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(54) **A HINGE FOR PIVOT WINDOWS, IN PARTICULAR INCLINED ROOF WINDOWS.**

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Description

The present invention relates to a hinge device intended for use in tilting windows, especially windows installed in an inclined roof, and being of the type consisting of a first and a second hinge part having base plates adapted to be secured to the frame of the window and to its sash, respectively, and having guide means in the form of a part circular guide member situated on one hinge part and a slide member displaceable in the guide member and defining a tilting axis for sash movements near the closed position, the axis being outside the window thickness; the second hinge part being, in positions remoter from the closed position, pivotable with respect to the first hinge part on a hinge pin, which is carried by the slide member and is movable from a position within the window thickness to a position outside said thickness during movement of the sash away from the closed position by swinging around said tilting axis; the second hinge part further carrying a guide pin being positioned in such a manner that during the displacement, in the opening direction, of the slide member in the guide member of the first hinge part, the guide pin is displaced along a concave side wall of the guide member and is thus excluding any pivoting of the second hinge part on the hinge pin, until the guide pin is abreast of an opening in said side wall after maximum displacement of the slide member.

An example of such hinge devices is known from British Patent 1 028 251 (corresponding to Danish Patent 99 616) and various modifications thereof have been commercially available for a number of years. In all the known embodiments it applies, that the diameter of the guide pin corresponds to the free internal width of the guide member and in some cases the pin is, beyond its guiding action, used for performing a braking action during the displacement in the guide member, the purpose of this being that the window sash may be kept by friction in any position, until the slide member is displaced to the maximum in the opening direction. With a view to the breaking action it is known to incorporate a blade spring or a spring segment which in un-stressed condition is standing somewhat out with respect to the concave side of the guide member and thus is urging the guide pin into sliding abutment with not only the spring but also the convex side of the guide member. By correctly dimensioning and adjusting the spring a desired braking friction may be assured from the outset, but this friction may be subject to change due to wear and lacking maintanance so that at least under adverse conditions the hinge device will not be functioning to full satisfaction in the long run. Particularly, there can be generated wear on the convex side wall of the guide member and on the adjacent side of the guide pin.

The hinge device according to the invention differs from the prior art devises by that the slide member at its end opposite the hinge pin has a section with reduced width or a nose against which the guide pin is abutting during displacement of the slide member.

Due to this measure there is no change in the guiding action of the guide pin, but the wear on the pin and on the convex side wall of the guide member is considerably reduced because the slide member acts as a shoe between the pin and the side wall which accordingly is not subjected to a greatly localized abutment pressure from the pin.

Particular embodiments of the invention are set out in dependent claim 2.

An embodiment of the hinge device according to the invention is illustrated on the drawing, the hinge part belonging to the window sash being shown in dashed lines after maximum displacement of the slide member in the opening direction and in dash and dot lines after further pivoting.

The hinge part 1 belonging to the window frame includes a base plate 2 with holes 3 for mountening screws and with raised walls 4 and 5 constituting the above mentioned part circular guide member or guide channel 6. In this channel 6 there is a correspondingly curved slide member 7 illustrated after its maximum displacement in the opening direction. A pin 8 located in the slide member is in the mentioned position abutting againt the edge 9 of a not shown bridge covering the lowest end of the guide channel 6.

The other hinge part 10 belonging to the sash likewise includes a base plate 11 with holes 12 for mountening screws, and this base plate is through a pivot 13 connected with the part of the slide member 7 that lies outside guide channel 6. The base plate carries a fixed cam 14 which for the sake of clarity has been omitted in the intermediate position of the sash part 10 shown in dashed lines. A convex rear edge 15 of the cam slides along a concave portion 16 of the front edge of the hinge part 1 during the backwards displacement of the slide member in the guide channel 6. This front edge portion 16 continues into a straight section 17 which after initiated turning of the sash part 10 away from the intermediate position shown in dashed line is functioning as an abutment for the downwards facing end of cam 14, which thus prevents a backwards displacement of the slide member 7 until the sash part has been returned into the intermediate position.

A guide pin 18 fixed on the base plate 11 of the frame part 10 prevents any turning of this base plate on the pivot 13 until the stop pin 8 has been brought into abutment with the bridge edge 9. In this situation the guide pin 18 is abreast of a side opening 19 in the concave side wall 5 of guide channel 6 so that the pin 18 now allows the further turning of the sash in the opening direction.

When the guide pin 18 is situated in the guide channel 6 it is in resilient abutment with both the concave wall 5 and a nose-like end 20 of the slide mem-

ber 7, this being held onto the convex side wall 4 of the guide channel with an appropriate pressure. In the illustrated embodiment it is considered that the guide pin 18 proper is transversly resilient, because it is composed of a carrier member and one or two oval or half-oval blade springs; however, the resilient abutment may be effected by that a blade spring or a spring segment in known manner is incorporated in the wall 6 of the guide channel, which spring urges the guide pin 18 against the nose 20 with the effect that also in this case the slide member functions as a brake shoe interacting with the wall 4 of the guide channel.

