

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 959 214 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

24.11.1999 Bulletin 1999/47

(51) Int Cl.⁶: **E05D 7/12, E05D 5/02**

(21) Application number: **99201105.6**

(22) Date of filing: **08.04.1999**

(84) Designated Contracting States:

**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**

Designated Extension States:

AL LT LV MK RO SI

(30) Priority: **16.04.1998 IT MI980794**

(71) Applicant: **System Holz SPA**

22040 Cremnago di Inverigo (Como) (IT)

(72) Inventor: **Brioschi, Edoardo**
(IT)

(74) Representative: **Ferroni, Filippo et al**
DRAGOTTI & ASSOCIATI SRL,
Galleria San Babila 4/C
20122 Milano (IT)

(54) **Hinge for furniture having a snap engagement action, parallel to the mounting plane of the base plate**

(57) The invention relates to hinges for furniture, of the type having a snap engagement system for mounting a hinge arm (2) on a base plate (6).

In particular, the hinge (1) of the invention comprises an intermediate body (5) between the base plate (6) and the hinge arm (2), which intermediate body (5) is held on the central portion (60) of the base plate by a linear spring (7) or by a resiliently urged rocker arm.

According to a preferred form of the invention, the linear spring or the rocker arm is accommodated inside the central portion (60), while the intermediate body has, at the rear, a tail appendage (56) which is engaged by the linear spring or the rocker arm.

The snap engagement system so formed is operated in a plane parallel to the mounting plane of the base plate (6), thereby resulting protected and taking up little space.

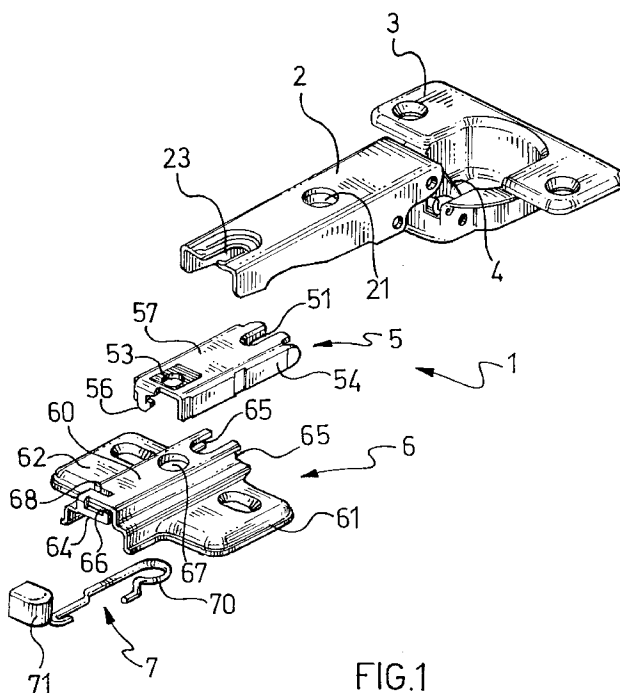


FIG.1

EP 0 959 214 A2

Description

[0001] The invention relates to snap engagement hinges, that is to say the hinges nowadays widely used, wherein a hinge arm is secured to a base plate in a rapid manner by means of a snap-type engagement system, which is also known in the field as "clip".

[0002] Briefly, the arm of those hinges is secured to the base plate in at least two points, one at the front and the other at the rear with respect to its longitudinal extension, by causing the arm to rotate about the first point and locking it by snap engagement in the second point for preventing any separation of the coupled parts.

[0003] In addition, the arm of these hinges has at the end opposite that where it is engaged on the base plate, articulated levers which engage on a cup-like support: such levers provide the hinge with the well-known characteristic rotational and translational opening and closing movement of doors.

[0004] Generally, the hinges under consideration herein also comprise an intermediate body arranged between the base plate and the arm mounted thereon; the body is fixed to the arm in an adjustable manner by means of suitable screws, and a pin or projections are usually provided transversely to it for engaging with the base plate, in order to enable the arm to rotate with respect thereto during the mounting of the hinge.

[0005] Several patents and publications already exist on this matter and reference should therefore be made thereto for further explanations.

[0006] In this connection attention is drawn to the fact that hinge manufacturers are constantly seeking new solutions which, for a given performance required in order to comply with the various national and international technical standards, are able to offer advantages in terms of production costs.

[0007] It must however be emphasised that the reduction of the above-mentioned costs is not an easy problem to solve because the technical standards referred to before, imply that the hinges fulfill strict requirements; the latter relate both to aspects of the dimensional type, for example the distance between predetermined points of the hinges, and to functional aspects such as the resistance to predetermined tests.

[0008] Consequently, the parameters which can be modified in order to obtain advantages in terms of production are limited and it may sometimes happen that even variants of apparently little account nevertheless have important effects, because it must be borne in mind that, generally, the production of the hinges concerned herein is in the order of millions of parts per year.

[0009] In this context it becomes relevant the system through which the snap engagement of the hinge arm to the base plate, is performed.

[0010] It is worth pointing out that in the case of hinges having an intermediate body, the latter can be used to lock the hinge arm to which it is fixed: this fact does not change the situation because once the intermediate

body is secured to the hinge arm, it forms together with it a single element which is then applied on the base plate as already explained above.

