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(71) Applicant: **Sistemas Técnicos Del Accesorio Y
Componentes, S.L**
15900 Padrón (A Coruña) (ES)

(72) Inventors:
• **COUTO MAQUIEIRA, Javier**
15900 Padrón (A Coruña) (ES)
• **FERNÁNDEZ PADRÓN, Juan Carlos**
15900 Padrón (A Coruña) (ES)
• **FERNÁNDEZ COBIAN, Javier**
15900 Padrón (A Coruña) (ES)
• **ROMERO ROMERO, Juan**
15900 Padrón (A Coruña) (ES)

(74) Representative: **Pons**
Glorieta Ruben Dario 4
28010 Madrid (ES)

(54) **HANDLE FOR DOORS AND WINDOWS AND ASSOCIATED WINDOW OR DOOR**

(57) It comprises: a lever (101); a transmission mechanism (108) inside a profile (130) of the door or window leaf; a movable piece (106) arranged between a wing (140) of the profile (130) of the leaf that defines the outer portion of the leaf and the transmission mechanism (108) to adapt the handle to different widths of the profile (130); the attachment means (153, 154) for attaching the lever (101) to the movable piece (106) that contribute, along with elastic means (155) that change the relative position of the handle (101) with respect to the movable piece (106) to correct the gaps or wear that is produced in the direction defined by the actuating spindle of the lever (101). It enables the handle to be adapted to all European-type profiles and to the aforementioned existing gaps or wear, and prevents the base of the handle from protruding from the profile.

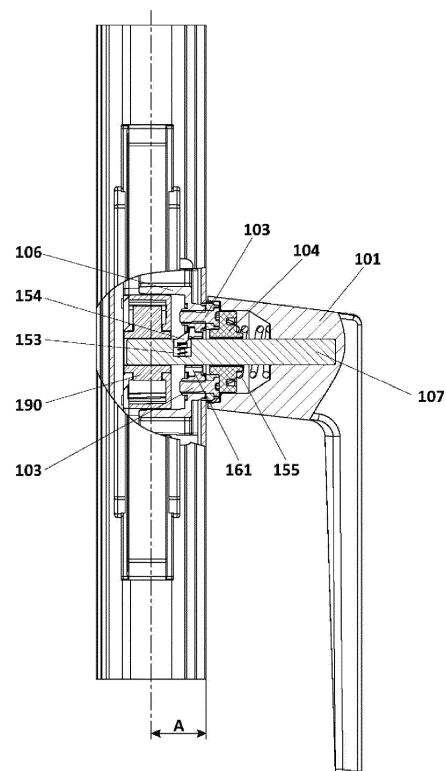


FIG. 3

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a handle for doors and windows and may be included in the technical sector of manufacturing windows or doors and the fittings thereof. More specifically, the aim of the invention is a handle that encompasses a series of relative improvements that hide all of the elements thereof except for the handle itself; this protects the user against the risk of contact with the base of said handle when said handle is opened or closed, and it also favors the aesthetics of the handle, moving towards minimalism and it corrects existing gaps or wear that is produced in the direction of the actuating spindle of the handle.

BACKGROUND OF THE INVENTION

[0002] Currently, the door and window market is characterized in that it has, in its closing systems, handles and cremones that generally include a manually operated handle for transmitting the rotational movement to the inner mechanisms of the system, whether they are transmission boxes in the case of handles, transmission covers in the case of cremones, etc.

[0003] The rotational movement transmitted by the handle is transformed into a translational movement by mechanisms that may be inside the transmission box-shaped profile, as well as in the base of the cremone-shaped handle, both with rack and pinion systems. The patents CH485099, DE1815345, DE3445170A1, EP0446566 disclose said systems.

[0004] However, the handles that do not have a base that are currently known are limited to a specific number of window profiles, since in the different European channel profiles that house said handles, the distance between the center of the channel where the handle mechanism and the wing of the profile that defines the outer portion of the door or window leaf are housed varies, such that said known handles sometimes cannot be mounted on an already existing profile.

[0005] Likewise, the handles that have a base that is external to the profile have the drawback that the user comes into contact with the base of said handle when said handle is opened or closed, making said operation uncomfortable and also making that base inappropriate if a minimalist aesthetic is sought. Furthermore, said mechanisms are very complex, with elevated material costs and production times.

