



EUROPEAN PATENT SPECIFICATION

Date of publication of patent specification :
01.07.92 Bulletin 92/27

Int. Cl.⁵ : **E05D 7/04, E05D 5/10**

Application number : **90830071.8**

Date of filing : **28.02.90**

Adjustable anti-forcing hinge for doors, windows and similar frames.

Priority : **10.03.89 IT 1770289**

Date of publication of application :
12.09.90 Bulletin 90/37

Publication of the grant of the patent :
01.07.92 Bulletin 92/27

Designated Contracting States :
BE CH DE ES FR GB IT LI LU NL

References cited :
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CH-A- 457 182
DE-A- 2 160 519
DE-A- 3 418 138
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EP 0 387 207 B1

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Description

The present invention relates to a hinge for the pivotable connection between the fixed case and the mobile leaf of doors, windows and similar frames. More specifically, it relates to an adjustable anti-forcing hinge.

Hinges are known which comprise a lower support, generally mounted on the fixed case, and an upper support mounted on the mobile leaf. These supports are pivotably connected by means of a pin which is seated in holes made in the supports. The supports are fixed to the uprights of the leaf and of the case, generally by means of screws, and in the event that the latter are accessible with the leaf mounted and closed on the case, the hinge is usually called an "externally supported" hinge and is used when the uprights of the case and of the leaf do not permit the making of recesses for the mounting of the supports.

In order to protect the screws for fixing the supports to the uprights and to render them inaccessible and anti-forcing when the mobile leaf is closed, some hinges are provided with screw-cover plates which in turn are fixed to the supports by means of special screws which can be actuated with the leaf open only, as for example, in prior art hinge disclosed in the European patent No.0223186. This entails an additional tightening operation during the mounting of the hinge and the use of a suitable key; furthermore, a hole is necessary on the outer part of the hinge which impairs its aesthetic value.

Another anti-forcing feature of some types of hinges is a special screw which is wedged in a recess made in the rotating pin, impeding retraction thereof as, for example, in the prior art hinge disclosed in the Swiss patent No.457182, This document providing the known features of the pre-characterising portion of independent Claim 1. In this case, apart from the disadvantage of a more complicated mounting and the anti-aesthetic effect of the hole for the screw, the pin is also weakened at the point of the recess. In order to avoid the retraction of the rotating pin other types of hinge comprise an intermediate annular enlargement, on which all the weight of the leaf is loaded causing friction and unwanted surface wear on supports.

As regards the commercially available adjustable hinges, some types permit adjustment in two predetermined positions with no possibility of further intermediate adjustments; other types comprise bushings with an eccentric internal hole interposed between the pin and the supports, which also permit intermediate adjustments between the extreme positions, but such adjustment is possible only with the leaf removed from the case, and so requires a great deal of time in order to be performed, a plurality of mountings and dismounting of the leaf relative to the case being necessary to find the optimum distance

between them.

In the hinge according to nearest prior art document CH 457182 a bushing eccentrically housing the hinge pin has equispaced axial ribs on the outer surface engaging with corresponding grooves formed in the surface of the seat of the support. In the hinge according to DE 2 160519 grooves are provided both on the outer surface of the bushing and on the inner surface of the seat forming corresponding housings in prefixed angular positions of the bushing with respect to the seat. The relative movement of the bushing with respect to the seat in each of said positions is prevented by means of a stopper with at least a projection for engaging with said housing. By removing the stopper it would be possible to rotate the bushing by means of a suitable tool. In practice, however, this is not so because the weight of the door or window is loaded on the edge of the bushing and therefore it cannot be rotated without removing, or, at least, partially disengaging the support of the leaf from the bushing so as to unload it. In the case of CH 457182 a complete removal of the leaf is necessary for performing the adjustment.

An object of the present invention is to provide a hinge for doors, windows and similar frames which is anti-forcing and simple to mount in which the abovementioned disadvantages are overcome.

Another object of the present invention is to provide a hinge for doors, windows and similar frames which permits easy adjustment of the distance between the fixed case and the mobile leaf, with the leaf mounted on the case and with the possibility of easy intermediate adjustment relative to the extreme positions.