[0011] At present, in order to perform the snap engagement of the hinge arm (or of the intermediate body secured thereto) on the base plate, it is widely known to use a rocker arm resiliently urged by a spring; such a rocker arm is basically a small lever mounted on the base plate or on the intermediate body, which is provided with a part shaped as a hook that engages with a projection of the intermediate body or the base plate, depending on where the rocker arm is applied.

[0012] The rocker arm also oscillates in a plane perpendicular to the mounting plane of the base plate, that is to say the plane of the wall of the item of furniture to which the base plate is secured: this means that the oscillating movement of the rocker arm takes place in a plane which in most cases, coincides with the plane of rotation for mounting the hinge arm on the base plate.

[0013] It is therefore apparent how the opposite rotation which causes the hinge arm to be removed from the base plate, also takes place in the same plane: such a rotation, if not adequately opposed, is capable of causing the rocker arm to oscillate, thereby making it possible for the hinge arm to be detached from the base plate.

[0014] In order to avert this possibility, it is necessary to take appropriate measures, which in fact means having to provide the rocker arm and the spring with suitable dimensions and shapes, especially in view of the tests required by the technical standards already referred to.

[0015] This fact has an adverse effect from the standpoint of the production costs discussed before and therefore, within the framework of a search for new and more advantageous solutions in this field, a need is felt for hinges wherein the snap engagement is achieved by means of a simple system, and thus economically advantageous as well, which is nevertheless also capable of providing a stable locking especially as regards the detachment rotations of the hinge arm relative to the base plate.

[0016] The object of the invention is to provide a hinge which satisfies these requirements; such an object is achieved by a hinge the features thereof are stated in the claims appended to this description.

[0017] The present invention with its features and the effects deriving therefrom will be better understood in the light of two embodiments which are given hereinafter by way of non-limiting example with reference to the appended drawings wherein:

- Figure 1 is an exploded perspective view of a first embodiment of a hinge according to the invention;
- Figure 2 is a bottom view of a portion of the hinge of Figure 1 in an assembled condition;
- Figure 3 shows in detail a part of the hinge of Figures 1 and 2;
- Figure 4 is an exploded perspective view of a second embodiment of the hinge according to the in-

vention;

- Figure 5 is a bottom view of a portion of the hinge of Figure 3 in an assembled condition;
- Figure 6 shows in detail a part of the hinge of Figures 4 and 5.

[0018] With reference to the embodiment shown in the first two Figures, the hinge concerned therein is generally indicated 1.

[0019] The hinge comprises an arm 2 which is connected to a cup-like support 3 by means of articulated levers 4 in the manner known in the art and referred to above; both the cup-like support 3 and the arm 2 of the hinge are customarily shaped and, as regards the arm 2, it has a "U" type cross-section.

[0020] Also forming part of the hinge 1 there are an intermediate body 5, a base plate 6 and resilient engagement means, in this case formed by a linear flexure spring 7 obtained using steel music wire having a square cross-section.

[0021] In the hinge arm 2 there are a threaded hole 21 and a notch 23 open towards one end of the arm, of the type generally present in many commercially available hinges and which are used for the adjustment of the latter by means of screws and the like not shown in the drawings.

[0022] For the same reasons, the intermediate body 5 is provided with a notch 51 and a threaded hole 53 that, when the hinge arm 2 is mounted on the intermediate body 5, are aligned with those already mentioned.

[0023] The intermediate body 5 also has a U-shaped cross-section and its dimensions are such as to enable it to be accommodated inside the hinge arm 2; in addition, the intermediate body 5 has on its lateral sides 54 two projections 55 extending transversely inwards and foreseen to engage with cavities 65 in the base plate 6: the intermediate body can rotate about said projections 55 and cavities 65, in order to be secured to the plate as will be explained more clearly hereinafter.

[0024] It should be appreciated that the projections might however be replaced by a pin extending between the sides of the intermediate body and transversely thereto, or their arrangement could be exchanged with that of the cavities, placing the latter on the intermediate body and the projections on the base plate; such solutions already exist in many hinges available in commerce.

[0025] At the end opposite to that where the projections 55 are arranged, the intermediate body 5 has a tail appendage 56; the tail appendage 56 is advantageously produced in one piece with the intermediate body by bending an extension of a central portion 57 thereof, i. e. the portion between its lateral sides 54. The tail appendage 56 of the intermediate body also has a profile (see Figure 3) which defines a seat 58 mainly extending in a direction parallel to the central portion 57, and an inclined surface 59 which will be considered in greater detail hereinafter.

[0026] The base plate 6 has instead the typical cross-shape formed by a central core 60 with two wings 61, 62 extending laterally therefrom; the wings 61, 62 also have the usual slot-shaped holes 63 for the screws for securing the plate 6 to the portion of the item of furniture to which it is associated.

[0027] The central core 60 of the base plate also has a U-shaped cross-section and terminates in a tail appendage 64 formed in one piece therewith by bending a tip extension of it; the tail appendage 64 is provided with an opening 66 through which the linear spring 7 extends (see Figure 2).

[0028] The linear spring 7 is secured to the core 60 of the plate in the area of a hole 67 in the latter; more specifically, according to a preferred embodiment of the invention the hole 67 has an edge 67a which projects downwards from the central core 60 and is clinched in such a manner as to support the linear spring 7, which is for that purpose suitably shaped with an end in the form of an eyelet 70, juxtaposed with the central core.

