



(11) **EP 1 990 495 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
17.07.2013 Bulletin 2013/29

(51) Int Cl.:
F24C 15/12 (2006.01) **E05F 1/12** (2006.01)
F24C 15/02 (2006.01)

(21) Application number: **08008738.0**

(22) Date of filing: **09.05.2008**

(54) **Hinge assembly for kitchen covers, wings and doors in general**

Scharnier für Deckel, Flügel und Türe für Küchengeräte oder Kucheneinrichtung

Charnière pour couvercles, vantaux ou portes d' un équipement de cuisine

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT
RO SE SI SK TR**

(30) Priority: **09.05.2007 IT MI20070935**

(43) Date of publication of application:
12.11.2008 Bulletin 2008/46

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(56) References cited:
EP-A- 1 555 485 DE-B1- 1 584 210
US-A1- 2005 034 269

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a hinge assembly for kitchen covers, wings and doors in general.

[0002] Hinge assemblies allowing a partial and balanced rotary or turning movement of the kitchen cover are already known.

[0003] The document EP 1 555 485 discloses substantially the preamble of claim 1.

SUMMARY OF THE INVENTION

[0004] The aim of the present invention is to provide such an improved hinge assembly which has a size and weight much smaller than those of prior like hinge assemblies.

[0005] Within the scope of the above mentioned aim, a main object of the invention is to provide such a hinge assembly including a very small number of component parts, and which can be made at a smaller cost than conventional prior hinge assemblies.

[0006] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a hinge assembly, for kitchen appliances covers, wings or doors in general, according to claim 1.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] Further characteristics and advantages of the present invention will become more apparent hereinafter from the following detailed disclosure of a preferred, though not exclusive, embodiment of the invention which is illustrated, by way of an indicative, but not limitative, example in the accompanying drawings, where:

Figure 1 is an exploded perspective view of the hinge assembly according to the present invention;

Figure 2 is a side elevation view of a cover, including the hinge assembly according to the present invention, and being shown in an open position thereof;

Figure 3 is a further front elevation view, as partially cross-sectioned, showing the cover in a closed position thereof;

Figure 4 is a side elevation view, on an enlarged scale, of a portion opposite to that of figure 2;

Figure 5 is a view similar to figure 4, but showing the cover in a closed position thereof;

and

Figures 6 and 7 are further side elevation views, on an enlarged scale, showing the hinge assembly cross-sectioned according two different cross-section planes.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0008] With reference to the number references of the above mentioned figures, the hinge assembly according to the present invention, which has been generally indicated by the reference number 1, comprises an attachment head 2, having any required configuration, provided for being pressure engaged in a section member 3, including a contoured cavity 4, thereby allowing a kitchen cover 5 or wings and doors in general to be partially rotated.

[0009] The cover 5 is applied to said section member 3 which, in turn, is supported by an upright 20 through the hinge assembly 1.

[0010] The attachment head 2, in turn, comprises a collar 6 having a projection 7 adapted to turn in a groove 8 through an angle defined by limit tooth elements 9.

[0011] Said attachment head 2 comprises, moreover, a central pin or shaft 10, thereon a coil spring 11 is coaxially assembled.

[0012] Said coil spring 11, in particular, comprises a first axial end portion 12, engaged in a hole 13 formed in said collar 6 of said attachment head 2.

[0013] The coil spring 11 comprises moreover a second axial end portion 14, engaging in a hole 15 formed in a pawl 16 which also operate as a cam element.

[0014] More specifically, said pawl 16 comprises a projecting end tooth element 17 and two further peripheral tooth elements 18.

[0015] Said peripheral tooth elements 18 engage in said hollow section member 3 therein the hinge assembly 1 is engaged, thereby allowing a rotary movement through an angle defined by said limit tooth elements 9 to be performed.

[0016] As shown, the projecting end tooth element 17 engages with a contoured washer 19, which is axially locked on the central shaft 10 by a mechanical deformation thereof.

[0017] The central shaft 10 has a polygonal or uneven cross-section, thereby preventing the restraining washer 19 from turning.

