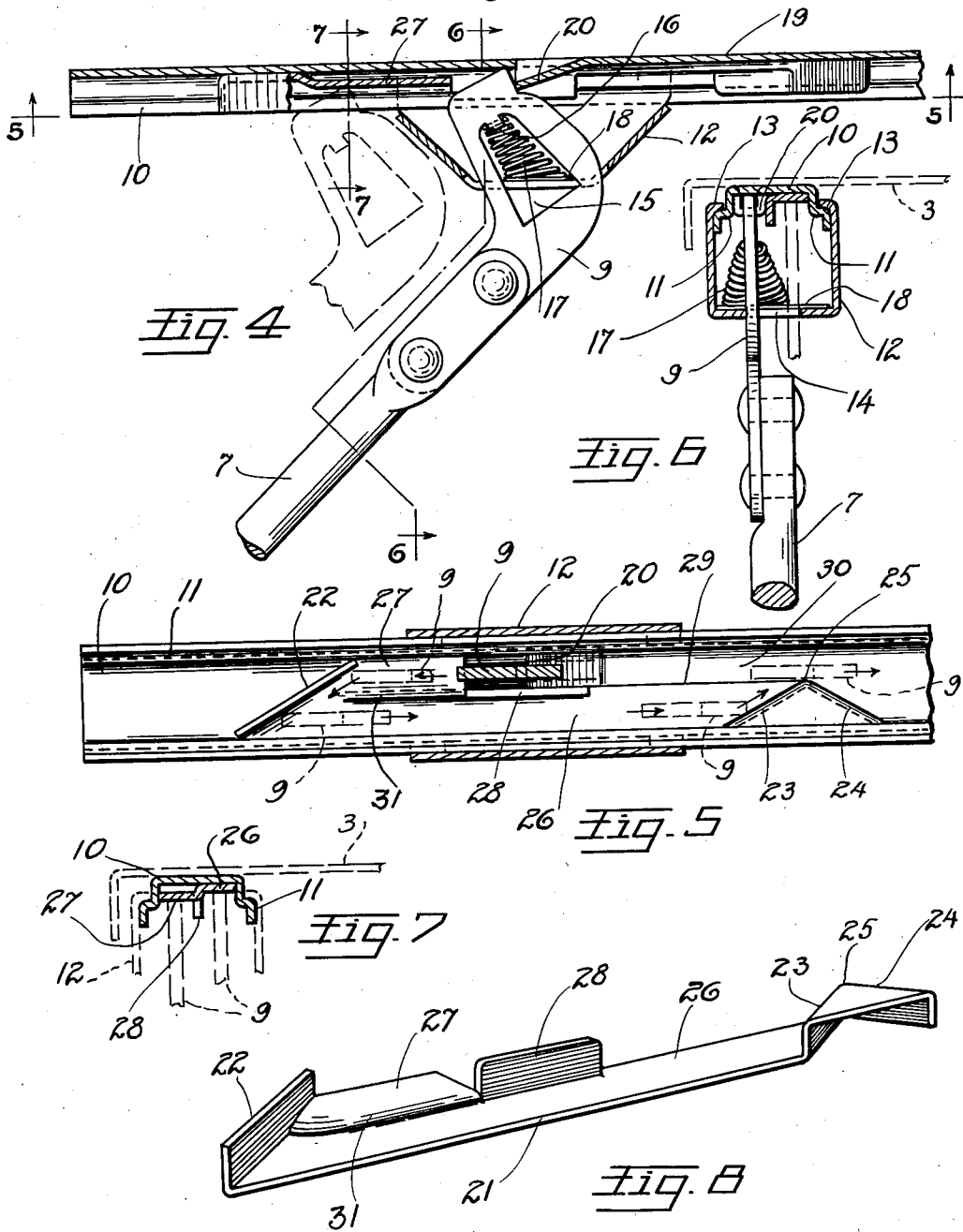
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UNITED STATES PATENT OFFICE

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DECK LID SUPPORT

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11 Claims. (Cl. 217—60)

This invention relates to a lid support and more particularly to a support for an automobile trunk lid or rear deck lid.