The hinge according to the invention is of the type comprising a lower and an upper support, means for fixing them to the fixed case and to the mobile leaf respectively, a lower and an upper bushing housed in through-holes formed in said lower and upper supports respectively. Each bushing has an eccentric seat in which a hinge pin is pivotally housed and axial groovings are formed on the outer surface of said bushings and on the inner surface of said through-holes respectively, said groovings corresponding two-by-two in prefixed angular positions of said bushings relative to said through-holes. The bushes furthermore having stop means extends radially from the ends of the bushings abutting on the ends of said supports thereby preventing the axial sliding of said bushing.

The main feature of the invention consists in that a removable stopper with at least a projection for engaging with two corresponding grooves and means for concealing said fixing means and that rigid ring is mounted, coaxial to the hinge pin, between the lower and the upper supports through which the load of the upper support is directly discharged on the lower support and in that the stop means does not prevent

angular displacement of bushes and supports. In this way the adjustment of the distance and the position of the mobile leaf with respect to the fixed case of the door or window can be performed, simply removing the stopper and rotating the bushing in a different angular position. The bushing is, in the case of the present invention, free of rotating because no load acts on it and therefore there is no need of removing or displacing the mobile leaf from its operating position. The distance adjustment is, in this case, more easy, quick and accurate.

Another important feature of the invention, connected to the presence of the rigid ring between the upper and lower supports, consists in that the concealing means comprises a cover plate mounted on each of said lower and upper supports, said cover plate abutting on said ring when the door- or window-leaf is in its closed position. In this way it is impossible to slide the cover plate and therefore have access to the fixing means of the support.

Further features and advantages of the hinge according to the invention will be more clearly apparent from the description which follows of an embodiment thereof, given by way of non-limiting example, with reference to the attached drawings wherein:

- Figure 1 shows an exploded perspective view of the hinge according to the invention;
- Figure 2 shows a partially sectioned lateral elevation view of the hinge according to the invention;
- Figure 3 shows a top plan view of the hinge according to the invention;
- Figures 4 and 5 show, respectively, a plan view and a lateral view of the mounting of a screw-cover plate on the hinge according to the invention;
- Figures 6 and 7 show a sectional view in the direction of the arrows VI-VI and VII-VII respectively of Figures 4 and 5;
- Figure 8 shows a diagrammatic top plan view of one position of the hinge according to the invention.

With reference to Figure 1, the hinge according to the invention comprises a lower support 1 and an upper support 2 which can be fixed respectively to the uprights 3 and 4, for example of the fixed case and of the mobile leaf of a door, window or similar frame, by means of tightening screws 5 and 6 which screw into treaded holes 7 in a counter-plate 8 via the holes 9 of the supports 1 and 2, the holes 10 of the uprights 3 and 4 and the washers 11 and 12. The washer 12 is of greater thickness than the washer 11 so that the screw 6 projects from the hole 9, while the screw 5 does not project at all. A screw-cover plate 13 engages against the guides 14 and 15 of the supports 1 and 2 and renders the screws 5 and 6 inaccessible once tightened.

With reference to Figures 1 and 2, in the supports 1 and 2 there are made through holes 16 having six

parallel and equidistant longitudinal groovings 17. In the holes 16 of the lower support 1 and of the upper support 2 are seated, respectively, a lower bushing 18 and an upper bushing 19, each of which is of substantially elongate cylindrical shape and possesses an eccentric longitudinal cylindrical hole 20 and a grooved end 21 having six equidistant parallel groovings 22 extending longitudinally over a section of the outer surface, and a hole 23 acting as a seating for an adjustment key (not shown). Two teeth 24, angularly spaced by 60°, extend radially through each of the bushings 18 and 19 at the level of the edge of the grooved end 21. Each tooth 24 is positioned mid-way between two adjacent grooves and has dimensions which are less than the cross-section of each grooving 17 of the hole 16 of the supports 1 and 2, in a manner such as to be able to slide therein and permit the passage of the bushings 18 and 19 in the holes 16. These bushings possess, at the other end, an annular projection; more specifically, the lower bushing 18 possesses an annular projection 15 which is coaxial with the outer surface of the said bushing, while the upper bushing 19 possesses an annular projection 26 which is coaxial with the eccentric hole 10. The annular projection 15 engages against a constriction 27a of the inner surface of a ring 27 interposed between the two supports 1 and 2. Within the eccentric holes 16 a pin 30 is accommodated with an annular enlargement 31, of greater diameter than that of the holes 16 of the supports 1 and 1, but of lesser diameter than the internal diameter of the ring 27 and of the constriction 27a. More specifically, the two half-sections 30a and 30b of the pin 30 are pivotably situated in the eccentric holes 16 of the bushing 18 and of the bushing 19 respectively.

