Aug. 8, 1950 C. F. KRAMER 2,518,152

VENTILATING WINDOW HINGE ARRANGEMENT

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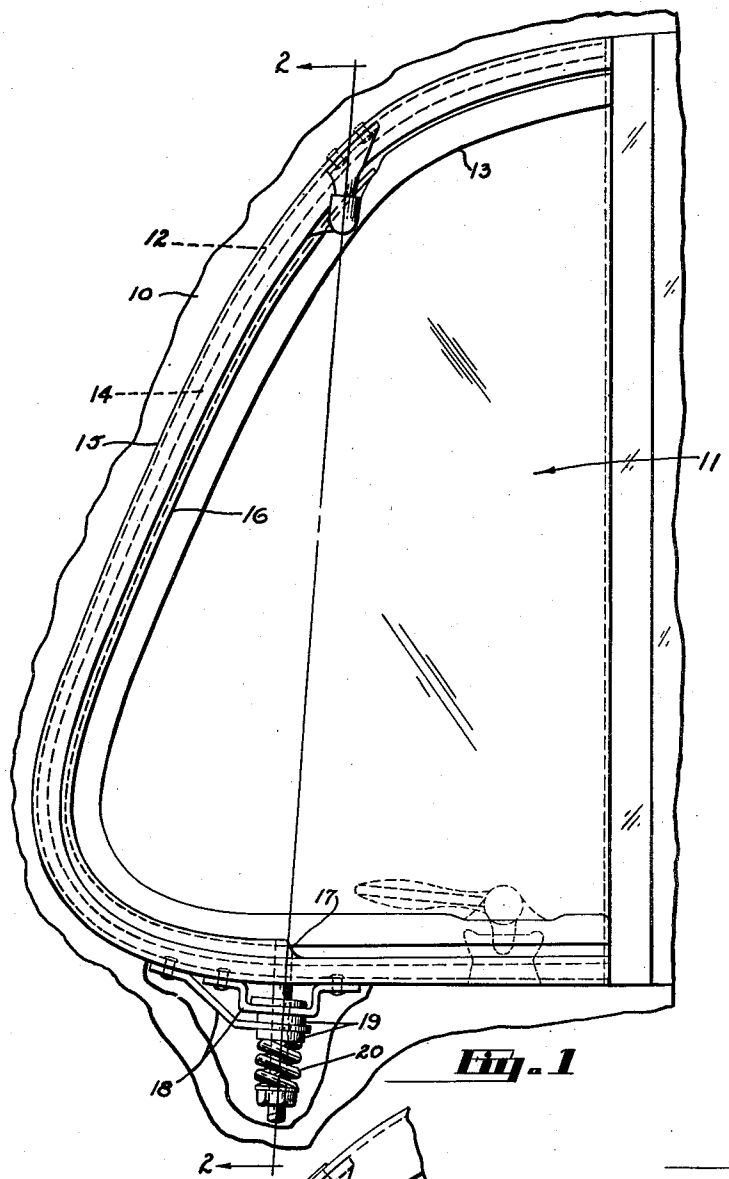


Fig. 1

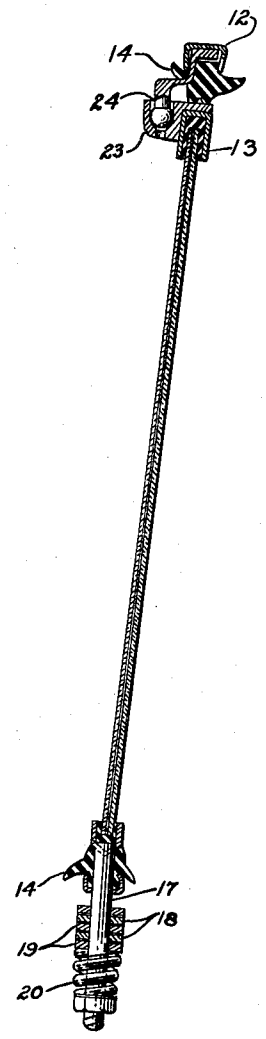


Fig. 2

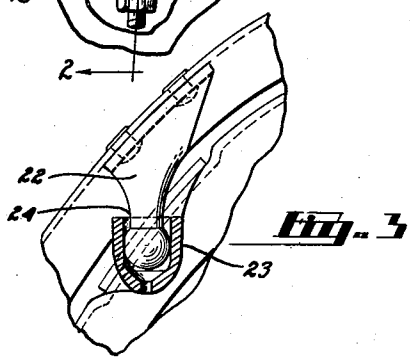


Fig. 3

C. F. KRAMER
INVENTOR.
BY C. C. McRae.
R. B. Harris.
J. R. Faulkner.
T. H. Oster.
ATTORNEYS.

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VENTILATING WINDOW HINGE ARRANGEMENT

Clarence F. Kramer, Birmingham, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

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1 Claim. (Cl. 296—44)

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This invention relates to pivotal hinges and particularly to hinges adaptable to vehicle ventilators.