Claims

1. A hinge device intended for use in tilting windows, especially windows installed in an inclined roof, and consisting of a first and a second hinge part (1,10) having base plates (2,11) adapted to be secured to the frame of the window and to its sash, respectively, and having guide means in the form of a part circular guide member (6) situated on one hinge part and a slide member (7) displaceable in the guide member and defining a tilting axis for sash movements near the closed position, the axis being outside the window thickness; the second hinge part (10) being, in positions remoter from the closed position, pivotable with respect to the first hinge part (1) on a hinge pin (13), which is carried by the slide member (7) and is movable from a position within the window thickness to a position outside said thickness during movement of the sash away from the closed position by swinging around said tilting axis; the second hinge part (10) further carrying a guide pin (18) being positioned in such a manner that during the displacement, in the opening direction, of the slide member in the guide member (6) of the first hinge part, the guide pin is displaced along a concave side wall (5) of the guide member and is thus excluding any pivoting of the second hinge part on the hinge pin (13), until the guide pin is abreast of an opening (19) in said side wall after maximum displacement of the slide member, characterized in that the slide member (7) at its end opposite the hinge pin (13) has a section with reduced width or a nose (20) against which the guide pin (18) is abutting during displacement of the slide member.

2. A hinge device according to claim 1, characterized in that the guide pin (18) is resiliently squized between the nose (20) and the concave side wall (5) of the guide member during the displacement of the slide member.

Patentansprüche

1. Scharniervorrichtung für Schwenkfenster, insbesondere in ein Schrägdach eingebaute Fenster, und bestehend aus einem ersten und einem zweiten Scharnierteil (1, 10) mit zur Befestigung auf dem Fensterstock bzw. dem Flügelrahmen vorgesehenen Grundplatten (2, 11), und umfassend Führungsorgane in Form einer auf dem einen Scharnierteil angeordneten, teilkreisförmigen Führung (6) und einer in der Führung verschiebbaren Gleitschiene (7) zur Festlegung einer ausserhalb der Fensterdicke liegenden Schwenkachse für Bewegungen des Flügelrahmens nahe der geschlossenen Stellung, wobei das zweite Scharnierteil (10) in von der geschlossenen Stellung mehr entfernten Stellungen im Verhältnis zum ersten Scharnierteil (1) um einen von der Gleitschiene (7) getragenen Drehzapfen (13) schwenkbar ist, welcher Drehzapfen während einer durch Schwenken um die erwähnte Schwenkachse hervorgerufenen Bewegung des Flügelrahmens weg von der geschlossenen Stellung von einer Stellung innerhalb der Fensterdicke in eine ausserhalb der Fensterdicke liegende Stellung bewegbar ist, und das zweite Scharnierteil (10) ferner einen Steuerzapfen (18) mit einer derartigen Plazierung trägt, dass unter Verschiebung der Gleitschiene in Richtung des Öffnens der Steuerzapfen in der Führung (6) des ersten Scharnierteils entlang deren konkaver Seitenwand (5) verschoben wird und dadurch ein jegliches Schwenken des zweiten Scharnierteils um den Drehzapfen (13) ausschliesst, bis sich der Steuerzapfen nach maximaler Verschiebung der Gleitschiene ausserhalb einer Öffnung (19) in der erwähnten Seitenwand befindet, dadurch **gekennzeichnet,** dass die Gleitschiene (7) an ihrem dem Drehzapfen (13) entgegengesetzten Ende ein Teil mit reduzierter Breite oder einen Vorsprung (20) aufweist, an welchen der Steuerzapfen (18) während des Verschiebens der Gleitschiene anliegt.