[0029] Since, on the side opposite the eyelet 70, the linear spring 7 is also supported by the opening 66, its mounting on the base plate is completely stable and secure.

[0030] Between the hole 67 and the tail appendage 64, on the central core of the base plate 6 there is a slit 68 through which the tail appendage 56 of the intermediate body 5 passes when the hinge is in the assembled condition; finally, it will be appreciated that the linear spring 7 is provided with a grip 71, in order to facilitate the manipulation thereof, which however is not indispensable and could therefore not be present.

[0031] The hinge 1 is assembled in the manner that will now be explained.

[0032] First of all, the hinge arm 2 and the intermediate body 5 are fixed to one another by means of two screws, not shown in the drawings, one of which engages in the hole 21 and in the notch 51, while the other engages in the notch 23 and in the hole 53.

[0033] The hinge arm and the intermediate body so assembled are subsequently applied on the base plate 6, by causing them to rotate about an axis which is defined by the cavities 65 and the projections 55 coupled to one another.

[0034] After that rotation, the tail appendage 56 of the intermediate body is introduced into the slit 68 in the base plate, and its inclined surface 59 thus comes into contact with the linear spring 7; at that point, by slightly pressing the hinge arm 2 together with the intermediate body 5 against the base plate 6, the inclined surface 59 causes the buckling of the linear spring 7 by bending it resiliently in a plane parallel to that of the central core 60 of the base plate 6.

[0035] In this connection it should be noted that since the linear spring 7 is supported by the opening 66 through which it extends, the stresses that are perpendicular to the plane wherein the spring is deformed and are exerted by the inclined surface 59, have no effect

and are compensated by the tail appendage 64 of the base plate 6.

[0036] Upon completing the rotation of the hinge arm 2 and of the intermediate body 5 in order to couple the latter to the base plate, the inclined surface 59 passes over the linear spring 7 which, as a result of its resilient reaction, snaps into the seat 58, thus ensuring the locking of the intermediate body 5 and of the hinge arm solid therewith.

[0037] It will be understood that in order to disassemble the hinge, the procedure is the reverse of that just described; consequently, a user first applies a force to the linear spring 7 acting on its grip 71 in such a manner as to free it from the seat 58 (see Figure 2), and then he rotates the hinge arm 2 in order to detach it from the base plate.

[0038] It can be understood from the above description how the hinge of the invention achieves the object set out in the beginning.

[0039] First of all, it can easily be seen how the snap engagement system of the hinge arm is intrinsically secure, given that the rotations thereof take place in a plane perpendicular to the buckling plane of the linear spring 7 and therefore they cannot produce the negative effects pointed out with regard to the prior art.

[0040] In other words, in the case of stresses that tend to cause the hinge arm to rotate in the opposite sense to that of the assembling operation just described, the snap engagement means, i.e. the linear spring 7 and the tail appendage 56 of the intermediate body, are prevented from working because they operate in a plane perpendicular to that of the rotation of the hinge arm.

[0041] It may therefore be stated that the engagement system according to the invention is a non-reversible mechanism.

[0042] In addition, the system is structurally fairly simple and therefore inexpensive per se but above all, its embodiment described above allows the operations necessary for its manufacturing to be minimised.

[0043] It is in fact well-known that hinges of the type concerned herein are produced by forming their individual parts (base plate, intermediate body, hinge arm) from a flat metal sheet, following to successive stages of blanking and drawing carried out using dies mounted on presses.

[0044] As it can be seen, in the hinge 1 the snap engagement system comprises the mounting only of the linear spring 7.

[0045] This operation is carried out after having inserted the linear spring 7 into the opening 66 in the tail appendage 64 and by securing it to the base plate in the region of the hole 67 with clinched edge: this last stage can be carried out by means of a simple stamping operation which does not require special manual intervention on the part of the operators, as might be the case if welding, rivets or other equivalent techniques were used for securing the linear spring 7.

[0046] Similar considerations may also be expressed

in respect of the other parts contributing to the formation of the system of snap engagement in the hinge 1, for example the tail appendages 56 and 64 of the intermediate body 5 and of the base plate 6, respectively, with which they are in one piece.

[0047] It may indeed be noted that both appendages can be obtained by stamping at the same time with the intermediate body and the base plate, given that they are only a bent extension thereof; this means that it is not necessary to carry out additional operations in order to form the tail pieces, compared with those normally required for the production per se of the intermediate body and of the base plate, it being sufficient to provide the appropriate modifications to the dies for the latter.

[0048] An important effect brought about by the presence of the tail appendage 56 of the intermediate body 5 should not be overlooked.

[0049] As stated above, in hinges of the type concerned herein the snap engagement prevents the arm from being detached from the base plate as a result of its rotation in the direction opposite to the mounting one; in practice, it may be said that the snap engagement restrains the hinge arm against forces which may cause it to be lifted from the base plate.

[0050] In known hinges, however, the engagement system does not help to withstand the forces acting in the axial direction relative to the arm; that is to say, the engagement system does not restrain the arm relative to the base plate, preventing their mutual detachment along their longitudinal axis.

[0051] Known hinges are generally provided with other means for that purpose, such as abutments on the arm and on the base plate, in order to ensure their stable axial coupling.

[0052] In the hinge of the invention, on the contrary, it is the tail appendage 56 which, in addition to forming part of the snap engagement means thereby serving to prevent the lifting of the hinge arm 2 from the base plate 6, is also aimed at preventing axial movements of the intermediate body 5 (and of the hinge arm 2 secured thereon) relative to the base plate 6.