A blocking stopper 32 can be fixed by means of a resilient projection 33 at each of the grooved ends 21 of the bushings 18 and 19 which are housed into the holes 16 of the supports 1 and 2, and engages by snap-fitting in the hole 23 by means of elastic tabs 33a. The stopper 32 also comprises six equidistant parallel plugs 34 projecting from its lower face 32 and arranged along a circumference whose diameter is equal to the diameter of the holes 16 and to the outer diameter of each of said bushings. The plugs 34 thus engage between the groovings of the hole 16 and of each of the bushings 18 and 19, impeding the relative rotation between bushing and support.

With reference to Figures 1, 4, 5, 6 and 7, the screw-cover plates 13 engage against the guides 14 and 15 of each of the supports 1 and 2 by means of profiles 36 and 37. The latter possesses a notch 38 which divides it into two profile portions 37a and 37b of lesser length than a second notch 39 made at the middle of the guide 15, for example by means of a milling tool which also produces a substantially circular recess 40 between the holes 9 in each of the supports 1 and 2. A tooth 41 projects from each plate 13, from

its inner face 13a, and is seated in the recess 40 between the screws 5 and 6.

In order to mount the hinge according to the invention and to produce a pivotable coupling between the uprights 3 and 4, with reference to the abovementioned figures, it is necessary to clamp the supports 1 and 2 on the uprights 3 and 4 by means of the screws 5 and 6; then to apply the screw-cover plates 13 by tapping their profile 36 against the guide 14 of each support and subsequently introducing the profile 37a into the notch 39 of the guide 15 in the direction of the arrow A in Figure 4. At this point, sliding the plate 13 in the guides 14 and 15 in the direction of the arrow B in Figures 5 and 6, the tooth 41 abuts against the projecting head of the screw 6 within the recess 40 and does not permit the plate 13 to slide out.

It is then necessary to introduce the bushings 18 and 19 into the grooved through holes 16 of the supports 1 and 2 thus mounted, by sliding the teeth 24 in the groovings 17 and rotating each bushing through 30° once the teeth 24 have moved out of the groovings 17. The annular projections 25 and 26 of the bushings 18 and 19 respectively, together with the teeth 24, impedes any spontaneous escape of the bushings 18 and 19 from the supports 1 and 2 during the mounting stage. The ring 27 is positioned between the bushing 18 and the support 1 during mounting. Once the half-section 30a of the pin 30 has been inserted in the hole 20 of the bushing 18, and the support 19 has been engaged with the half-section 30b of the same pin 30, the hinge according to the invention produces the pivotable coupling between the two uprights 3 and 4.

The hinge according to the invention is anti-forcing in that the screw-cover plates 13 can be removed only when the leaf is dismantled from the case, or when the support 2 is disengaged from the pin 30. With reference to Figures 2 and 3, in fact, the screw-cover plates 13, with the hinge mounted, cannot move in that the profiles 36 abut against the ring 27 and the tooth 41 abuts against the screw 6. Consequently, the screws 5 and 6 for dismantling the supports 1 and 2 are accessible only with the leaf open and removed from the case, since only in this position is it possible to remove the ring 27 and slide the screw-cover plates 13.

The pin 30 is impossible to retract from the hinge with the leaf closed on the case, by virtue of its annular enlargement 31 and of the annular projection 25 and 26 of the bushings 18 and 19 which will not pass through the holes 16 of the supports 1 and 2.

