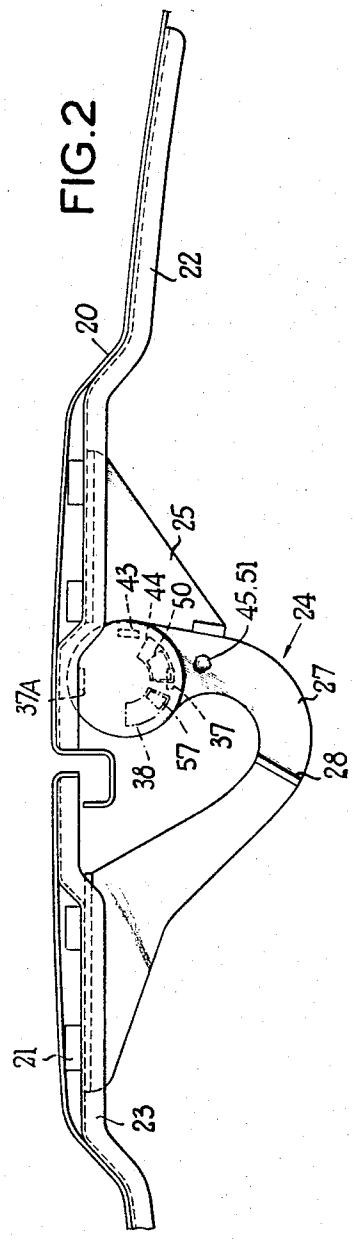
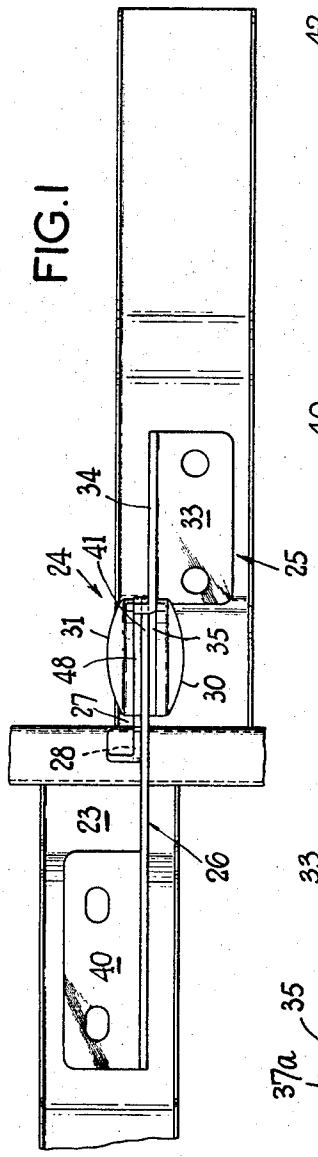
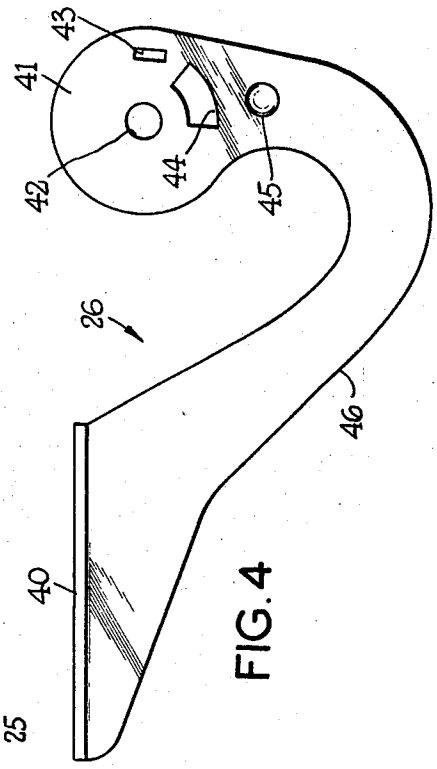
Nov. 26, 1968 C. A. SECKERSON 3,412,420

