C. J. JOHNSON AND G. A. JACOBS.

HINGE.

APPLICATION FILED MAR. 1, 1920.

1,375,635. Patented Apr. 19, 1921.

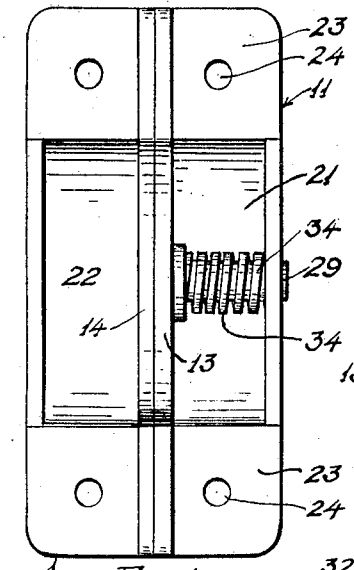


Fig-1.

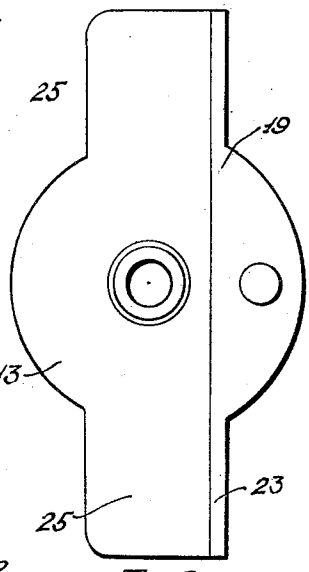


Fig-2.

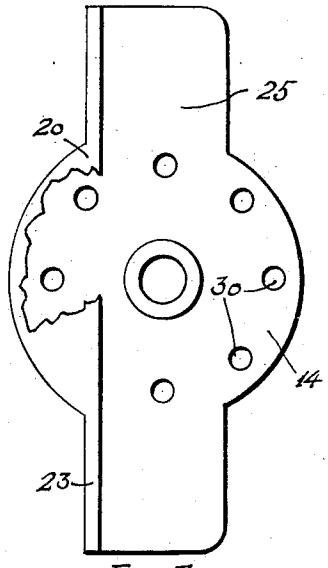


Fig-3.

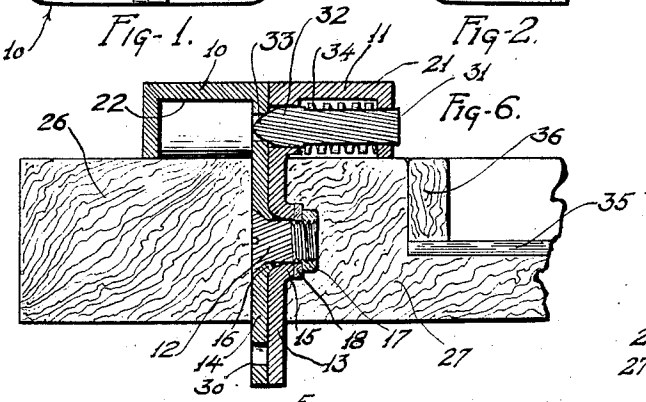


Fig-6.

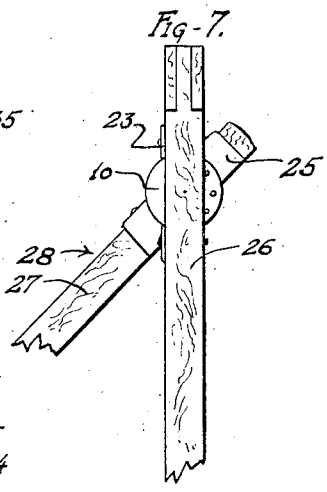


Fig-7.

Fig-4.