In a case of heavy lids such as the rear deck lid or the trunk lid of an automobile, two supports are usually required. If these supports must be individually, manually released to permit lowering of the lid, then the lowering of the lid is usually difficult. This invention contemplates a lid support which releases automatically upon raising the lid slightly beyond its raised supported position.

Another object of this invention is the production of an automatically releasable deck lid support which is simple in structure, efficient and certain in operation, and rattleproof.

In the drawings:

Fig. 1 is a fragmentary side elevation partly in section showing in the full lines a rear deck lid in supported raised position and in the dotted lines the raised position of the lid to effect automatic releasing of the support and also the closed position of the lid and support.

Fig. 2 is a detail showing the hinged mounting of the support.

Fig. 3 is a detail of the dogging end of the prop.

Fig. 4 is a sectional view showing the dogging end of the prop in lid supporting position.

Fig. 5 is a section along the line 5—5 of Fig. 4 with a dotted line showing of the various positions of the dog in the lid supporting position of the prop and during the automatic releasing of the prop.

Fig. 6 is a section along the line 6—6 of Fig. 4.

Fig. 7 is a section along the line 7—7 of Fig. 4.

Fig. 8 is a perspective detail of the dog switching cam insert.

Referring more particularly to the drawings there is shown at 1 the rear deck of an automobile body. This rear deck encloses a storage compartment 2 into which access may be had through a suitable opening arranged to be closed by the swinging deck lid 3. The swinging deck lid 3 may be mounted from the underside upon a pair of brackets 4 (only one of which is shown) which are pivotally mounted inside the storage compartment 2 to the deck 1 as at 5.

This invention concerns an automatically releasable support for supporting the lid such as the lid 3. To this end the deck 1 has riveted or otherwise secured thereto a bracket 6. A prop 7, preferably in the form of a rigid rod, is pivotally mounted at one end upon the bracket 6 and retained in position by any suitable means such as

the cotter key 8. The other end of the prop 7 is arranged to dog the lid in raised position. This may be accomplished by riveting to the other end of the rod 7 a dogging member 9 which is arranged to travel up and down a suitable track 10 mounted on the underside of the lid 3. The track 10 as herein shown takes the form of a channel, the side walls of which have an offset portion 11.

Since this invention contemplates retaining 10 the prop member at all times operatively connected to the track member, to this end the track member has slidably mounted thereon a slide 12. The slide 12 is provided along each side with a pair of inwardly turned lugs 13 which engage the 15 offset portions 11 of the side walls of the track 10 thus slidably retaining the slide 12 on the track 10.

The slide 12 is also provided with an opening 14 through which the dog 9 passes. The dog 9 20 is provided with an opening 15 having a depending teat 16. A helical coil spring 17 is mounted within the opening 15 of the dog 9. One end of the helical coil spring is mounted over the teat 16 and the other end is supported upon a bridge 25 piece 18 which extends across the opening 14 in the slide 12 and through the opening 15 in the dog 9. This helical coil spring 17 yieldably retains the dog 9 in engagement with the bottom 19 of the track 10 and permits the dog 9 to shift 30 back and forth across the track 10. The coil spring 17 also retains the lugs 13 of the slide 12 in yieldable engagement with the offset portions 11 of the track walls. This construction of the slide and dog member, due to the above- 35 mentioned functioning of the coil spring 17, at all times holds the dog and slide member in yieldable non-rattling relation with the track. The coil spring also serves the further function of throwing the dog into dogging relation with 40 its keeper as will now be explained.

A keeper 20 for the dog 9 is struck out of the bottom wall 19 of the track 10 adjacent its upper end. This keeper 20 has an inclined face up which the dog 9 rides and terminates in a shoulder 45 which the dog engages to hold the lid in dogged raised position. The keeper 20, as shown in Figs. 5 and 6, extends a little less than half way across the track 10.