[0006] The Utility Model with publication number ES1146109U from this same applicant is also known, which discloses a handle for doors and windows that comprises a lever, a transmission mechanism arranged on the inside of the profile of the door or window leaf, and a movable piece arranged between a wing of the profile of the leaf that defines the outer portion of the door or window leaf and the transmission mechanism to adapt

the handle to different widths of the profile of the door or window leaf.

[0007] However, the preceding handle, while adaptable to variations in the distance between the center of the channel where the handle mechanism and the wing of the profile that defines the outer portion of the door or window leaf are housed, does not absorb the variations in the thickness of the wing of said profile nor the gaps that may exist in the direction of the actuating spindle of the lever; furthermore, it cannot compensate for wear on the elements that comprise the same, such that due to its use, the lever would be separated from the wing of the profile that defines the outer portion of the door or window leaf, causing a possible failure over time due to larger actuating lever.

[0008] The object of this invention is to provide a solution to all of the aforementioned problems, preventing the handle base from being outside of the profile and enabling said handle to adapt to all European-type profiles and to existing gaps or wear that is produced in the direction of the actuating spindle of the lever.

DESCRIPTION OF THE INVENTION

[0009] The present invention refers to a handle for doors and windows, the base of which is arranged on the inside of the profile of the door or window leaf, where said handle can be adapted to all European-type profiles.

[0010] The handle for doors and windows comprises a lever, a transmission mechanism arranged on the inside of the profile of the door or window leaf and a movable piece arranged between a wing of the profile of the leaf that defines the outer portion of the door or window leaf and the transmission mechanism that enables the handle to adapt to different widths of the profile of the door or window leaf.

[0011] This is due to the fact that the movable piece arranged between the door or window leaf and the transmission mechanism is movable in a direction defined by the actuating spindle of the lever, enabling the variation of the existing dimension between the center of a channel of the profile of the door or window leaf where the transmission mechanism of the handle and the wing of said profile of the door or window leaf are housed.

[0012] The handle comprises attachment means for attaching the lever to the movable piece that contribute, along with elastic means, to correcting the existing gaps or wear that are produced in the direction defined by the actuating spindle of the lever.

[0013] The handle comprises regulating means that carry out the movement of the movable piece in the direction defined by the actuating spindle of the lever.

[0014] The handle comprises a square bar that transmits the rotational movement of the lever to the transmission mechanism, which transforms the rotational movement of the lever into a translational movement of an espagnolette arranged on the inside of the door or window leaf to release or attach the same to the window

or door frame.

[0015] Preferably, the handle comprises a plastic bushing that defines the rotational positions of the lever.

[0016] Preferably, the movable piece comprises a retention piece for the attachment means for attaching the lever to the movable piece.

[0017] Preferably, the handle comprises a base that enables the lever to be attached in the frame of the door or window leaf.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018]

Figure 1 shows a perspective and exploded view of the handle of the present invention.

Figure 2 shows a perspective view of the lever mounted on the door or window leaf.

Figure 3 shows a partial BB cross-sectional view of the handle shown in Figure 2.

Figure 4 shows a perspective view of the plastic bushing that defines the rotational positions of the lever.

Figure 5 shows a perspective view of the base that enables the lever to be attached to the profile of the door or window leaf.

Figure 6 shows a perspective view of the movable piece of the handle of the present invention.

Figure 7 shows a perspective view of the retention piece of the handle of the present invention.

PREFERRED EMBODIMENT OF THE INVENTION

[0019] What follows below is a detailed description of the handle for doors and windows of the present invention.

[0020] The handle comprises a lever (101), a transmission mechanism (108) arranged on the inside of a profile (130) of the door or window leaf and a movable piece (106) arranged between the profile (130) of the door or window leaf and the transmission mechanism (108) that enables the handle to adapt to all European-type profiles, where the movable piece (106) is arranged between the profile (130) of the door or window leaf and the transmission mechanism (108) that is movable in the direction defined by the actuating spindle of the lever (101), enabling the variation of the existing dimension (A) between the center of a channel (120) of the profile of the door or window leaf where the transmission mechanism (108) and a wing (140) of said profile (130) of the leaf that defines the outer portion of the door or window leaf are housed. The transmission mechanism (108) comprises a pinion (190) that in turn comprises a hole (191) to transmit the movement of the lever (101) to the transmission mechanism (108).