[0053] Indeed when the intermediate body is applied on the base plate, it is restrained thereon in the longitudinal direction by the tail appendage 56 which is inserted in the slit 68, and by the coupling between the projections 55 and the cavities 65.

[0054] Consequently, the hinge of the invention can be further simplified with respect to the known hinges, thus making it even more advantageous than them.

[0055] Among the other advantages achieved by the hinge 1, it must be pointed out that the control movements of the spring occur in a plane parallel to the mounting plane of the base plate, i.e. usually the wall of the item of furniture to which it is secured.

[0056] As stated above, in the prior art the snap engagement rocker arms generally oscillate in the plane where the rotation of the hinge arm (and of the intermediate body, where appropriate) takes place, or in a plane

perpendicular to the mounting plane of the base plate.

[0057] This fact does not always facilitate the operation of disengaging the arm from the base plate of the hinge.

[0058] Indeed, in order to release the coupled parts from the snap engagement, it is necessary to rotate the rocker arm in the above-mentioned perpendicular plane: this is not always easy because the space available between the point on the rocker arm where the force necessary to cause it to rotate is applied and the plane on which the base plate is secured, is usually limited.

[0059] Furthermore, if the rocker arm is mounted on the base plate, it has to rotate towards the plane where the plate is secured, in order to be able to release the hinge arm from the snap engagement: consequently, the rotation of the rocker arm is necessarily limited by the mounting plane of the base plate and therefore it can sometimes become rather problematic.

[0060] In the present invention, instead, since the movements of the linear spring 7 take place in a plane parallel to the mounting plane of the base plate 6, they are not limited by any portion of the item of furniture on which the hinge is mounted.

[0061] It should also be borne in mind that in order to obtain the buckling of the spring in the hinge according to the invention, it is just sufficient to push its projecting end (which in the previous case is suitably provided with the grip 71) and this can therefore be carried out by a person with a finger of one hand.

[0062] Advantageously, by arranging the projecting end in an off-centre position relative to the longitudinal axis of symmetry of the central core 60 (represented by a dot-dash line in Figure 2), the wideness of the buckling of the spring can be sufficiently large to not interfere with the side walls of the central core.

[0063] It will also be appreciated that, by increasing the length of the linear spring 7, that is to say the distance between the eyelet 70 and its projecting end where the grip 71 is applied, it is possible to increase the bending moment acting thereon for a given force applied: in other words, by increasing the above-mentioned distance, for example by moving the position of the hole 67 more towards the cavities 65 in the base plate, the effect of the force applied to the spring is amplified and therefore the bending thereof is enhanced thereby.

[0064] If consideration is made to the fact that when a door is mounted on the wall of a cupboard, the movements of the linear spring 7 take place in a vertical plane such as that of the door or wall, it is not difficult to understand that its operation by a user is substantially easier compared with the rocker arms of the prior art; in short, it can be stated that the hinge of the invention is advantageously ergonomic.

[0065] With reference to Figures 4 and 5, a description will now be given of a second embodiment of the invention.

[0066] In this description and in the associated drawings, elements that are structurally or functionally equivalent to those of the previous example, and which have therefore already been referred to, will keep the same numbering and will be considered solely with respect to what is useful for understanding this second embodiment.

[0067] In short, the second embodiment of the invention differs from the hinge of Figures 1 to 3 by the fact that the snap engagement means in this case comprise a rocker arm 8 resiliently urged by a helicoidal spring 9.

[0068] In more detail, the rocker arm 8 has a flattened portion which is mounted under the central core 60 of the base plate 6 by means of a pin 10 and on which the helicoidal spring 9 acts; the helicoidal spring 9 is one which also works by flexure and is applied to the pin 10 in such a manner that (see Figure 5) one of its legs 9a acts on the side of the central core 60, while the other, 9b, is in contact with a protrusion 80 projecting from the rocker arm 8.

[0069] Moreover, as can be appreciated in this case too, in order to facilitate the operation of the snap engagement means, the rocker arm 8 has a shaped grip 81 which can be pushed by a user for causing it to oscillate while being opposed by the helicoidal spring 9.

[0070] For such purpose, it should be observed how similarly to the previous case, the intermediate body 5 is provided with a tail appendage 56 which is produced in one piece with the central portion 57 of the intermediate body 5 by bending an end extension thereof; the shape of the tail appendage 56 having the seat 58 and the inclined surface 59 is also similar to the shape already seen: the fact that it is arranged differently (see especially Figures 3 and 6) or has different proportions, clearly has no effect on its functions and the mode of operation.

[0071] Finally, as can be seen the base plate 6 does not have a slit while its rear end 69, that is to say the end remote from the cavities 65, has a stepped profile for coupling with the tail appendage 56 of the intermediate body.

[0072] Also as regards the assembly of this second hinge, reference may be made to the explanations already given.

[0073] Therefore, the snap engagement of the intermediate body 5 with the hinge arm 2 secured thereto, takes place after having rotated them about the axis defined by the projections 55 and the cavities 65.

[0074] When, as a result of that rotation, the inclined surface 59 comes into contact with the rocker arm 8, it is necessary only to press the intermediate body 5 slightly against the base plate 6 in order to overcome the opposing action which the helicoidal spring 9 applies to the rocker arm, thus causing it to rotate with respect to its hinging pin 10.