[0018] The pawl 16 is mounted on said shaft 10 and has such a diameter as to turn about said shaft.

[0019] The washer 19 allows the pawl 16 to perform a limited turning movement, while preventing the coil 11 from axially exiting the shaft 10, while further preventing a counter-turning movement of said spring, which is preloaded based on a geometrical position of the limit element 9, which is achieved in making the hinge assembly.

[0020] It has been found that the invention fully achieves the intended aim and objects.

[0021] In fact, the invention provides a hinge assembly which is much more compact than prior like hinge assemblies and which, moreover, comprises a very small number of hinge component parts.

[0022] In particular, the hinge assembly according to

the present invention comprises spring restraining means, including a lightened central pawl and a simple restraining washer element, contrarily to prior systems requiring a central pawl of a larger size and a second restraining further pawl cooperating with a locking washing.

[0023] In practicing the invention, the used materials, as well as the contingent size and shapes, can be any, depending on requirements.

Claims

1. A hinge assembly for kitchen appliances cover (5), wings and doors, said hinge assembly comprises an attachment head (2) adapted to be pressure engaged in a section member (3) supported by a supporting upright (20) through said hinge assembly (1), said attachment head (2) comprising a collar (6) having a projection (7) and a central shaft (10), thereon a coil spring (11) and a pawl (16) are assembled, said coil spring (11) comprising a first axial end portion (12) engaging in a hole (13) formed in said collar (6) and a second axial end portion (14) engaging a hole (15) formed in said pawl (16), **characterized in that** said pawl (16) cooperates with a contoured restrained washer (19), and **that** said section member (3) comprises a contoured cavity (4) allowing said cover, wing or door engaged in said section member (3) to turn, and **in that** in said contoured cavity (4) of said section member (3) limiting tooth means (9) are formed for limiting the turning of said kitchen cover (5) with respect to said supporting upright (20), whereby said pawl (16) comprises an end projecting tooth element (17) and two further peripheral tooth elements (18); said end projecting tooth element (17) engages said contoured washer (19) which is locked on said central shaft (10) and said pawl (16) is mounted on said central shaft (10) and has such a diameter as to turn about said central shaft (10).
2. A hinge assembly, according to claim 1, **characterized in that** said two peripheral tooth elements (18) of said pawl (16) are so engaged in said contoured cavity (4) of said hollow section member (3) as to allow said pawl to perform a turning movement through about 95°.
3. A hinge assembly, according to claim 1, **characterized in that** said end projecting tooth element (17) engages with said contoured washer (19) by mechanically deforming said washer (19).
4. A hinge assembly, according to claim 1, **characterized in that** said central shaft (10) has a polygonal or uneven cross-section, thereby preventing said restraining washer (19) from turning.

5. A hinge assembly, according to claim 1, **characterized in that** said washer (19) performs a turning movement limited by said pawl (16), thereby preventing said spring (11) from being axially ejected from said shaft (10) while preventing said spring (11) from counter-rotating.