Since upon raising the lid it is essential that 50 the dog 9 be required to travel up the inclined face of the keeper 20, and since upon closing the lid it is essential that the dog be disengaged from the keeper 20, to this end a switching arrangement is provided. This switching arrange- 55

ment, by way of example, may take the form of a separate insert 21 for the track member 10 or may be made integral therewith. The switching insert comprises a cam member 22 which extends obliquely across the track 10 to the rear of the keeper 20 and inclined cam faces 23 and 24 positioned ahead of the keeper member 20. The cam faces 23 and 24 form two sides of an angle extending from the side wall of the track 10 opposite the keeper 20 inwardly and across the bottom of the track 10 having their apex 25 spaced from the opposite wall of the channel a distance about equal to the width of the keeper 20.

The insert 21 has a flat track portion 26 which extends fore and aft of the channel 10 to one side of the keeper 20, which track 26 may be termed the "lowering" trackway. The insert member 21 also has a raised portion 27 positioned aft of the keeper 20 and a turned up flange 28 extending forwardly from the raised portion 27 along one side of the keeper 20 to serve as a guide for guiding the dog 9 up the inclined face of the keeper and retaining it in engagement with the keeper shoulder. Since the insert 21 is positioned in the channel track 10, the edge 29, Fig. 5, of the lowering trackway portion 26, which extends forwardly of the keeper 20, serves as a guide rail for keeping the dog 9 to one side, or in the raising trackway, of the track 10 as the lid is raised. Hence, the raising trackway portion may be considered as that portion 30 of the bottom of the track 10 extending to one side and along the lowering track member 26, inclined face of the keeper 20 and the raised portion 27 of the insert 21. Now, it will be noted that the switching cam 22 extends obliquely across both the raising and incoming trackways whereas the cam 23 extends only across the lowering trackway 26 and the cam 24 extends from a side wall of the track 10 to the raising trackway 30.

The operation of the lid support is as follows: When the lid is in closed position, as shown in the dotted lines, Fig. 1, and the full lines, Fig. 3, the support rod 7 is positioned along the inner face of the lid with the dogging end 9 and slide 12 adjacent the bottom end of the track 10. Upon raising the lid the rod 7 pivots upon the bracket 6 and the slide member 12 slides along the track 10 with the lower toward the top end. Upon traveling from the lower toward the top end of the track 10 the dog 9, if not already along the raising trackway side of the track 10, engages the cam switch 24 which throws the dog over into the raising trackway 30. The edge 29 of the insert member 21 retains the dog 9 in the raising trackway 30. When the dog 9 reaches the keeper 20, it rides up the inclined face and finally is thrown into dogging engagement with the shoulder of the keeper 20 by the coil spring 17. At this time the lid is in supported raised position shown in the full lines, Fig. 1.

To lower the lid, the lid is first raised slightly above its supported raised position to a position indicated by the dotted lines, Fig. 1. This causes the dog 9 to move along the raised portion 27 of the insert 21 as indicated by the arrows until it engages the switch cam 22. The switch cam 22 switches the dog from the raising trackway to the lowering trackway 26. The lid may now be lowered. At this time the dog travels along the lowering trackway 26 as indicated by the arrows. After being switched from the raising trackway 27 on to the lowering trackway 26 to

the rear of the keeper 20, the dog 9 is thereafter prevented from returning to the raising trackway until it reaches a position ahead of the keeper 20 by the ridge 31 at the junction of the raised portion 27 and the track 26 and by the guide member 28. As the dog travels along the lowering trackway 26, it engages the switch cam face 23 which, as indicated by the arrows, throws the dog across the track toward the raising trackway and off the lowering track 26 whereupon the dog travels downwardly toward the lower end of the track 10 to its original position shown in Figs. 1 and 3.

From the above description it will be noted that the connection between the dog and the track is a floating connection permitting the dog to be shifted back and forth across the trackway to effect the automatic release as above-described.