[0075] Thereafter, the rocker arm can snap into the seat 58, locking the intermediate body and the hinge arm onto the base plate.

[0076] It should be observed how also, in this embodiment of the invention, the snap movement of the rocker arm takes place in a plane perpendicular to the plane of rotation of the intermediate body and the hinge arm relative to the base plate.

[0077] This confers therefore the desired security on the hinge, given that in the event of rotations of its arm 2 in the direction opposite to the mounting one, the rocker arm 8 urged by the helicoidal spring 9 cannot move because it operates only in a plane perpendicular to that of said rotations.

[0078] Furthermore, the same considerations apply to this second embodiment of the invention as those expressed above in respect of the advantages deriving from the operation of the snap engagement means, in a plane parallel to the mounting plane of the base plate.

[0079] This means that the movements of the rocker arm do not interfere with the portions of the item of furniture on which the hinge is mounted and in this connection it should be pointed out that for having a larger angle of oscillation of the rocker arm to facilitate its snap engagement with the tail appendage 56, in this embodiment the pin 10 is advantageously mounted in a position displaced with respect to the longitudinal axis of symmetry of the central core 60.

[0080] Indeed, in this manner it is possible to disengage the rocker arm from the seat 58, by rotating it through an angle greater than that possible if the pin 10 were mounted in an axial position on the core 60, before it interferes with the sides thereof; naturally, such an angle is not symmetrical, that is to say, the rotations of the rocker arm are not equal in the clockwise and anticlockwise directions but this does not affect the functionality of the hinge.

[0081] The wider rotation so obtained permits a better manoeuvring of the rocker arm during the hinge disengagement stage; in this connection it should also be pointed out that likewise the situation described above for moving the hole 67 relative to the linear spring 7, by moving the position of the pin 10 further towards the front end of the core 60 of the base plate, that is to say the end where the cavities 65 are located, the control of the rocker arm by a user is facilitated because the arm of the force applied about the pin is increased.

[0082] Of course also in this second embodiment of the invention the intermediate body (and the hinge arm) is anchored to the base plate in the longitudinal direction, by means of the cavities 65/projections 55 coupling at the front and by means of the tail appendage 56 accommodated in the end 69, at the rear.

[0083] In other words, in this case too the tail appendage 56, in addition to forming part of the snap engagement means, operates as a stop element for the intermediate body 5 against the forces acting axially relative thereto which could detach it from the base plate.

[0084] Finally, as a further general advantageous aspect of the present invention, it should also be pointed out that the snap engagement system of the arm with

the intermediate body on the base plate, is accommodated inside the central core of the base plate except, of course, for the grips 71 or 81.

[0085] This means that the various elements forming the system, for example the linear spring 7, the rocker arm 8 and the helicoidal spring 9, can be accommodated between the base plate and the surface to which it is secured; consequently, all these elements are protected against outside agents which could damage them or causing their malfunctioning and above all, being they arranged internally, they render the hinge compact and less bulky compared to those currently available wherein the various components used for the snap engagement are generally arranged outside the hinge.

[0086] Naturally, variants of the invention which differ from the previous embodiments described herein are not to be excluded.

[0087] A first possible change which could be envisaged is to produce the tail appendage 56 of the intermediate body by bending an extension of its sides 54, instead of an extension of its central portion; in such a situation it might perhaps be necessary to modify slightly the profile of the tail appendage 56 for allowing it to be engaged by the linear spring 7 or the rocker arm 8 as explained above, but from the functional point of view the tail appendage 56 would not change its role.

[0088] The configuration explained above, in which the tail appendage 56 is obtained by bending the extension of the central portion 57, is nevertheless to be preferred because that portion generally has a width greater than that of the sides 54 (in cross-section) and permits a saving in the material used to produce the intermediate body with the bent extension.

[0089] Last it should not be excluded, as an alternative or in addition to the tail appendage 56, to provide undercuts or openings in the sides 54 of the intermediate body 5 suitable for cooperating with the linear spring or the rocker arm: such solutions, however, appear to be of lesser value than those considered in the previous examples, also because their carrying out would involve specific operations for manufacturing the hinge.

[0090] In other words, such alternatives would require additional or, anyway, complicated and therefore expensive stamping operations, and even the formation of suitable lateral openings in the central parts of the base plate for the passage of the portions of the spring or of the rocker arm that engage with the intermediate body: those operations are not advantageous compared with the minimal ones necessary to produce the hinges according to the embodiments described herein above and may also prove to be structurally disadvantageous.

[0091] Those and other possible variants nevertheless fall within the scope of the following claims.

Claims

1. Hinge for furniture, comprising a base plate (6) with

a central core (60), an intermediate body (5) mounted on the central core as a result of its rotation relative to a front portion thereof and its snap engagement at a rear portion, and a hinge arm (2) secured adjustably to the intermediate body, characterised in that it comprises: resilient engagement means (7, 8) accommodated inside the central core, which cooperate with the intermediate body causing it to be locked on the central core and which are active in a plane substantially parallel to the mounting plane of the base plate on the item of furniture.