With reference to Figures 2 and 8, in order to adjust the reciprocal position-of the mobile leaf relative to the fixed case, or of the upright 4 relative to the upright 3, it is necessary to extract the stoppers 32 by levering, for example, with a screwdriver so that the projection 33 of each stopper is released from the hole

23 of each bushing. In this manner, the groovings 17 and 22 are also freed from the plugs 34 and, by means of a suitable key, it is possible to engage the holes 23 and to rotate the bushings 18 and 19 in the holes 16. With reference to Figure 8, X designates the eccentricity which exists between the geometrical axes 43 of the holes 16 and the geometrical axis 44 of the pin 30 seated in the hole 20 of each of the bushings 18 and 19. By rotating the bushings 18 and 19, it is possible to vary the distance between the two uprights 3 and 4 by a quantity which is between $-2X$ and $+2X$ in both the directions indicated by the arrows C and D, relative to a mean distance selected at the time in which the holes 10 are made on the uprights 3 and 4. Overall, thirty-six distance combinations are possible between the uprights 3 and 4, depending on how the bushings 18 and 19 are positioned in the holes 16, the groovings 22 being caused to coincide each time with the groovings 17, respectively. In particular, four of the abovementioned combinations are of value, specifically those corresponding to the variations in distance in the direction of the arrow C which are respectively equal to $-2X$, $-X$, $+X$ and $+2X$.

The groovings 22 and the groovings 17 can also be different in number from what is indicated, and may also be mutually different in number provided that they are respectively a multiple and a factor of each other, and of course equidistant and parallel.

The plugs 34 of the stoppers 32 can also be different in number from what is indicated, provided such number is equal to or less than the number of groovings 22 and is a factor thereof.

The ring 27 supports the weight of the mobile leaf, transmitting it directly from the support 2 to the support 1 and relieving the pin 30 and the bushings 18 and 19. For this reason, said ring is preferably produced in an anti-friction material. Such materials or similar materials are preferably also used to form the bushings 18 and 19, since these are seatings for the rotation of the pin 30.

The stoppers 32, apart from locking the position of the bushings after adjustment, also act as a seal against the penetration of dust and dirt into the hinge.

Alternatively, in place of the washers 11 and 12 of mutually different thickness it is possible to use mutually equal washers and screws 5 and 6 with, respectively, lower and higher heads.

Claims

1. Adjustable anti-forcing hinge for the pivotable connection between the fixed case (3) and the mobile leaf (4) of doors, windows and similar frames, comprising a lower support (1) and an upper support (2), means for fixing said lower (1) and upper support (2) respectively to said fixed case (3) and respectively to said mobile leaf (4), a lower bushing (18) and an upper

bushing (19) housed in through-holes (16) formed respectively in said lower (1) and upper (2) supports, each bushing having an eccentric seat (20) in which a hinge pin (30) is pivotally housed, axial groovings (17, 22) being formed on the outer surface of said bushings (18, 19) and, respectively, on the inner surface of said through-holes (16) corresponding two-by-two in prefixed angular positions of said bushings with respect to said through-holes stop means being provided extending radially from the ends of said bushings abutting on the ends of said supports thereby preventing the axial sliding of said bushings, said hinge being characterized in that a removable stopper with at least a projection for engaging with two corresponding grooves being further provided, and means for concealing said fixing means, a rigid ring is provided coaxial to the hinge pin, between said upper support (2) and said lower support (1) through which the load of said upper support (2) is directly discharged on said lower support (1), said stop means not preventing angular displacement of bushes and supports, said concealing means comprising a cover plate mounted on each of said lower and upper supports abutting on said ring when said door- or window-leaf is in its closed position.

2. Adjustable anti-forcing hinge according to claim 1, wherein said stop means comprises: at least two teeth (24) extending radially between said groovings (22) from one end of said bushings (18, 19), set apart by an angle which is a multiple of the angular distance between two adjacent groovings (22) and of lesser length than the cross-section of the groovings (17) of said through-holes (16); and annular projections (25, 26) radially extending from the opposite end of said bushings (18, 19) having greater diameter of said through-holes (16), said ring (27) mounted between said supports (1, 2) having a constriction (27a) formed on its inner surface which engages with said annular projection (25) of said lower bushing (18), the annular projection (26) of said upper bushing (19) abutting on said upper support (2).

3. Adjustable anti-forcing hinge according to the previous claims, wherein said cover plate (13) has two parallel lateral profiles (36, 37) engaging with corresponding parallel guides (14, 15) formed on each of said supports (1, 2) and a projecting tooth (41) extending from one face of said plate (13), said lower and upper supports (1, 2) being secured to said case (3) and to said leaf (4), respectively, by means of screws (5, 6), the head of one of said screws (6) abutting against said tooth (41) of said plate (13), one of said guides (14) being formed on the side surface of each of said supports (1, 2) in correspondance to said ring (27) that, when the door- or window-leaf is in its closed position, abuts on one end thereof.