[0021] The channel (120) of the profile (130) of the door or window leaf where the transmission mechanism (108) is housed comprises a mortise (189) for the insertion of

the transmission mechanism (108) and the movable piece (106).

[0022] The handle further comprises attachment means (153, 154) for attaching the handle (101) to the movable piece (106) which contribute, along with elastic means (155), preferably a pressure spring arranged in a cylindrical cavity (186) inside the lever (101), to absorbing the existing gaps or wear that are produced in the direction defined by the actuating spindle of the lever (101), where said elastic means (155) are also connected to a plastic bushing (104) that defines the rotational positions of the lever (101).

[0023] The handle comprises a base (105) that enables the lever (101) to be attached to the profile (130) of the door or window leaf, where said base (105) comprises protuberances (109) opposite a perforation (114) present in the wing of said profile (130) of the leaf. The base (105) comprises lateral projections (170) that compensate for the lateral gaps in the adjustment of the base (105) with the perforation (114) of the wing (140) of the profile (130) of the leaf.

[0024] Said plastic bushing (104) comprises recesses (164) opposite projections (167) arranged on the base (105), where the relative position of the projections (167) of the base with respect to the recesses (164) of the plastic bushing defines the rotational positions of the lever (101). The plastic bushing (104) preferably comprises four recesses (164) equally spaced at 90° opposite four projections (167) of the base (105), equally spaced at 90°, defining the discrete positions of the lever (101) from 90° to 90°. The base (105) further comprises cavities (168) to house the heads of the screws (103) and prevent them from interfering with the plastic bushing (104).

[0025] The relative rotation of the plastic bushing (104) with respect to the base (105) makes the recesses (164) of the plastic bushing (104) slide over the projections (167) of the base (105), thus further compressing the pressure spring (155). Preferably, both the projections (167) and the recesses (164) are curved in a way that, along with the force applied by the pressure spring (155) on the plastic bushing (104), make the lever (101) tend to place itself in the positions where the projection (167) and the recess (164) coincide, which are the positions where the pressure spring (155) applies less force, and where the lever (101) makes a relative rotation of 90°.

[0026] The handle comprises regulating means, preferably screws (103), that carry out the movement of the movable piece (106) in the direction defined by the actuating spindle of the lever (101). Preferably, said regulating means also act as attachment means for attaching the movable piece (106) and the base (105) to the profile (130) of the window and door leaf due to the fact that the screws (103) are threaded in threaded holes (196) of the movable piece (106).

[0027] The movable piece (106) comprises protuberances (110) opposite holes (111) that are present in the transmission mechanism (108) to guide the movement of the movable piece (106) with respect to the transmis-

sion mechanism (108). The movable piece (106) further comprises protuberances (184) that are opposite each other and are attached to the inside wall of the wing (140) of the profile (130) of the leaf when the screws (103) of the regulating means are tightened.

[0028] The handle comprises a square bar (107) that transmits the rotational movement of the lever (101) to the transmission mechanism (108), which transforms the rotational movement of the handle (101) into a translational movement of an espagnolette (not shown) arranged on the inside of the door or window leaf to release or attach the same to the door or window frame.

[0029] The handle comprises attachment means for attaching the lever (101) to the square bar (107), where said attachment means are preferably the outer surface of the square bar and an inner surface of the lever which come into contact and are joined by the pressure of the lever (101) and square bar (107).

[0030] The square bar (107) comprises a hole (187) where the attachment means (153, 154) for attaching the lever (101) to the movable piece (106) are housed, which, in this exemplary preferred embodiment, are a spring (153) that is connected to a pin (154) such that when the lever (101), along with the square bar (107), is inserted through the movable piece (106), overcoming the resistance of the pressure spring of the elastic means (155), the pin (154) retains the lever (101) connected to the movable piece (106), attaching the assembly formed by the square bar (107), the plastic bushing (104), the base (105) and the pressure spring of the elastic means (155) to the movable piece (106).