Patentansprüche

1. Scharnierbaugruppe für Küchengeräteabdeckungen (5), Flügel und Türen, wobei die Scharnierbaugruppe einen Anbringungskopf (2) umfasst, der dazu geeignet ist, durch Druck in einem Teilabschnittglied (3), das durch einen Stützpfeiler (20) gestützt ist, durch die Scharnierbaugruppe (1) in Eingriff zu treten, wobei der Anbringungskopf (2) einen Ansatz (6) mit einem Vorsprung (7) und einem mittleren Schaft (10) umfasst, woran eine Schraubenfeder (11) und eine Sperrklinke (16) angebaut sind, wobei die Schraubenfeder (11) einen ersten axialen Endabschnitt (12), der in einem Loch (13) in Eingriff tritt, welches in dem Ansatz (6) ausgebildet ist, und einen zweiten axialen Endabschnitt (14) umfasst, der ein Loch (15) in Eingriff nimmt, welches in der Sperrklinke (16) ausgebildet ist, **dadurch gekennzeichnet, dass** die Sperrklinke (16) mit einer profilierten eingespannten Unterlegscheibe (19) zusammenwirkt, und dass das Teilabschnittsglied (3) einen profilierten Hohlraum (4) umfasst, der es ermöglicht, dass die Abdeckung, der Flügel oder die Tür, der/die in dem Teilabschnittglied (3) in Eingriff genommen ist, dreht, und dass in dem profilierten Hohlraum (4) des Teilabschnittglieds (3) Begrenzungszahnmittel (9) zum Begrenzen des Drehens der Küchenabdeckung (5) bezüglich des Stützpfeilers (20) ausgebildet sind, wobei die Sperrklinke (16) ein endvorstehendes Zahnelement (17) und zwei weitere umfängliche Zahnelemente (18) umfasst; wobei das endvorstehende Zahnelement (17) die profilierte Unterlegscheibe (19), die an dem mittleren Schaft (10) verriegelt ist, in Eingriff nimmt, und wobei die Sperrklinke (16) an dem mittleren Schaft (10) angebracht ist und einen derartigen Durchmesser zum Drehen um den mittleren Schaft (10) aufweist.
2. Scharnierbaugruppe nach Anspruch 1, **dadurch gekennzeichnet, dass** zwei umfängliche Zahnelemente (18) der Sperrklinke (16) derart in dem profilierten Hohlraum (4) des hohlen Teilabschnittglieds (3) in Eingriff genommen sind, dass ermöglicht ist, dass die Sperrklinke eine Drehbewegung um ungefähr 95° ausführt.
3. Scharnierbaugruppe nach Anspruch 1, **dadurch gekennzeichnet, dass** das endvorstehende Zahnelement (17) durch mechanisches Verformen der Unterlegscheibe (19) mit der Unterlegscheibe (19) in

Eingriff tritt.

4. Scharnierbaugruppe nach Anspruch 1, **dadurch gekennzeichnet, dass** der mittlere Schaft (10) einen vieleckigen oder unregelmäßigen Querschnitt aufweist, wodurch verhindert ist, dass die eingespannte Unterlegscheibe (19) dreht.
5. Scharnierbaugruppe nach Anspruch 1, **dadurch gekennzeichnet, dass** die Unterlegscheibe (19) eine Drehbewegung ausführt, die durch die Sperrklinke (16) begrenzt ist, wodurch verhindert ist, dass die Feder (11) axial von dem Schaft (10) ausgeworfen wird, während verhindert ist, dass die Feder (11) gendreht.

Revendications

1. Ensemble de charnière destiné aux couvercles des appareils de cuisines(5), vantaux ou portes, ledit ensemble de charnière comprenant une tête de fixation (2) conçue pour être engagée par pression dans un organe profilé (3) supporté par un montant de support (20) traversant ledit ensemble de charnière (1), ladite tête de fixation (2) comprenant un collet (6) présentant une saillie (7) et un axe central (10), sur lequel un ressort hélicoïdal (11) et un cliquet (16) sont assemblés, ledit ressort hélicoïdal (11) comprenant une première portion d'extrémité axiale (12) qui s'engage dans un orifice (13) formé dans ledit collet (6) et une seconde portion d'extrémité axiale (14) qui s'engage dans un orifice (15) formé dans ledit cliquet (16), **caractérisé en ce que** ledit cliquet (16) coopère avec une rondelle de retenue présentant un décrochement (19), et **en ce que** ledit organe profilé (3) comprend une cavité présentant un décrochement (4) permettant auxdits couvercles, vantaux ou portes engagés dans ledit organe profilé (3) de tourner, et **en ce que**, dans ladite cavité présentant un décrochement (4) dudit organe profilé (3) sont formés des moyens de dents d'arrêt (9) afin de limiter la rotation dudit couvercle d'appareil électroménager (5) par rapport au dit montant de support (20), grâce à quoi ledit cliquet (16) comprend un élément de dent d'extrémité présentant une saillie (17) et deux autres éléments de dents périphériques (18) ; ledit élément de dent d'extrémité présentant une saillie (17) s'engage dans ladite rondelle profilée (19) qui est bloquée sur ledit axe central (10) et ledit cliquet (16) est monté sur ledit axe central (10) et a un diamètre tel qu'il peut tourner autour dudit axe central (10).
2. Ensemble de charnière selon la revendication 1, **caractérisé en ce que** lesdits deux éléments de dents périphériques (18) dudit cliquet (16) s'engagent dans ladite cavité présentant un décrochement (4) du dit organe à section creuse (3) de telle manière

que ledit cliquet effectue un mouvement tournant sur environ 95°.