I claim:

1. In combination with a support member and a lid member mounted on the support and arranged to be raised and lowered, a prop swingably mounted on one of said members, a track on the other of said members having a raising trackway and a lowering trackway, a keeper in said raising trackway adjacent the end of said raising trackway arranged to be engaged by said prop when the lid is raised, and switch means extending across the end of the raising trackway and across the beginning of the lowering trackway arranged to be engaged by said prop upon further raising of said lid to positively switch the prop out of engagement with the keeper and from the raising trackway directly into the lowering trackway to permit lowering of the lid.

2. In combination with a support member and a lid member mounted thereon and arranged to be raised and lowered, a prop pivotally mounted at one end on one of said members for up and down and lateral movement, a track on the other of said members having a raising trackway and a lowering trackway, means operatively connecting the other end of the prop with the trackway, a keeper in said raising trackway adjacent the end of said raising trackway arranged to be engaged by the said prop when the lid is raised to support the said lid, and switch means extending across the end of the raising trackway and across the beginning of the lowering trackway arranged to be engaged by said prop by the said prop upon further raising of said lid to positively switch the prop laterally out of engagement with the keeper and from the raising trackway directly into the lowering trackway to permit lowering of said lid.

3. In combination with a support member and a lid member mounted thereon and arranged to be raised and lowered, a prop pivotally mounted at one end on one of said members for up and down and lateral movement, a track on the other of said members having a raising trackway and a lowering trackway, means operatively connecting the other end of the prop with the trackway to permit this end of the prop to travel along the said track, a keeper in the said raising track adjacent the end of said raising trackway arranged to be engaged by the said prop when the lid is raised whereby the prop supports the lid in raised position, and switch means extending across the end of the raising trackway and across the beginning of the lowering trackway arranged to be engaged by said prop operable upon further raising of the lid to positively switch the prop to one side of the keeper and into the lowering trackway to permit lowering of the said lid.

4. In combination with a support member and a lid member pivotally mounted thereon, a prop pivotally mounted at one end on one of said members, a track mounted on the other of said members having a raising trackway and a lowering trackway, the other end of the prop having a floating connection with the said trackway, a keeper positioned in the raising trackway arranged to be engaged by said prop when the lid is raised, and switch means positioned aft of the said keeper engageable by the other end of the prop upon further raising of said lid to switch the prop from the raising trackway to the lowering trackway to permit lowering of said lid.

5. In combination with a support member, a lid member pivotally mounted thereon, a prop pivotally mounted at one end on one of said members, a track on the other of said members having a raising trackway and a lowering trackway, the other end of the prop having a floating operative connection with the track, a keeper in said raising trackway arranged to be engaged by the said prop when the lid is raised, guide means positioned fore of the keeper for keeping the dogging end of the prop in the raising trackway as the lid is being raised, switch means aft of the said keeper for switching the dogging end of the prop from the raising into the lowering trackway, and guide means positioned aft of the said keeper to maintain the dogging end of the prop in the lowering trackway during the lowering of the lid.

6. In combination with a support member, a lid member pivotally mounted thereon, a prop pivotally mounted at one end on one of said members, a track on the other of said members having a raising trackway and a lowering trackway, the other end of the prop having a floating operative connection with the track, a keeper in said raising trackway arranged to be engaged by the said prop when the lid is raised, guide means positioned fore of the keeper for keeping the said other end of the prop in the raising trackway as the lid is being raised, switch means fore of the said keeper for throwing the said other end of the prop into the raising trackway when the lid is raised, and switch means aft of the said keeper for switching the said other end of the prop from the raising into the lowering trackway, and guide means positioned aft of the said keeper to maintain the said other end of the prop in the lowering trackway during the lowering of the lid.

7. In combination with a support member, a lid member pivotally mounted thereon, a prop pivotally mounted at one end on one of said members, a track on the other of said members having a raising trackway and a lowering trackway, the other end of the prop having a floating operative connection with the trackway, a keeper in said raising trackway arranged to be engaged by the said prop when the lid is raised, guide means positioned fore of the keeper for keeping the said other end of the prop in the raising trackway as the lid is being raised, switch means fore of the said keeper for throwing the said other end of the prop into the raising trackway when the lid is raised, switch means aft of the said keeper for switching the said other end of the prop from the raising into the lowering trackway, and switch means positioned fore of the keeper in the lowering trackway for throwing the said other end of the prop from the lowering trackway into the raising trackway ahead of the said keeper, and guide means positioned aft of the said keeper to maintain the said other end of the prop in the lowering trackway during the lowering of the lid.