[0031] This is possible due to the fact that the movable piece (106) comprises a retention piece (161) and an attachment plate (181) to attach the retention piece (161) to a hole (183) of the movable piece (106), preferably by riveting. The retention piece (161) comprises a semi-cylindrical radial recess (179) in which the pin (154) of the attachment means (153, 154) of the lever (101) is housed. The retention piece (161) comprises an axial recess (180) opposite an axial protrusion (182) of the movable piece (106) which determines the mounting position of the retention piece (161) on the movable piece (106). The axial protrusion (182) of the movable piece (106) is breakable due to the actuation of the handle, such that the retention piece (161) freely rotates with respect to the movable piece (106).

[0032] The plastic bushing (4) and the retention piece (161) comprise essentially square holes (165, 177) for the coupling of the square bar (107), which is also coupled to the hole (191) of the pinion (190) of the transmission mechanism (108).

[0033] This way, once the lever (101) is mounted, along with the square bar (107) and the plastic bushing (104), the outward force applied by the pressure spring (155) keeps the lever (101) in its position, corrects possible gaps, compensates for the wear on the plastic bushing (104) and the thickness of the wing (140) of the profile (130) of the leaf, as well as enabling the variation of the

existing dimension (A) between the center of a channel (120) of the profile (130) of the door or window leaf where the transmission mechanism (108) and a wing (140) of said profile (130) of the leaf that defines the outer portion of the door or window leaf are housed. Another essential function of the pressure spring (155) is to keep, as securely as possible, the plastic bushing (104) pressed against the base (105), making the recesses (164) of the plastic bushing (104) coincide with the opposite projections (167) arranged on the base (105).

[0034] The handle comprises a nut (157) arranged in the existing circumferential space between the base (105) and a first section (176) of the cylindrical cavity (186) of the lever (101) that prevents gaps between the base (105) and the cylindrical cavity (186), and guarantees correct rotation of the lever assembly (101), pressure spring (155), and plastic bushing (104) with respect to the base (105). Preferably, the nut (157) is made of a low-friction, plastic material.

[0035] The plastic bushing (104) comprises circumferential indents (192) that may be coupled with circumferential projections (193) of a second section (194) of the cylindrical cavity (186) of the lever (101) to guide said plastic bushing (104), preventing gaps between the lever (101) and the plastic bushing (104).

Claims

1. A handle for doors and windows comprising:

- a lever (101),
- a transmission mechanism (108) arranged on the inside of a profile (130) of the door or window leaf,
- a movable piece (106) arranged between a wing (140) of the profile (130) of the leaf that defines the outer portion of the door or window leaf and the transmission mechanism (108) to adapt the handle to different widths of the profile (130) of the door or window leaf

characterized in that it further comprises:

- attachment means (153, 154) for attaching the lever (101) to the movable piece (106) that contribute, along with elastic means (155) that change the relative position of the handle (101) with respect to the movable piece (106) to absorb the existing gaps or wear that are produced in the direction defined by the actuating spindle of the lever (101).

2. The handle for doors and windows according to claim 1, **characterized in that** the movable piece (106) arranged between the door or window leaf and the transmission mechanism is movable in a direction defined by the actuating spindle of the lever (101) to

change the existing dimension (A) between the center of a channel (120) of the profile of the door or window leaf where the transmission mechanism (108) and the wing (140) of said profile (130) of the leaf are housed.

3. The handle for doors and windows according to claim 2, **characterized in that** it comprises regulating means (103) that carry out the movement of the movable piece (106) in the direction defined by the actuating spindle of the lever (101).
4. The handle for doors and windows according to any of the preceding claims, **characterized in that** it comprises a square bar (107) that transmits the rotational movement of the lever (101) to the transmission mechanism (108).
5. The handle for doors and windows according to claim 4, **characterized in that** the square bar (107) comprises a hole (187) where the attachment means (153, 154) for attaching the lever (101) to the movable piece (106) are housed.
6. The handle for doors and windows according to any of the preceding claims, **characterized in that** the movable piece (106) comprises a retention piece (161) of the attachment means (153, 154) for attaching the lever (101) to the movable piece (106).
7. The handle for doors and windows according to claim 6, **characterized in that** the movable piece (106) comprises an attachment plate (181) to attach the retention piece (161) to a hole (183) of the movable piece (106).
8. The handle for doors and windows according to claim 7, **characterized in that** the retention piece (161) comprises an axial recess (180) opposite an axial protrusion (182) of the movable piece (106) which determines the mounting position of the retention piece (161) on the movable piece (106).
9. The handle for doors and windows according to claim 8, **characterized in that** the axial protrusion (182) of the movable piece (106) is breakable due to the actuation of the handle such that the retention piece (161) freely rotates with respect to the movable piece (106).
10. The handle for doors and windows according to any of the preceding claims, **characterized in that** the attachment means (153, 154) for attaching the lever (101) to the movable piece (106) are a spring (153) that is joined to a pin (154).
11. The handle for doors and windows according to claims 6 and 10, **characterized in that** the retention