3. Ensemble de charnière selon la revendication 1, **caractérisé en ce que** ledit élément de dent présentant une saillie (17) s'engage dans ladite rondelle profilée (19) en déformant mécaniquement ladite rondelle (19).
4. Ensemble de charnière selon la revendication 1, **caractérisé en ce que** ledit axe central (10) présente une section transversale de forme polygonale ou irrégulière, ce qui empêche ainsi ladite rondelle de retenue (19) de tourner.
5. Ensemble de charnière selon la revendication 1, **caractérisé en ce que** ladite rondelle (19) effectue un mouvement tournant limité par ledit cliquet (16), ce qui empêche ainsi ledit ressort (11) d'être éjecté axialement dudit axe (10) tout en empêchant ledit ressort (11) de tourner dans le sens inverse.

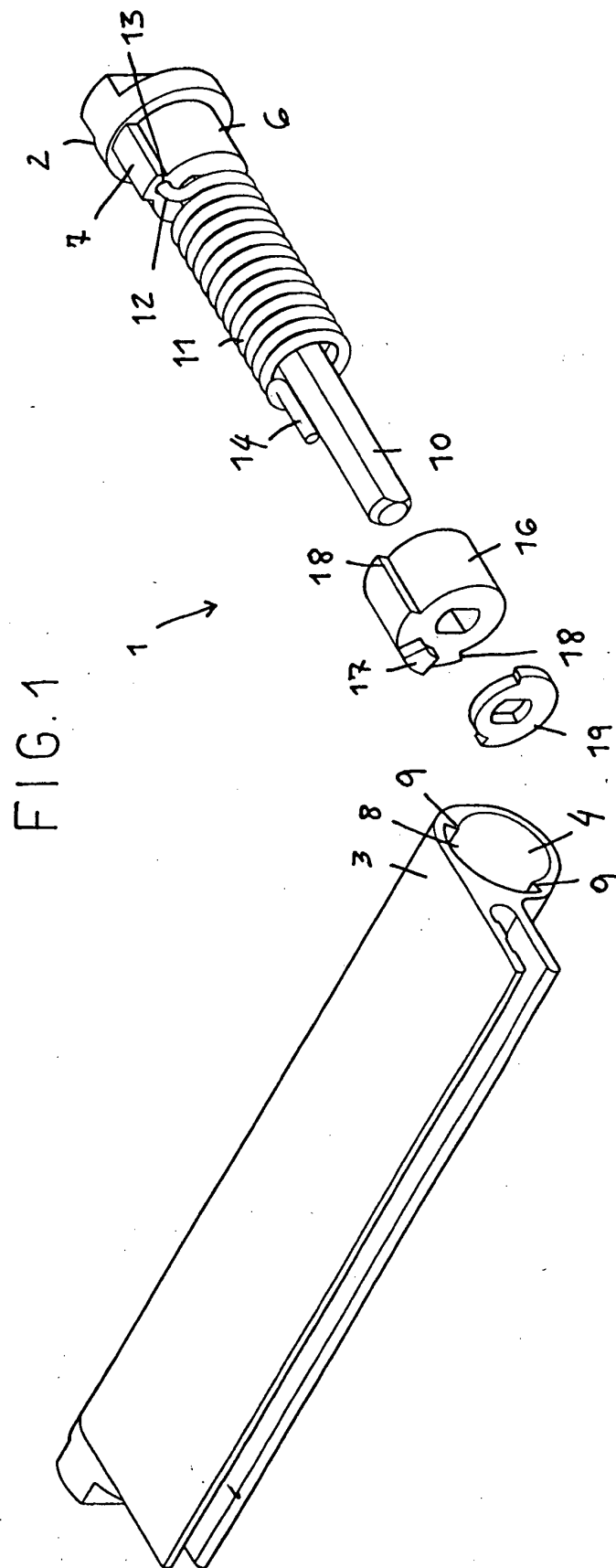


FIG. 2

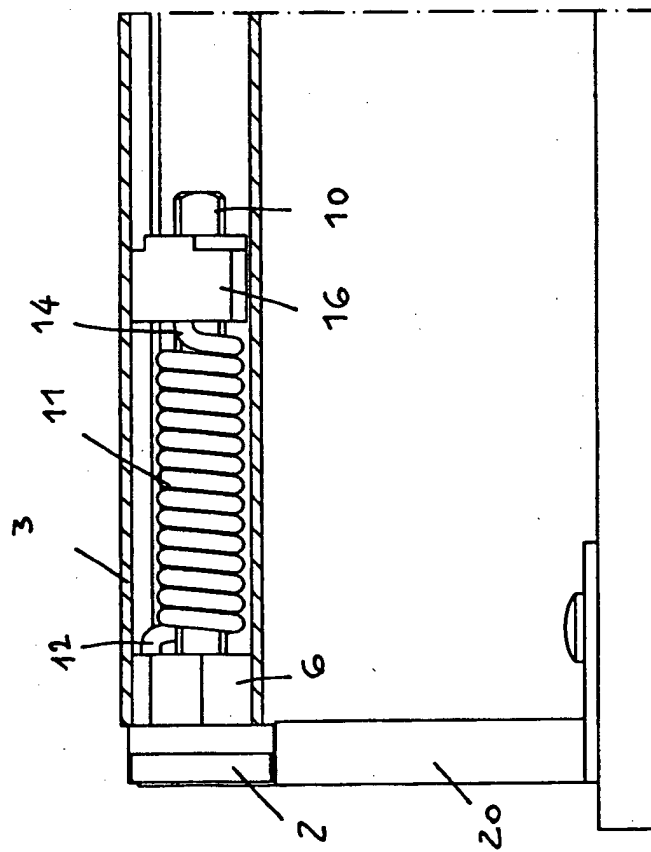
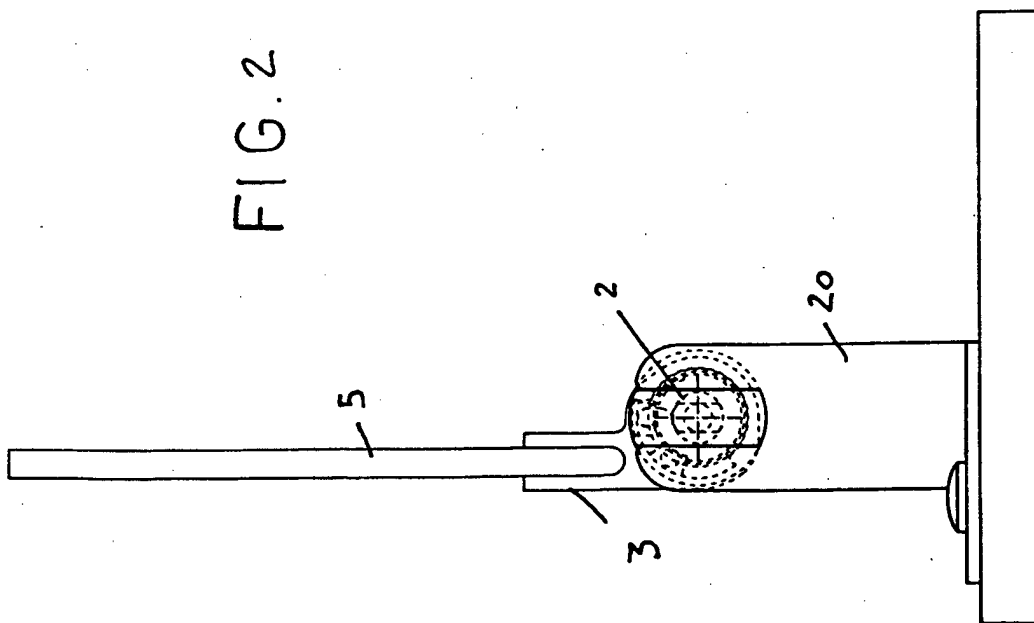
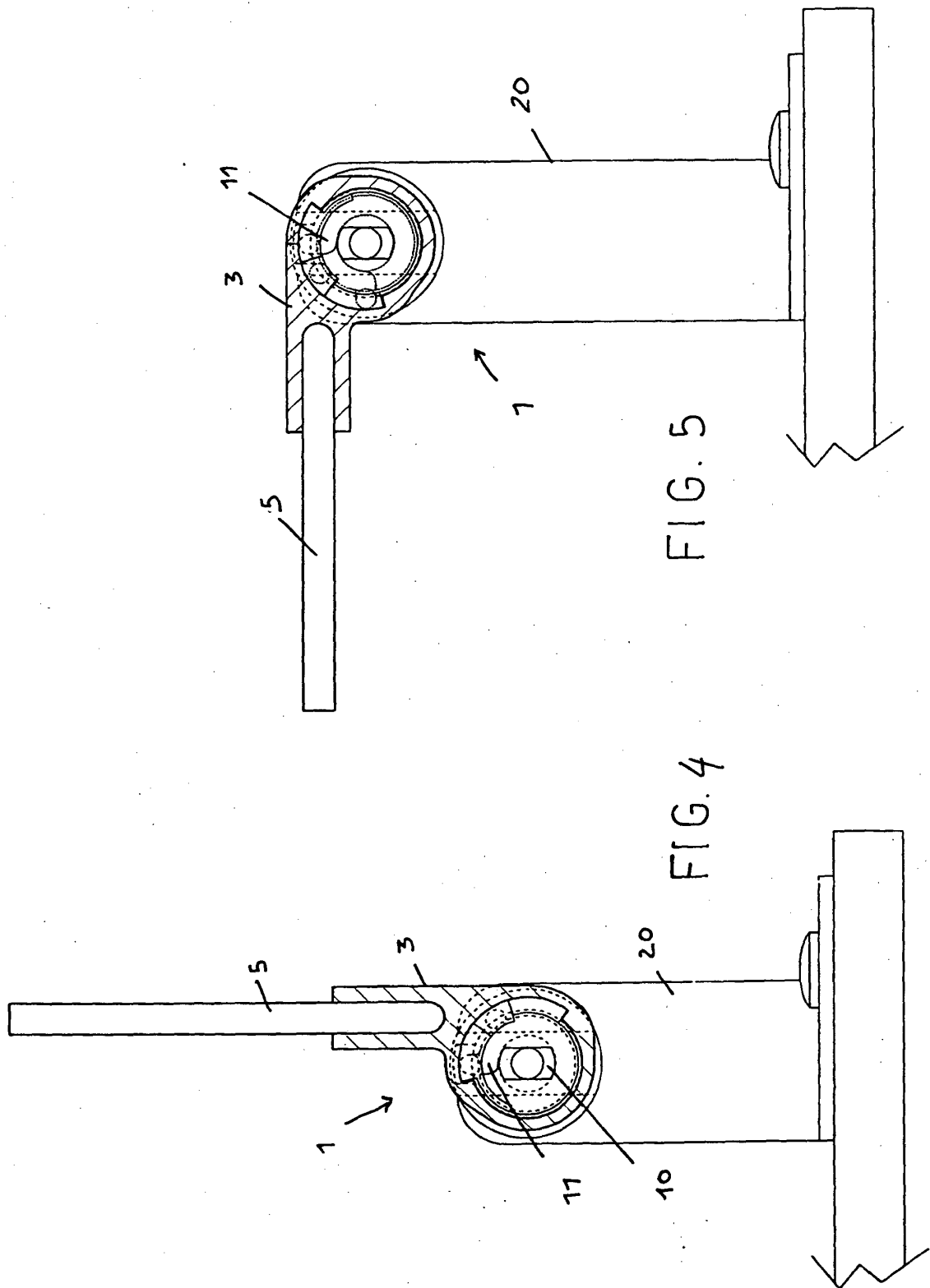