4. Adjustable anti-forcing hinge according to claim 3, wherein one of said profiles (37) of each of said plates (13) has a central notch (38) delimiting two

profile sections (37a, 37b), while the guide (15), in which said profile (37) engages, also has a notch (39) of greater width than each of said profile sections (37a, 37b), said notch (39) dividing said guide (15) in two guide sections (15a, 15b) each of lesser length than that of the notch (38) of said profile (37).

5. Adjustable anti-forcing hinge according to the claim 1, wherein said stoppers (32) each comprises a number of plug projections (34) equal to the number of groovings (22) formed on said bushings (18, 19) and a resilient projection (33) snap-fitting engaging in a hole (23) for an adjustment tool for angularly displacing said bushings (18, 19).

6. Adjustable anti-forcing hinge according to claim 5, wherein said plugs (34) projecting from said stoppers (32) and said groovings (17, 22) formed respectively on the surface of said holes (16) and said bushing (18, 19) are equal in number.

7. Adjustable anti-forcing hinge according to claim 6, wherein said plugs (34) and said groovings (17, 22) are six.

Patentansprüche

1. Einstellbares und nicht zerlegbares Scharnier für die schwenkbare Verbindung zwischen dem festen Rahmen (3) und dem schwenkbeweglichen flächenförmigen Teil (4) von Türen, Fenstern und ähnlichen Baugruppen, mit einem unteren Tragteil (1) und einem oberen Tragteil (2), Mitteln zum Befestigen des unteren (1) und des oberen Tragteils (2) am festen Rahmen (3) bzw. schwenkbeweglichen flächenförmigen Teil (4), einer unteren Lagerhülse (18) und einer oberen Lagerhülse (19) in durchgehenden Bohrungen (16) des unteren (1) bzw. des oberen Tragteils (2), wobei jede Lagerhülse einen exzentrischen Sitz (20) aufweist, in dem ein Scharnierzapfen (30) drehbar gelagert ist, wobei Axialnuten (17, 22) in den Außenflächen der Lagerhülsen (18, 19) bzw. Innenflächen der durchgehenden Bohrungen (16) gebildet sind, wobei in vorbestimmten Winkelpositionen der Lagerhülsen relativ zu den durchgehenden Bohrungen Axialnuten von Lagerhülsen und Bohrungen paarweise einander zugeordnet angeordnet sind und wobei Anschlagmittel vorgesehen sind, die sich an den Enden der Lagerhülsen radial erstrecken und an den Enden der Tragteile anliegen, um so eine Axialbewegung der Lagerhülsen zu verhindern, **dadurch gekennzeichnet**, daß ein ausbaubarer Anschlag mit zumindest einem Vorsprung zum Zusammenwirken mit zwei einander entsprechenden Nuten zusätzlich vorgesehen ist sowie ein Mittel zum Verdecken der Befestigungsmittel, daß ein starrer Ring achsgleich zum Scharnierzapfen zwischen oberem Tragteil (2) und unterem Tragteil (1) angeordnet ist, durch den die Last des oberen Tragteils (2) direkt auf das untere Tragteil (1) übertragen wird, wobei die

Anschlagmittel winkelförmige Verstellbewegungen von Lagerhülsen und Tragteilen nicht behindern und wobei die Mittel zum Verdecken des Befestigungsmittels je eine Abdeckplatte aufweisen, die dem unteren bzw. oberen Tragteil zugeordnet sind und an dem Ring anstoßen, wenn sich das flächenförmige Teil von Tür bzw. Fenster in seiner Schließposition befindet.