piece (161) comprises a semi-cylindrical radial recess (179) in which the pin (154) of the attachment means (153, 154) of the lever (101) is housed.

12. The handle for doors and windows according to any of the preceding claims, **characterized in that** it comprises a base (105) that enables the lever (101) to be attached to the profile (130) of the door or window leaf, where said base (105) comprises protuberances (109) opposite a perforation (114) present in the wing of said profile (130) of the leaf.
13. The handle for doors and windows according to claim 12, **characterized in that** it comprises a plastic bushing (104) that defines the rotational positions of the lever (101).
14. The handle for doors and windows according to claim 13, **characterized in that** the plastic bushing (104) comprises recesses (164) opposite projections (167) arranged on the base (105), where the relative position of the projections (167) of the base with respect to the recesses (164) of the plastic bushing defines the rotational positions of the lever (101).
15. The handle for doors and windows according to claim 14, **characterized in that** the plastic bushing (104) comprises four recesses (164) equally spaced at 90° opposite four projections (167) of the base (105), equally spaced at 90°.
16. The handle for doors and windows according to any of the claims 14 or 15, **characterized in that** both the projections (167) and the recesses (164) are curved.
17. The handle for doors and windows according to claim 4, **characterized in that** it comprises attachment means for attaching the lever (101) to the square bar (107).
18. The handle for doors and windows according to any of the preceding claims, **characterized in that** the movable piece (106) comprises protuberances (110) opposite holes (111) that are present in the transmission mechanism (108) to guide the movement of the movable piece (106) with respect to the transmission mechanism (108).
19. The handle for doors and windows according to any of the preceding claims, **characterized in that** the transmission mechanism (108) transforms the rotational movement of the lever (101) into a translational movement of an espagnolette arranged on the inside of the door or window leaf to release or attach the same to the frame of the door or window.
20. The handle for doors and windows according to any

of the preceding claims, **characterized in that** the transmission mechanism (108) comprises a pinion (190) that in turn comprises a hole (191) for the transmission of the movement of the lever (101) to the transmission mechanism (108).

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21. The handle for doors and windows according to claim 3, **characterized in that** the regulating means (103) are screws.

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22. The handle for doors and windows according to claim 21, **characterized in that** the screws are threaded in threaded holes (196) of the movable piece (106).

23. The handle for doors and windows according to claim 22, **characterized in that** the movable piece (106) comprises protuberances (184) that are opposite each other and are attached to the inside wall of the wing (140) of the profile (130) of the leaf when the screws (103) of the regulating means are tightened.

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24. The handle for doors and windows according to any of the preceding claims, **characterized in that** the elastic means (155) are a pressure spring arranged on a cylindrical cavity (186) inside the lever (101).

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25. The handle for doors and windows according to the claim 24, **characterized in that** it comprises a nut (157) arranged in the existing circumferential space between the base (105) and a first section (176) of the cylindrical cavity (186) of the lever (101).

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26. The handle for doors and windows according to claims 13 and 24, **characterized in that** the plastic bushing (104) comprises circumferential indents (192) that may be coupled with circumferential projections (193) of a second section (194) of the cylindrical cavity (186) of the lever (101) to guide said plastic bushing (104).

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27. A window or door comprising the handle of any of the preceding claims.

28. The window or door according to claim 27, **characterized in that** it comprises a profile (130) of the door or window leaf that in turn comprises a channel (120) of the profile (130) of the door or window leaf where the transmission mechanism (108) and a wing (140) of that profile (130) of the leaf that defines the outer portion of the door or window leaf are housed.