FIG. 3



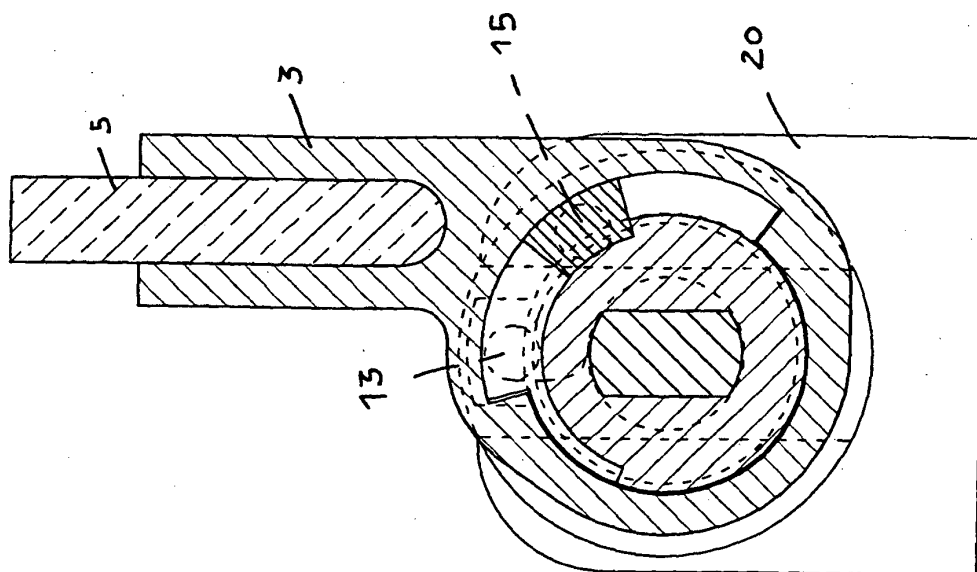


FIG. 7

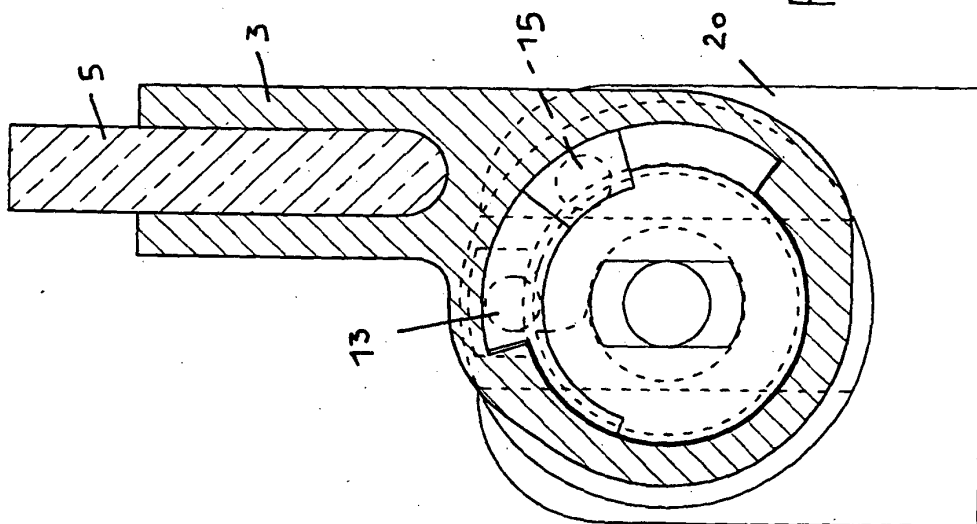


FIG. 6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1555485 A [0003]