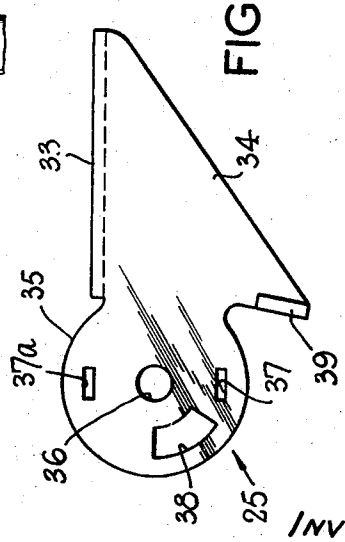
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Filed June 30, 1966 2 Sheets-Sheet 1









INVENTOR

CLIFFORD ALEXANDER SECKERSON,

BY Philip E. Parker

ATT'Y.

Nov. 26, 1968 C. A. SECKERSON 3,412,420

HINGES

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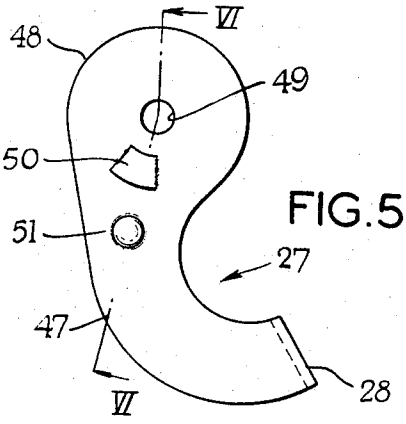


FIG.5

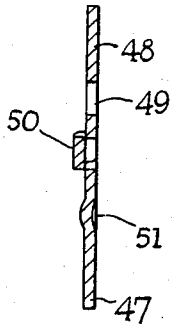


FIG.6

FIG.7

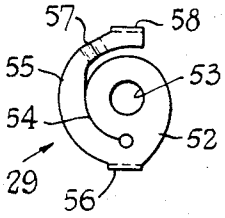


FIG.8

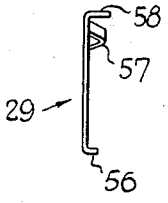


FIG.9

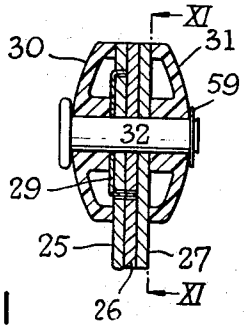


FIG.10

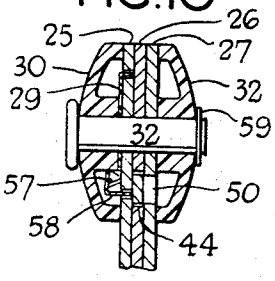
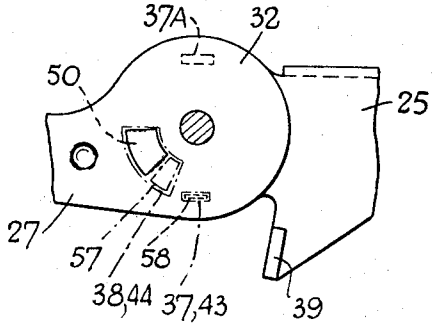


FIG.11



INVENTOR
CLIFFORD ALEXANDER SECKERSON,
BY Philip E. Parker
ATTY.

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HINGES

Clifford Alexander Seckerson, Iver Heath, England, assignor to United-Carr Incorporated, Boston, Mass., a corporation of Delaware

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Claims priority, application Great Britain, July 12, 1965, 29,379/65
7 Claims. (Cl. 16—146)

ABSTRACT OF THE DISCLOSURE

A hinge which can be locked in a predetermined position and manually released includes first and second overlying members which are pivoted together for relative movement. The first member carries a latch which normally rides on the overlying surface of the second member and the second member has an aperture for snap receipt of the latch when said members are in the predetermined position. The hinge also includes means for manually releasing the latch to permit further relative movement of the members.