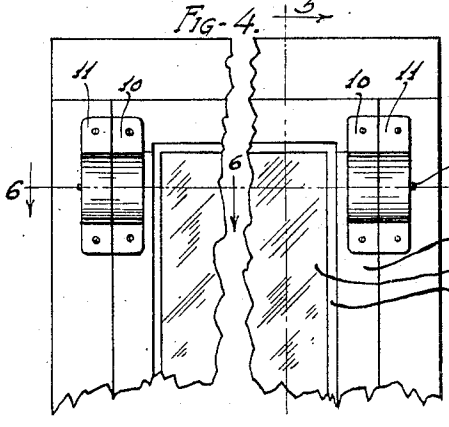
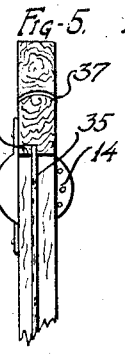


Fig-5.



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HINGE.

1,375,635. Specification of Letters Patent. **Patented Apr. 19, 1921.**

Application filed March 1, 1920. Serial No. 362,300.

To all whom it may concern:

Be it known that we, CLAES J. JOHNSON and GEORGE A. JACOBS, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hinges, of which the following is a specification.

Our invention relates to hinges and more specifically to an improved hinge providing pivotal connection between a stationary structure and a panel such as a wind shield, window, door or transom. It may also be employed for the tops of chests, phonograph covers and similar articles.

One object of our invention is to provide such a hinge requiring no castings whatever, the main frame pieces being constructed of stampings.

Another object is to provide a design in which wear will not loosen the parts or allow rattling.

Another object is to provide a hinge supporting the panel for pivotal movement around an axis approximately centrally located with respect to the thickness of the panel.

Another object is to so shape and arrange the parts that the hinge may be adaptable for use in all sorts of structures.

Further objects and advantages of our invention will become apparent as the description proceeds.

In the accompanying drawings Figure 1 is an elevation of the two halves comprising one of our improved hinges laid side by side in operative position. Fig. 2 is a view of the parts shown in Fig. 1 from the left and Fig. 3 a similar view of the same parts viewed from the right. Fig. 4 is a fragmentary view illustrating the use of a pair of such hinges to support a pivoted panel. Figs. 5 and 6 are sections on the lines 5—5 and 6—6, respectively, of Fig. 4, and Fig. 7 is an edge view of the parts illustrated in Fig. 4 with the panel swung partly open.

In the embodiment of our invention selected for illustration two stampings 10 and 11 are pivotally connected by a bolt or pintle 12. The pintle passes through circular portions 13 and 14 of the stampings, which have lips, as indicated in Fig. 6 at 15 and 16 providing bearing surface against the pintle 12 which is held in place by a suitable nut 17 threaded on the end of the pintle and engaging a washer 18. The circular portions 13 and 14 extend at right angles to the main, or fastening, portions 19 and 20 of the stampings, each of which main portions is deformed to provide segmental concavities 21 and 22 centrally located between longitudinally extending end portions 23 apertured as at 24 to accommodate wood screws or any other suitable attaching means.

These concavities not only strengthen and reinforce the stampings but one of them is also utilized as a housing for the locking mechanism, as more fully set forth hereinafter. We also prefer to extend the upper and lower sides of the circular portions 13 and 14 by end portions 25, which brace the circular portions 13 and 14 to the edges of the end portions 23 engaging the structure 26 to support the hinge or the adjacent side piece 27 of the pivoted panel 28, to support the panel, as the case may be, forming with the circular portions, facing portions of a length corresponding to that of the fastening portions.

The circular portion 14 has a plurality of holes 30 formed at suitable intervals in a circle around the pivotal axis. A bolt 29 is slidably mounted in the concavity 21 and comprises a cylindrical shank 31, an enlarged head portion 32, and a tapering nose 33 adapted to engage in one of the holes 30 in the circular portion 14 to resiliently lock the two parts of the hinge against rotation. A coil spring 34 confined between the outer wall of the concavity 21 and the shoulder at the base of the head 32 urges the bolt into the hole. It will be apparent that by properly designing the coil spring 34 and the taper of the bolt 29 the hinge may be arranged to require any desired amount of force to dislodge the bolt from the hole and allow the panel to be swung with respect to the supporting structure. Enlargement of the holes 30 by wear will not let the two parts rattle, as the bolt will merely slide a trifle farther into the hole.