2. Hinge according to claim 1, wherein the intermediate body (5) has a tail appendage (56) which is obtained by bending a rear longitudinal extension thereof and so shaped as to cooperate with the resilient engagement means (7, 8), thereby bringing about the snap engagement of the intermediate body on the central core (60) of the base plate (6). 5
3. Hinge according to claims 1 and 2, wherein the resilient engagement means comprise a linear spring (7) protruding from the rear portion of the central core (60) and which is suitable for being resiliently buckled in the above-mentioned plane substantially parallel to the mounting plane of the base plate (6). 10
4. Hinge according to claim 3, wherein the linear spring (7) projects in an off-centre position with reference to the longitudinal axis of symmetry of the central core (60). 15
5. Hinge according to claims 3 and 4, wherein also the central core (60) of the base plate (6) is provided with a tail appendage (64) is obtained by bending a longitudinal extension thereof and which is shaped in such a manner as to support the projecting end of the linear spring (7). 20
6. Hinge according to any one of claims 3 to 5, wherein the linear spring (7) is shaped with an eyelet (70) on its opposite side to that projecting from the central core (60), and wherein the spring is held on the central core in the region of a hole (67) which has an edge (67a) clinched along the profile of the eyelet. 25
7. Hinge according to any one of claims 2 to 6, wherein the tail appendage (56) of the intermediate body (5) extends through a slit (68) in the central core (60) when the intermediate body is mounted on the base plate (6). 30
8. Hinge according to claims 1 and 2, wherein the resilient engagement means (7, 8) comprise a rocker arm (8) opposed by the action of a spring (9) and oscillating about a pin (10) projecting from the central portion (60), in the above-mentioned plane sub-

stantially parallel to the mounting plane of the base plate (6).

9. Hinge according to claim 8, wherein the spring (9) is of the helicoidal type and is mounted on the pin (10) about which the oscillation of the rocker arm (8) occurs. 35
10. Hinge according to claims 8 and 9, wherein the pin (10) for the oscillation of the rocker arm (8) is arranged in an offset position with reference to the longitudinal axis of symmetry of the central core (60). 40
11. Hinge according to any one of the preceding claims, wherein the intermediate body (5) comprises a central portion (57) extending in the longitudinal direction thereof, the opposing sides of which are provided with two sides (54), and wherein the tail appendage (56) is obtained by bending an extension of the central portion of the intermediate body. 45
12. Hinge according to any one of claims 2 to 11, wherein the tail appendage (56) has a profile in which there are defined an inclined surface (59) starting from the free end of the appendage, and a seat (58) which extends mainly parallel to the securing plane of the base plate (6) and which is adjacent to the inclined surface. 50
13. Hinge according to any one of claims 3 to 12, wherein the linear spring (7) or the rocker arm (8) are provided with a grip (71, 81) for their operation. 55