The present invention relates to an improved hinge which can be locked in a predetermined position and manually released and which is particularly although not exclusively suitable for use on automobiles for the purpose of controlling the raising and lowering of the vehicle bonnet.

It is an object of the present invention to provide a hinge, particularly for use on a vehicle bonnet or boot lid, which can be locked in the raised position and manually released.

It is a further object of the present invention to provide a hinge which is self-locking in the open position and which, when manually released and closed will automatically reset itself for further opening and locking.

It is yet a further object of the invention to provide a hinge having the above described features and which is additionally cheap to manufacture and reliable in operation.

In accordance with the invention there is provided a hinge which can be locked in a predetermined position and manually released, the hinge comprising a first member and a second member pivoted together for relative movement and having adjacent overlying surfaces, the first member being provided with an associated catch and the second member being provided with an aperture in its said overlying surface adapted to receive the catch to lock the two members together in a predetermined position against relative movement and release means associated with the second member, the said release means being manually movable relative to the second member, thereby releasing the two members for further relative movement.

Further objects and advantages of the present invention will become apparent from the following particular description with reference to the accompanying drawings in which:

FIGURES 1 and 2 are respectively an underplan and elevation of a hinge assembled on a vehicle,

FIGURE 3 is an elevation of a bracket forming part of the hinge of FIGURES 1 and 2,

FIGURE 4 is an elevation of a movable arm forming part of the hinge of FIGURES 1 and 2,

FIGURE 5 is an elevation of a manually actuated lever forming a part of the hinge,

FIGURE 6 is a section on the line VI—VI of FIGURE 5,

FIGURES 7 and 8 are respectively a front and side elevation of a spring,

FIGURE 9 is an axial section through the hinge when in its locked open position,

FIGURE 10 is an axial section through the hinge when in its closed free position and

FIGURE 11 is a section taken on the line XI—XI of FIGURE 9 showing the hinge in the locked open position.

The hinge illustrated in FIGURES 1 and 2 is intended for use on a vehicle having one portion of its bonnet fixed and the other openable.

In FIGURES 1 and 2 the fixed part of the bonnet is shown at **20** and the movable, openable part at **21**. These two parts carry on their undersides U-section members **22** and **23** respectively to which the hinge of this invention is bolted.

The hinge according to the present invention is indicated generally in FIGURES 1 and 2 at **24** and comprises a first member in the form of a plate-like bracket **25**, which is bolted to the immovable section **22**, a second member in the form of a curved plate like arm **26**, which is bolted to the movable section **23**, manually actuated release means in the form of a lever **27** having an integral finger tag **28**, a catch **29** in the form of a resilient leaf spring, two resilient caps **30** and **31** and a headed pivot pin **32**.

The bracket **25**, which is shown in detail in FIGURE 3, comprises a flange **33**, which is attached to the section **22**, a body portion **34** and a disc-like portion **35** provided with a central aperture **36** adapted to receive the pivot pin **32**, a first hole **37**, a second arcuately shaped hole **38** and, diametrically opposite the hole **37** a locating aperture **37***a*. The body portion **34** is provided with a stop **39** which projects outwardly from a major face of the body portion in the opposite direction to the flange **33**.

The arm **26**, which is shown in detail in FIGURE 4, comprises a flange **40** which is attached to the section **23**, a curved portion **46** and a disc-like portion **41**. The disc-like portion **41** is provided with a central aperture **42**, adapted to receive the pivot pin **32**, a locking aperture **43** and an arcuately shaped slot **44**. Adjacent the disc-like portion **41** the curved portion **46** is formed with a dimple **45**.

The lever **27**, which is shown in FIGURES 5 and 6, comprises a curved portion **47** and a disc-like portion **48**. The disc-like portion **48** is formed with a central aperture **49** adapted to receive the pivot pin **32** and an arcuately shaped projecting cam **50** which is sheared and pressed from the disc-like portion **48** so as to project from one face thereof to a distance equal to or slightly less than the thickness of the disc-like portion **41** of the arm **26**. Adjacent the disc-like portion **48** the curved portion **47** is formed with a projection **51** which extends outwardly from the curved portion **47** in the opposite sense to the finger tag **28**.