2. Einstellbares, nicht zerlegbares Scharnier nach Anspruch 1, bei dem das jeweilige Anschlagmittel enthält: mindestens zwei Zähne (24), die sich radial zwischen den Nuten (22) am einen Ende der jeweiligen Lagerhülse (18,19) erstrecken, die um einen Winkel gegeneinander versetzt sind, der ein Vielfaches des Winkelabstandes zwischen zwei benachbarten Nuten (22) ist und deren Länge wesentlich geringer ist als der Querschnitt der Nuten (17) der durchgehenden Bohrungen (16) und ringförmige Vorsprünge (25,26), die sich von den einander gegenüberliegenden Enden der Lagerhülsen (18,19) radial erstrecken und einen größeren Durchmesser als die durchgehenden Bohrungen (16) haben, wobei der zwischen den Tragteilen (1,2) angeordnete Ring (27) eine Einschnürung (27a) auf seiner Innenfläche aufweist, die mit dem ringförmigen Vorsprung (25) der unteren Lagerhülse (18) zusammenwirkt, während der ringförmige Vorsprung (26) der oberen Lagerhülse (19) am oberen Tragteil (2) anstößt.

3. Einstellbares, nicht zerlegbares Scharnier nach einem der vorstehenden Ansprüche, bei dem die jeweilige Abdeckplatte (13) zwei parallele Querprofile (36,37) aufweist, die mit entsprechenden parallelen Führungen (14,15) auf dem jeweiligen der Tragteile (1,2) zusammenwirken, sowie einen vorspringenden Zahn (41), der von einer Fläche der Platte (13) absteht, wobei oberes und unteres Tragteil (1,2) am Rahmen (3) bzw. am flächenförmigen Teil (4) mittels Schrauben (5,6) gehalten sind, wobei der Kopf der einen Schraube (6) am Zahn (41) der Platte (13) anliegt und eine der Führungen (14) auf einer Seitenfläche jedes der Tragteile (1,2) in Übereinstimmung mit dem Ring (27) so ausgebildet ist, daß das flächenförmige Teil von Tür bzw. Fenster in seiner Schließposition an einem ihrer Enden anliegt.

4. Einstellbares, nicht zerlegbares Scharnier nach Anspruch 3, bei dem das eine der Profile (37) jeder Platte (13) eine zentrale Kerbe (38) aufweist, die zwei Profilabschnitte (37a,37b) gegeneinander abgrenzt, während die Führung (15), in die das Profil (37) eingreift, ebenfalls eine Kerbe (39), jedoch größerer Breite als jeder der Profilabschnitte (37a,37b) aufweist, wobei die Kerbe (39) die Führung (15) in zwei Führungsabschnitte (15a,15b) unterteilt, von denen jeder eine geringere Länge als die Länge der Kerbe (38) des Profils (37) hat.

5. Einstellbares, nicht zerlegbares Scharnier nach Anspruch 1, bei dem jeder der Anschläge (32) eine Anzahl von Anschlagzapfen (34) entsprechend

der Anzahl der Nuten (22) der Lagerhülsen (18,19) und einen federnden Vorsprung (33) aufweist, der in eine Vertiefung (23) für ein Einstellwerkzeug zum winkelförmigen Verstellen der Lagerhülsen (18,19) einschnappt.

6. Einstellbares, nicht zerlegbares Scharnier nach Anspruch 5, bei dem die Anschlagzapfen (34) von den Anschlägen (32) vorstehen und die Nuten (17,22) auf der jeweiligen Fläche der Bohrungen (16) bzw. der Lagerhülsen (18,19) in gleicher Anzahl vorgesehen sind.

7. Einstellbares, nicht zerlegbares Scharnier nach Anspruch 6, bei dem jeweils sechs Anschlagzapfen (34) und sechs Nuten (17,22) vorgesehen sind.