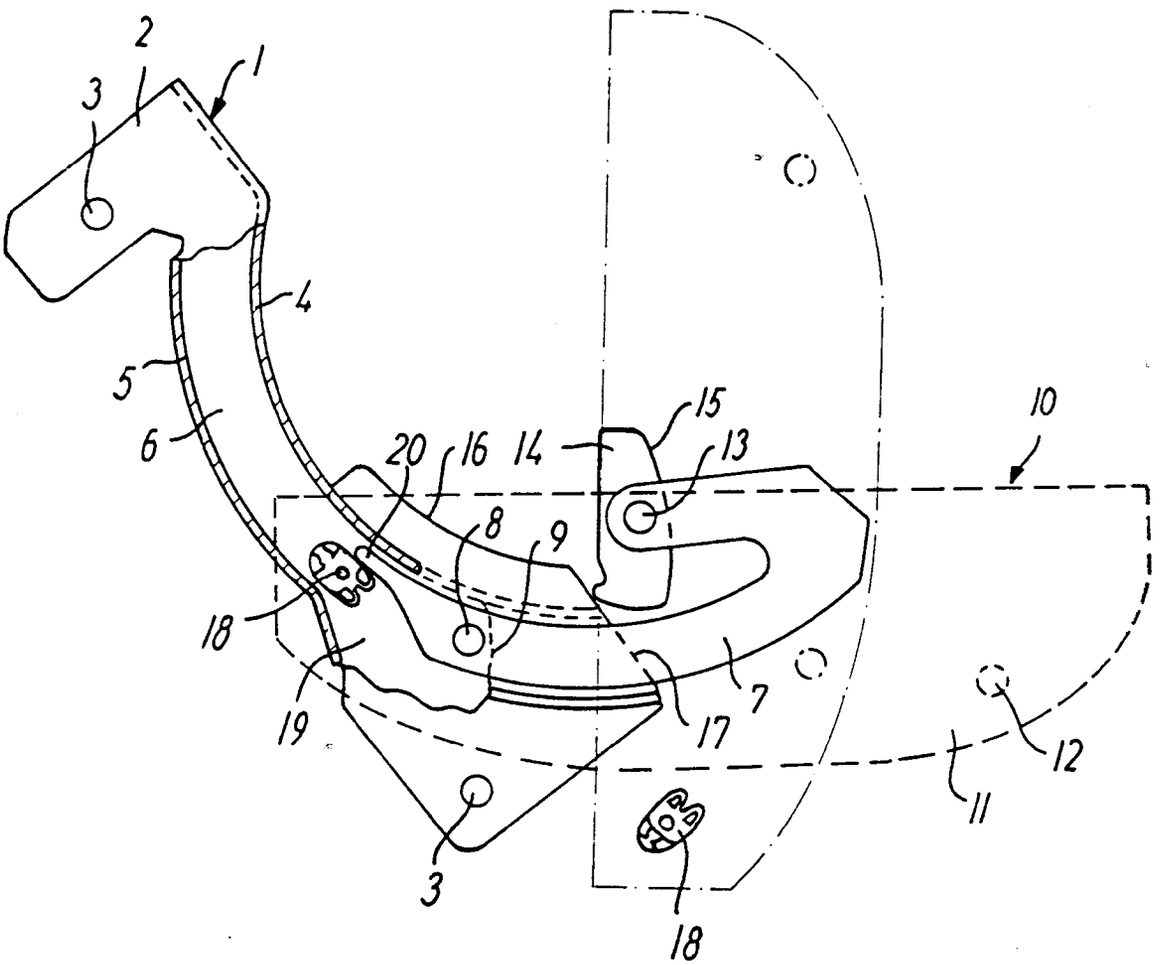
2. Scharniervorrichtung nach Anspruch 1, dadurch **gekennzeichnet,** dass der Steuerzapfen (18) während des Verschiebens der Gleitschiene zwischen dem Vorsprung (20) und der konkaven Seitenwand (5) der Führung federnd eingepresst ist.

Revendications

1. Charnière pour emploi sur fenêtres pivotantes, en particulier lucarnes installées dans un toit incliné, comportant une première et une seconde partie de charnière (1, 10) dotées d'embases (2, 11) prévues pour montage sur le cadre de la fenêtre

et sur son châssis, respectivement, et dotées de moyens de guidage sous la forme d'une pièce de guidage (6), partiellement circulaire, située sur une partie de charnière, et d'une pièce glissante (7) déplaçable dans la pièce de guidage et définissant un axe de basculement pour mouvement du châssis, proche de la position fermée, cet axe étant situé à l'extérieur de l'épaisseur de la fenêtre, la seconde partie de charnière (10) étant, dans des positions plus éloignées de la position fermée, pivotable par rapport à la première partie de charnière (1), autour d'un goujon d'articulation (13) supporté par la pièce glissante (7) et mobile depuis une position interne à l'épaisseur de la fenêtre jusqu'à une position externe à cette épaisseur durant le mouvement du châssis depuis la position fermée, par basculement autour dudit axe de basculement, la seconde partie de charnière (10) comportant, de plus, un téton de guidage (18) situé de telle manière que durant le déplacement, dans le sens de l'ouverture, de la pièce glissante dans la pièce de guidage (6) sur la première partie de charnière, le téton de guidage se déplace le long d'une paroi latérale concave (5) de la pièce de guidage et exclut ainsi tout pivotement de la seconde partie de charnière autour du goujon d'articulation (13), jusqu'à ce que le téton de guidage s'aligne sur une ouverture (19) dans ladite paroi latérale, après déplacement maximum de la pièce glissante, caractérisée en ce que la pièce glissante (7) présente, à son extrémité opposée au goujon d'articulation (13), une section de largeur réduite ou un bec (20) contre lequel le téton de guidage (18) prend appui durant le déplacement de la pièce glissante.

2. Charnière selon la revendication 1, caractérisée en ce que le téton de guidage (18) est pincé élastiquement entre le bec (20) et la paroi latérale concave (5) de la pièce de guidage durant le mouvement de la pièce glissante.


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