In Fig. 6 the part 10 is mounted on the stationary structure 26 and the coöperating bolt carrying part 11 on the movable panel 28 which is illustrated as supporting a pane of glass 35 retained in place by a suitable cleat 36. It will be apparent that it is immaterial whether the bolt-carrying part is mounted on the fixed or on the movable member, and in Fig. 4 the parts 10 are shown mounted on the movable panel.

The circular portions 13 and 14 protrude equally on each side of the parts they are fastened to and the pivotal axis is therefore centrally located. The advantage of this type of construction will be apparent on reference to Fig. 5 showing the joint 37 between the fixed supporting structure and the movable panel cut with a curve so that water dripping down either side of the entire structure when the window is closed will not tend to pass through the crack and considerable resistance will be offered to wind forcing spray through the crack.

Another advantage of this construction is that the pivot is located where it is protected from dirt, without requiring a special housing for its protection.

The pivoted panel illustrated in Fig. 7 may be swung through about 330° of arc. A similar panel pivoted midway between its edges could be swung through an entire revolution into any desired position.

It will be seen that we have provided a relatively simple, compact and durable structure for the purposes above outlined. One of our improved hinges comprises only five main parts, the two stamped side pieces, the pivot, the locking bolt and the spring. Since the shape is such that either hinge member can be attached to any rectangular member, it will be seen that our improved hinge can be employed for general purposes.

A windshield mounted on a motor truck is subjected to probably more severe usage than similar devices used almost anywhere else. Our improved hinge may be readily made rugged enough for such service. At the same time it has a neat and attractive appearance.

While we have illustrated and described in detail a specific embodiment of our invention it should be clearly understood that the description is only for purposes of illustration and that many modifications and variations will naturally occur to those skilled in the art. We aim in the subjoined claims to cover all such legitimate variations and modifications.

We claim as our invention:

1. In a hinge, in combination, a fastening plate bulged out centrally to form a casing, a facing plate extending at a right angle to said fastening plate, said facing plate having an enlargement, a portion of which forms one wall of said casing.

2. A half hinge having, in combination, a plane portion positioned in abutment with the edge of a structural member and another portion extending partly in a plane at right angles to the first portion in abutment with the exposed face of the structural member, said last mentioned portion being bulged out to define a casing bounded by end walls lying substantially in planes parallel to the plane of the first portion and by a curved wall joining the edges of the end walls, said casing opening against the face of the structural element.

3. A hinge comprising two circular facing plates pivoted together at the center, casings extending outwardly from segmental portions of said plates at the sides thereof opposite to the meeting faces of said plates, and a spring actuated locking bolt mounted in one of said casings, the other circular plate having a plurality of holes adapted to receive said bolt.

4. A hinge having two parts, each part comprising a facing plate and a fastening plate at a right angle thereto, the facing plates being pivoted together and the fastening plates being bulged out to form concavities therein.

5. A hinge comprising two circular facing plates pivoted together at the center, casings extending outwardly from segmental portions of said plates at the sides thereof opposite to the meeting faces of said plates and fastening portions at both ends of each of said casings lying in planes at right angles to said facing plates.

6. A half hinge comprising a facing plate and a fastening plate at an angle thereto, the facing plate having an extension at one edge thereof, and the fastening plate being bulged out to form a housing one end of which is closed by said extension.

7. A half hinge comprising a facing plate and a fastening plate at an angle thereto, the fastening plate being bulged out between its ends to form a casing, and the facing plate having an extension at one edge thereof, between its ends, forming an end wall of said casing.

8. A hinge comprising a pair of sheet metal stampings, each having a facing portion and a fastening portion at an angle thereto, the facing portions being connected by a pivot and the fastening portions extending from the facing portions on the sides opposite to the meeting faces thereof.

In testimony whereof we have hereunto set our hands.

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GEO. A. JACOBS.