The catch **29**, which is shown in FIGURES 7 and 8, is in the form of a leaf spring comprising a flat, approximately circular body portion **52** provided with a centrally located aperture **53**, which is adapted to receive the pivot pin **32**, and a curved resilient arm **55** which is partially sheared from the body portion **52** along the line **54**. The arm **55** is provided at its free end with a downwardly directed lug **58** and immediately adjacent the lug **58** with a fold which constitutes a projection **57** extending outwardly from the body portion **52** in the same sense as the lug **58**. On the opposite side of the body portion **52** there is provided a locating tag **56** which extends outwardly from the body portion in the same sense as the lug **58** and the projection **57**. Both the lug **58** and the projection **57** extend outwardly from body portion **52** to a distance which

is greater than the thickness of the disc-like portion 35 of the bracket 25 and the tag 56 extends outwardly from the body portion 52 to a distance which is less than the thickness of the portion 35.

The hinge 24 is assembled by holding the catch 29 against the disc-like portion 35 of the bracket 25 with the tag 56 and lug 58 located respectively in and through the apertures 37*a* and 37 and the projection 57 located in the aperture 38. The arm 26 and the lever 27 are then placed together with the projection 51 located in the dimple 45 and the cam 50 extending into the slot 44, and the arm 26 is brought up to and laid flat against the bracket 25 so as to bear against the stop 39, in which position the lug 58 of the catch is positioned over the cam 50 and the projection 57 rides on the surface of the bracket adjacent the arm so as to hold the lug 58 away from the bracket. Finally, the resilient caps 30 and 31 are placed against the outer surfaces of the catch 29 and the lever 27 and the parts are clamped tightly together with the aid of the pivot pin 32 and a washer 59, the tail end of the pin 32 being upset over the washer.

In the assembled position, which is described above and shown in FIGURES 1 and 10, the arm 26 is free to move away from the stop 39 on the bracket in a clockwise direction with reference to FIGURE 1. When the arm 26 is moved in this direction the lever 27, which is keyed to the arm 26 by the projection 51 and dimple 45, moves with the arm. Thus, the slot 44 in the arm 26 and the cam 50, which is located in the slot 44 rotate up to and across the projection 57 and at the same time the aperture 43 in the arm 26 approaches the lug 58. Further rotation of the arm relative to the bracket carries the cam 50 past the projection 57 and the aperture 43 into alignment with the lug 58, whereupon the projection 57 snaps down into the slot 44 behind the cam 50 and the lug 58 snaps down into the aperture 43 to lock the arm against further movement in either sense relative to the bracket. The locked position is illustrated in FIGURES 9 and 11.

In order to release the arm 26 for rotation in an anti-clockwise sense back to the position shown in FIGURE 1 the lever 27 is rotated manually in an anti-clockwise direction relative to the arm 26, thereby moving the cam 50 along the slot 44 and lifting the projection 57 out of the slot 44. As the projection 57 is lifted out of the slot 44 it carries the lug 58 out of the aperture 43, thereby releasing the arm 26 for return movement.

As the arm 26 is returned from the locked position to the position shown in FIGURE 1, the friction set up between the arm 26 and lever 27 by the resilient caps 30, 31 resists relative movement between the arm and the lever. The lever thus returns ahead of the arm 26 until it strikes the stop 39 whereupon it is held while the arm 26 is fully lowered and during further movement of the arm 26 towards the stop 39, the cam 50 is moved along the slot 44 into its original position, as shown in FIGURE 1, and finally the hinge is automatically reset with the lever keyed to the arm by the projection 51 and dimple 45.

It will be understood that, in the illustrated embodiment the locked position of the hinge 24 corresponds to the position in which the bonnet of the vehicle is fully open and the closed position, in which the arm 26 and lever 27 abut the stop 39 on the bracket, corresponds to the position in which the bonnet of the vehicle is fully closed.