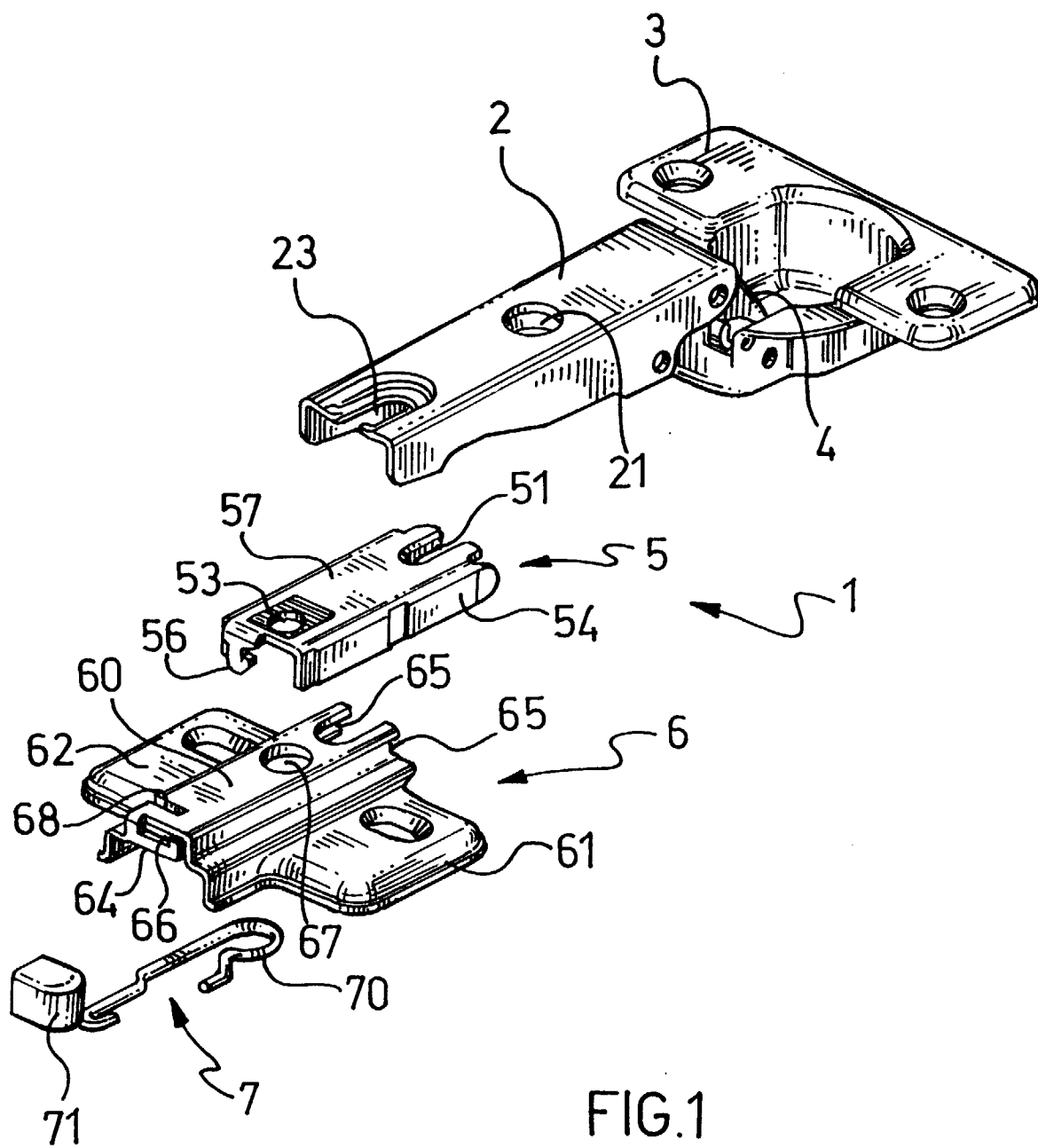
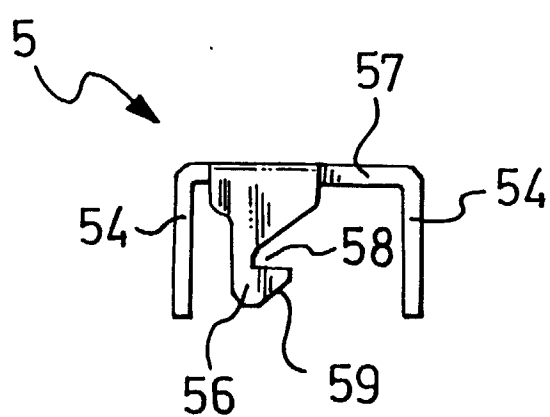
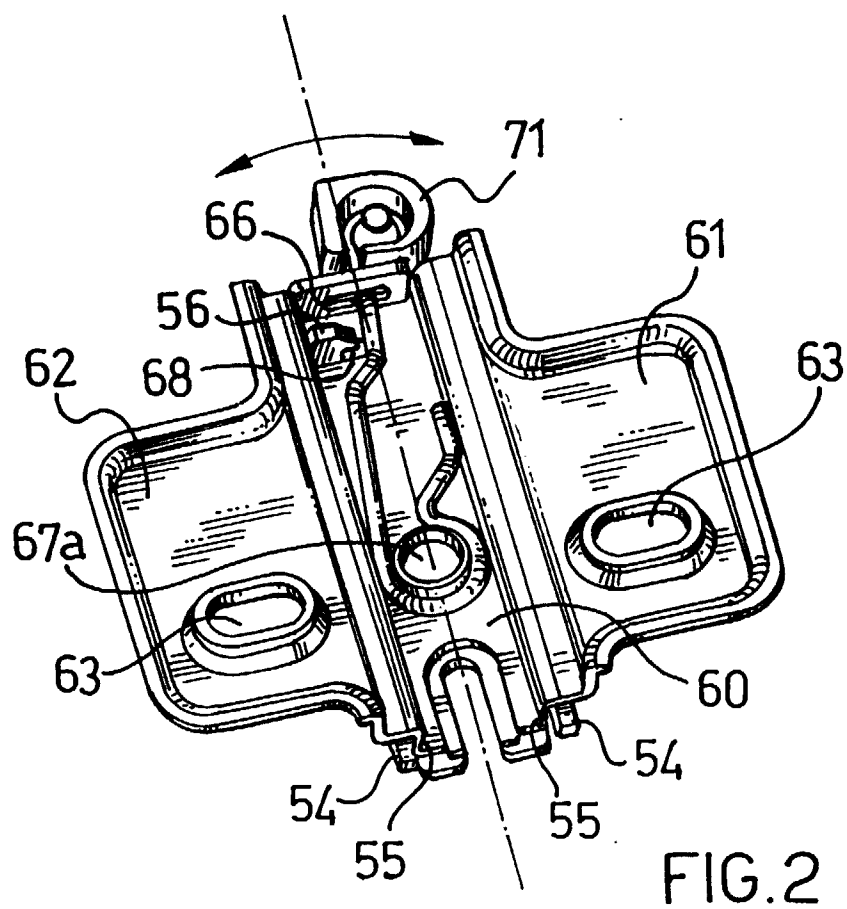