8. In combination with a support member and a lid member pivotally mounted thereon, a prop pivotally supported at one end on one of said members, a track on the other of said members having a raising trackway and a lowering trackway, a keeper in the said raising trackway, the other end of the prop being arranged to have a dogging engagement with the keeper when the lid is raised to supported position, a slide member slidably mounted on the said trackway for retaining the dogging end of the prop in traveling engagement with the track, the dogging end of the said prop having a yieldable connection with the said slide which permits the dogging end of the prop to float in the trackway, cam means extending across the track engageable by the dogging end of the prop upon further raising of the lid to switch the dogging end of the prop from the raising trackway to the lowering trackway to permit lowering of the lid.

9. The combination with a support member and a lid member pivotally mounted thereon, a prop pivotally mounted on one of said members and having the other end in the form of a dog for dogging engagement with the keeper, a track on the other of said members having a raising trackway and a lowering trackway, a keeper in the said raising trackway arranged to be engaged by the dogging end of the prop when the lid is raised to supported position, a slide member having a sliding interengagement with the said track member, resilient means for interconnecting the slide and the dogging end of the prop and for yieldably holding the dogging end of the prop in sliding engagement with the trackway, the said resilient means permitting the dogging end of the prop to float relative to the trackway, cam means extending part way across the track ahead of the said keeper for switching the dogging end of the prop on to the raising trackway, cam means extending across the raising and lowering trackways to the rear of the keeper for shifting the dogging end of the prop from the raising trackway to the lowering trackway when the lid is raised from supported position, and guide means fore of the said keeper for maintaining the dogging end of the prop in the raising trackway as it is being raised, and guide means to the rear of the keeper for keeping the dogging end of the prop in the lowering trackway as the lid is being lowered.

10. In combination with a support member and a lid member mounted on the support and arranged to be raised and lowered, a prop swingably mounted on one of said members, a track in the form of a channel with side walls on the other of said members, the said prop having a floating operative connection with the said track, a keeper mounted on the bottom of the said track for engaging the floating end of the prop when the lid is raised to maintain the lid in raised position, the said keeper extending part way across the bottom of the said channel track, and an insert member arranged to be mounted in the said trackway fore and aft of the said keeper, the said insert comprising a flat strip of metal having an upstanding portion extending obliquely across the channel to the rear of the keeper and a raised portion extending part way across the channel between the oblique cam and the keeper whereby when the lid is raised from supported position the prop is shifted by the oblique cam across the trackway to one side of the keeper and the raised portion of the insert serves as a guide for maintaining the prop to one side of the keeper as the

lid is lowered to prevent reengagement of the prop with the keeper.

11. In combination with a support member and a lid member mounted on the support and arranged to be raised and lowered, a prop swingably mounted on one of said members, a track in the form of a channel with side walls on the other of said members, the said prop having a floating operative connection with the said track, a keeper mounted on the bottom of the said track for engaging the floating end of the prop when the lid is raised to maintain the lid in raised position, the said keeper extending part way across the bottom of the said channel track, and an insert member arranged to be mounted in the said trackway fore and aft of the said keeper, the said insert comprising a flat strip of metal

having an upstanding portion extending obliquely across the channel to the rear of the keeper and a raised portion extending part way across the channel between the oblique cam and the keeper whereby when the lid is raised from supported position the prop is shifted by the oblique cam across the trackway to one side of the keeper and the raised portion of the insert serves as a guide for maintaining the prop to one side of the keeper as the lid is lowered to prevent reengagement of the prop with the keeper, and a second cam at the other end of the insert ahead of the keeper and to one side for shifting the end of the prop part way across the track upon lowering the lid so that it is again positioned ahead of and in line with the keeper.

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