Revendications

1. Charnière réglable et inviolable pour assurer le pivotement entre le bâti dormant (3) et le battant (4) de portes, fenêtres ou encadrements similaires, comprenant un support inférieur (1) et un support supérieur (2), des moyens pour fixer lesdits support inférieur (1) et supérieur (2) respectivement audit bâti dormant (3) et audit battant (4), une douille inférieure (18) et une douille supérieure (19) logées dans des trous de passage (16) ménagés respectivement dans lesdits supports inférieur (1) et supérieur (2), chaque douille présentant un logement excentré (20) dans lequel une cheville (30) est logée de manière pivotante, des rainures axiales (17, 22) étant formées sur la surface extérieure desdites douilles (18, 19) et, respectivement, sur la surface interne desdits trous de passage (16) correspondant deux à deux, ceci dans des positions angulaires prédéterminées desdites douilles par rapport auxdits trous de passages, des moyens de butée partant radialement des extrémités desdites douilles et s'aboutant sur les extrémités desdits supports, étant prévus, empêchant ainsi le glissement axial desdites douilles, ladite charnière étant **caractérisée en ce qu'elle** comprend un obturateur amovible avec au moins une saillie pour s'emboîter avec deux rainures correspondantes, des moyens pour dissimuler lesdits moyens de fixation, un anneau rigide, coaxial au gond de la charnière, situé entre ledit support supérieur (2) et ledit support inférieur (1), par lequel la charge dudit support supérieur (2) se décharge directement sur ledit support inférieur (1), lesdits moyens de butée n'empêchant pas un déplacement angulaire des douilles et des supports, lesdits moyens pour dissimuler comprenant un couvre-joint, monté sur chacun desdits supports inférieur et supérieur, s'aboutant sur ledit anneau lorsque ledit battant de porte ou de fenêtre est en position fermée.

2. Charnière réglable et inviolable selon la Revendication 1, dans laquelle lesdits moyens de butée comprennent au moins deux dents (24), s'éten-

dant radialement entre lesdites rainures (22) depuis une extrémité desdites douilles (18, 19), séparées par un angle qui est un multiple de la distance angulaire entre deux rainures adjacentes (22) et de moindre longueur que la section des rainures (17) desdits trous de passage (16) ; et des saillies annulaires (25, 26) s'étendant radialement depuis l'extrémité opposée desdites douilles (18, 19) ayant un plus grand diamètre que lesdits trous de passage (16), ledit anneau (27) monté entre lesdits supports (1, 2) présentant un rétrécissement (27a) au niveau de sa surface interne qui s'emboîte avec ladite saillie annulaire (25) de ladite douille inférieure (18), la saillie annulaire (26) de ladite douille supérieure (19) s'aboutant sur ledit support supérieur (2).

3. Charnière réglable et inviolable selon les Revendications précédentes, dans laquelle ledit couvre-joint (13) possède deux chantournements latéraux parallèles (36, 37) venant s'engager avec des guides parallèles correspondants (14, 15) ménagés sur chacun desdits supports (1, 2) et une dent (41) saillant d'une face dudit couvre-joint (13), lesdits supports inférieur et supérieur (1, 2) étant fixés audit bâti dormant (3) et audit battant (4), respectivement au moyen de vis (5, 6), la tête d'une desdites vis (6) s'aboutant contre ladite dent (41) dudit couvre-joint (13), un des guides (14) étant formé sur la surface latérale de chacun desdits support (1, 2) en correspondance dudit anneau (27) qui, lorsque la porte ou la fenêtre est en position fermée, s'abouté sur une extrémité de cette dernière.

4. Charnière réglable et inviolable selon la Revendication 3, dans laquelle un desdits chantournements (37) de chacun desdits couvre-joints (13) possède une encoche centrale (38) délimitant deux sections profilées (37a, 37b), le guide (15), dans lequel ledit chantournement (37) est engagé, possédant également une encoche (39) d'une plus grande épaisseur que chacune desdites sections profilées (37a, 37b), ladite encoche (39) divisant ledit guide (15) en deux sections de guidage (15a, 15b) chacune de moindre longueur que celle de l'encoche (38) dudit chantournement (37).

5. Charnière réglable et inviolable selon la Revendication 1, dans laquelle lesdits obturateurs (32) comprennent chacun un nombre de saillies en forme d'ergots (34) égal au nombre de rainures (22) ménagées sur lesdites douilles (18, 19) et une saillie résiliente (33) s'engageant par encliquetage dans un orifice (23) permettant à un outil de réglage de déplacer angulairement lesdites douilles (18, 19).

6. Charnière réglable et inviolable selon la Revendication 5, dans laquelle lesdits ergots (34) saillant desdits obturateurs (32) et lesdites rainures (17, 22), ménagées respectivement sur la surface desdits trous (16) et desdites douilles (18, 19), sont en nombre égal.

7. Charnière réglable et inviolable selon la

Revendication 6, dans laquelle lesdits ergots (34) et lesdites rainures (17, 22) sont au nombre de six.

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Fig. 1