A hinge 24 may be provided on one side only or on each side of the bonnet of a vehicle. Alternatively the hinge 24 may be provided on one side and a friction hinge, which does not lock in any position but which serves to prevent twisting of the bonnet occuring when the bonnet is raised and lowered, may be provided on the other side of the bonnet.

Further modifications may be made to the embodiment illustrated in the accompanying drawings without departing from the spirit and scope of the invention which is defined in the following claims.

What I claim is:

1. A hinge which can be locked in a predetermined position and manually released, the hinge comprising a first member and a second member pivoted together for relative movement and having adjacent overlying surfaces, the first member being provided with an associated catch in the form of a resilient leaf spring provided with a lug which projects towards and normally rides on the overlying surface of the second member and the second member being provided with an aperture in its said overlying surface adapted to receive the said lug to lock the two members together in a predetermined position against relative movement and release means associated with the second member, the lug being adapted to snap-engage into the aperture in the overlying surface of the second member when the two members are in the said predetermined position relative to one another and the said release means being manually movable relative to the second member to urge the catch out of the aperture in the second member, thereby releasing the two members for further relative movement.

2. A hinge as claimed in claim **1** in which the said release means associated with the second member comprises a third member which is pivoted on the opposite side of the second member to the first member for rotation about the same axis as the first and second members, the second member being provided with a slot spaced from the said aperture, the third member being provided with a projecting cam which extends into the slot in the second member and the third member being normally keyed to the second member in a first position and being normally movable from the first position into a second position in which the projecting cam acts upon the leaf spring to disengage the lug from the aperture in the second member thereby allowing the second member to move relative to the first member.

3. A hinge as claimed in claim **2**, in which the leaf spring is provided with a projection which extends towards the overlying surface of the second member and which is held away from the said surface when the lug on the leaf spring rides on the said surface and which drops into the said slot in the second member when the lug snap-engages into the said aperture in the second member, the third member being movable, relative to the second member, when the first and second members are locked against relative movement, from a position in which the cam is adjacent the projection to a position in which it has moved the projection out of engagement in the slot thereby lifting the lug out of engagement in the aperture in the second member and allowing the second member to move relative to the first member.

4. A hinge as claimed in claim **3** in which the leaf spring is attached on the opposite side of the first member to the second member, the first member is provided with first and second holes, the lug extends through the first hole in the first member and the projection extends through the second hole in the first member.

5. A hinge as claimed in claim **4**, in which the leaf spring, the first and second members and the third member are clamped together between two resilient caps.

6. A hinge as claimed in claim **5**, in which the first member is fixed and the second member is movable, the third member is normally keyed to the second member for movement with the second member relative to the first member and the third member is movable relative to the second member when the first and second members are in the locked position to release the second member.

7. A hinge comprising first and second plate like arms pivoted together for relative rotation with their adjacent major surfaces in sliding contact, a leaf spring permanently keyed to the first arm for movement therewith and having a catch extending through a first hole in the first arm so as to ride on the adjacent major surface of the second arm and a projection extending through a second hole in the first arm and held out of contact with the second arm when the catch rides on the adjacent surface of the second arm, and a release lever pivoted for rotation about the common pivotal axis of the two arms and lo-

cated in sliding contact on the outer major surface of the second arm, wherein the leaf spring, the two arms and the lever are resiliently clamped together, the second arm is provided with a slot and spaced from the slot an aperture, the lever is provided with a raised cam which projects into the slot and is normally keyed to the second arm to maintain the cam in a predetermined position in the slot and arrangement is such that when the lever is keyed to the second arm and the first arm is in one angular position relative to the second arm the catch on the leaf spring is aligned with and snap-engages into the aperture in the second arm so as to lock the two arms together and the projection on the leaf spring enters the slot in the second arm at a position adjacent the cam and the lever

is manually movable relative to the second arm when the arms are locked together by the catch in a direction such that the cam is moved along the slot to force the projection out of the slot thereby lifting the catch out of the aperture in the second arm and releasing the arms for relative pivotal movement.

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BOBBY R. GAY, *Primary Examiner.*