Though machining practice and techniques have been greatly advanced in recent years, there still occurs slight variances even in mass production of parts. This is especially true in press steel stamping, since they must be repeatedly handled before final assembly, and may therefore be sprung out of the desired dimension. Thus two adjacent subassemblies may not, in final assembly, coincide perfectly. This is often the case in assembling automobile doors and ventilators. Many of the ventilators of the pivotal type must be forced to coincide with the rigid door frame. This places a strain on the present day hinges which usually comprise two angular offset pieces riveted together. The strain may merely increase the friction causing a greater load on the actuating mechanism or may decrease the life of either the hinge or actuating mechanism.

Therefore an object of this invention is to produce a novel hinge construction that will not bind even though one of the hinge members is not correctly aligned.

Another object of this invention is to produce a novel hinge construction of pivotal type.

Another object of this invention is to provide a hinge construction having a floating action between the stationary and movable parts.

With these and other objects in view, the invention consists in the arrangement, construction and combination of the various parts of the approved device, as described in the specification, claimed in the claim and illustrated in the accompanying drawings, in which:

Figure 1 is a fragmentary elevation of a vehicle door showing the ventilator installation.

Figure 2 is a sectional elevation of the ventilator taken on line 2—2.

Figure 3 is an enlarged view of hinge construction.

In the production of automobile bodies the ventilators inserted in the door frames must be inherently flexible so that they may be brought into coincidence with the door frames. The ventilator subassembly forms with the door frame a unitary structure that is wind- and watertight. This is brought about by attaching a flexible ventilator frame having fastened thereto a resilient seal of rubber or the like to the door. The ventilator frame is therefore juxtaposited to the exact contour of the door frame. However, since the contour of all door frames is not dimensionally perfect and the ventilator frame is forced to coincide, the hinge structure must therefore bear the displacement caused by variances in the doors. As mentioned above, present day hinges consist of two stampings that are formed so that when fastened to the respective hinged member, they present flat portions which are riveted to provide a pivot. This hinge structure, far from being yielding, has presented peculiar stress problems since the ventilator is assembled prior to its installation in the finished door.

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Now referring to Figure 1, 10 is the frame member of a vehicle door in which the ventilator assembly 11 is mounted. Ventilator assembly 11 comprises a mounting frame 12 and glass frame 13. Interposed between mounting frame 12 and glass frame 13 is a resilient seal 14 of rubber, or the like.

Seal 14 is fastened to mounting frame 12, has flap portion 15 completely concealing frame member 12. Seal 14 has also overlapping edges 16 contacting glass frame 13. A portion of the overlapping edge 16 is on one side of glass frame 13 and the other on the opposite side, the change occurring at the pivotal points, thereby allowing the axial pivot of glass frame 13 about the axis shown as the cutting line 2—2.

The glass frame 13 has rigidly attached thereto a lower hinge member 17 which is inserted thru mounting frame 12. The remainder of the hinge is composed of friction members 18, spacers 19, and spring 20. Friction members 18 are secured to the mounting frame. The glass frame 13 is fixed except for axial movement by spring 20 which also determines the amount of force required to pivot the frame.

The upper hinge 22 is a pivotal and slideable hinge and is made up of cylindrical cup 23 secured to glass frame and ball and shaft 24 which is secured to the mounting frame.

Referring to Figure 3, it is seen that considerable movement may be obtained in any direction and that the diameter of the shaft may be reduced to allow still greater movement. Thus within the limitation of the overlapping seals, mounting frame 12, a pressed steel stamping, may be deformed by compression, extension, or torsion to fit the door frame without imposing a force on the glass frame tending to change the axis.

It is possible to form a more resilient hinge of the type disclosed above by also providing the ball with a cap (not shown) of rubber or the like. In this manner the rubber cap or bushing would allow movement of sufficient scope to cope

with normal inaccuracy of parts and at the same time provide insulation against noise and prevent wear.

It is to be noticed that ventilators of the type disclosed have considerable spring loading on the lower hinge. It is readily seen, therefore, that the spring tensioning means will not yield whenever the mounting frame must be forced to fit a door frame.

Certain changes may be made in the construction disclosed without departing from the spirit of the invention and it is the intention to cover by the claim such variation as may be reasonably included therein.

The invention claimed is:

In a pivotal automobile window assembly comprising in combination a flexible mounting frame, a glass bearing frame, a resilient sealing strip attached to said flexible mounting frame, a lower and an upper oppositely spaced hinge member between said flexible mounting frame and said glass bearing frame whereby said glass bearing frame may be pivoted with respect to said flexible mounting frame, said lower hinge member fixed in a manner to prevent longitudinal movement between said flexible mounting frame and said glass bearing frame, said upper hinge member comprising an elongated cylindrical socket fixedly secured to said glass bearing frame and a ball member fixedly secured to said flexible mounting frame, said ball member extending in said cylindrical socket to a point intermediate the extremities of said cylindrical socket, said flexible mounting frame being freely adjustable for angular and longitudinal displacement within the length of said cylindrical socket.

CLARENCE F. KRAMER.

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