FIG.1



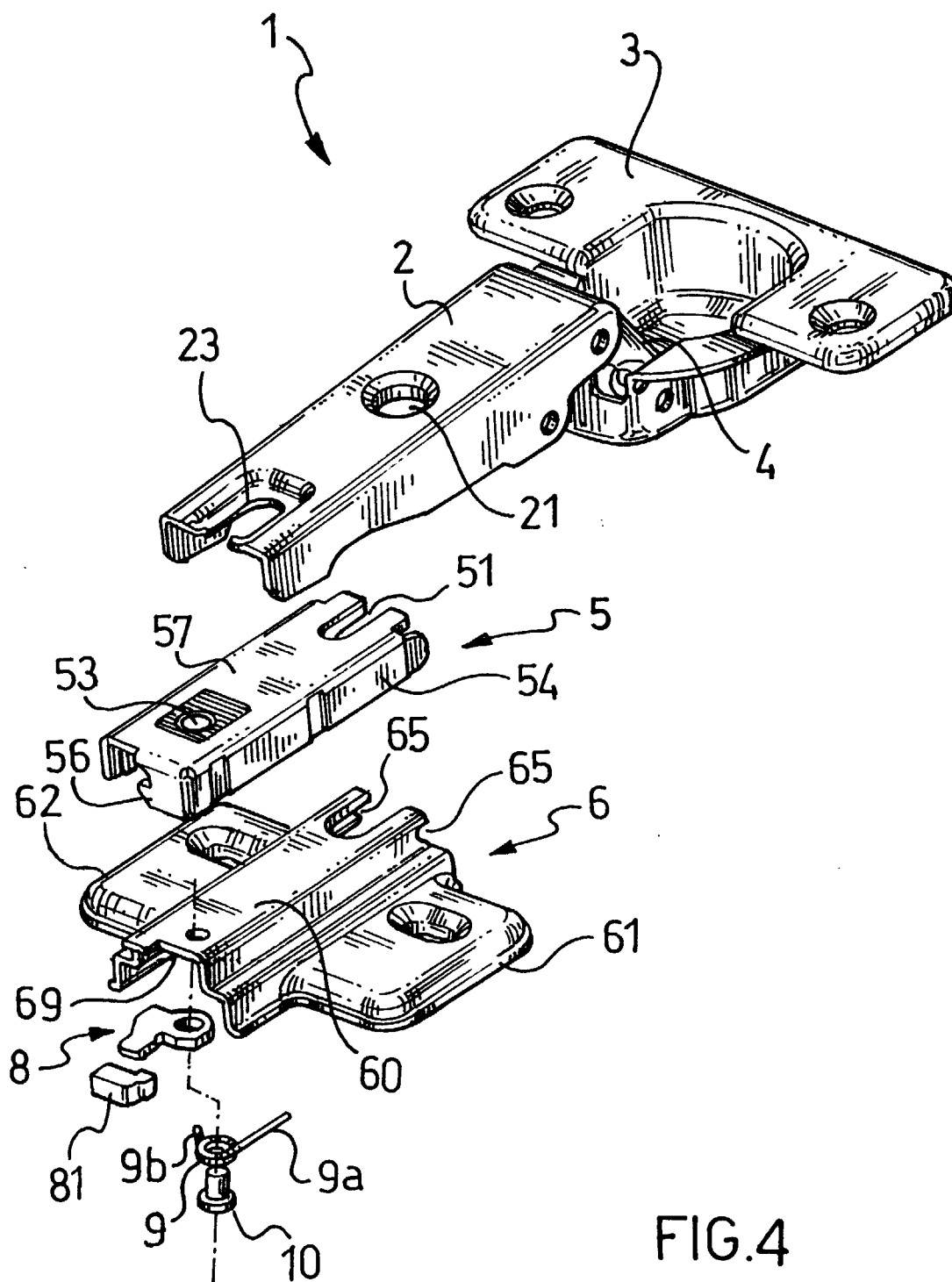


FIG.4

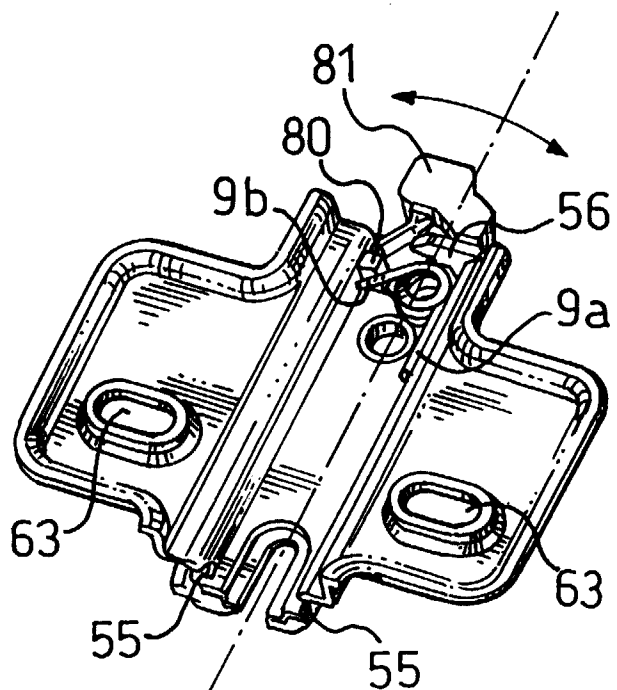


FIG. 5

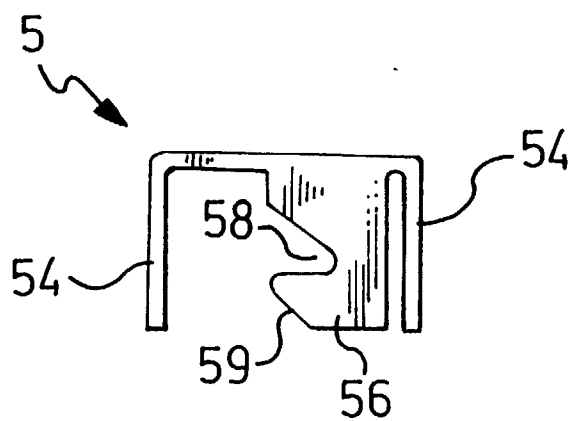


FIG. 6