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29. The window or door according to claim 28, **characterized in that** the channel (120) of the profile (130) of the door or window leaf where the transmission mechanism (108) is housed comprises a mortise (189) for the insertion of the transmission mechanism (108) and the movable piece (106).

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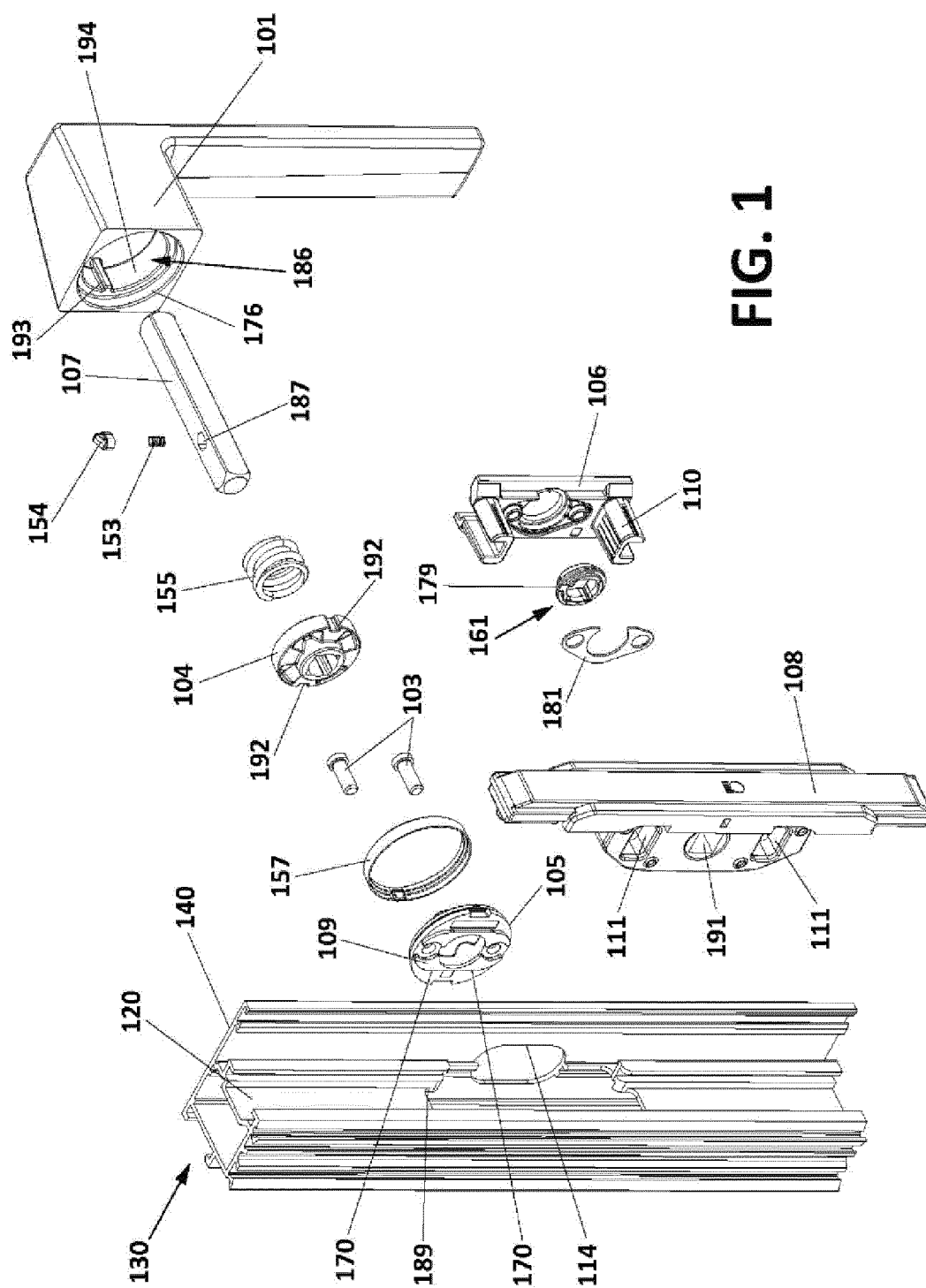


FIG. 1

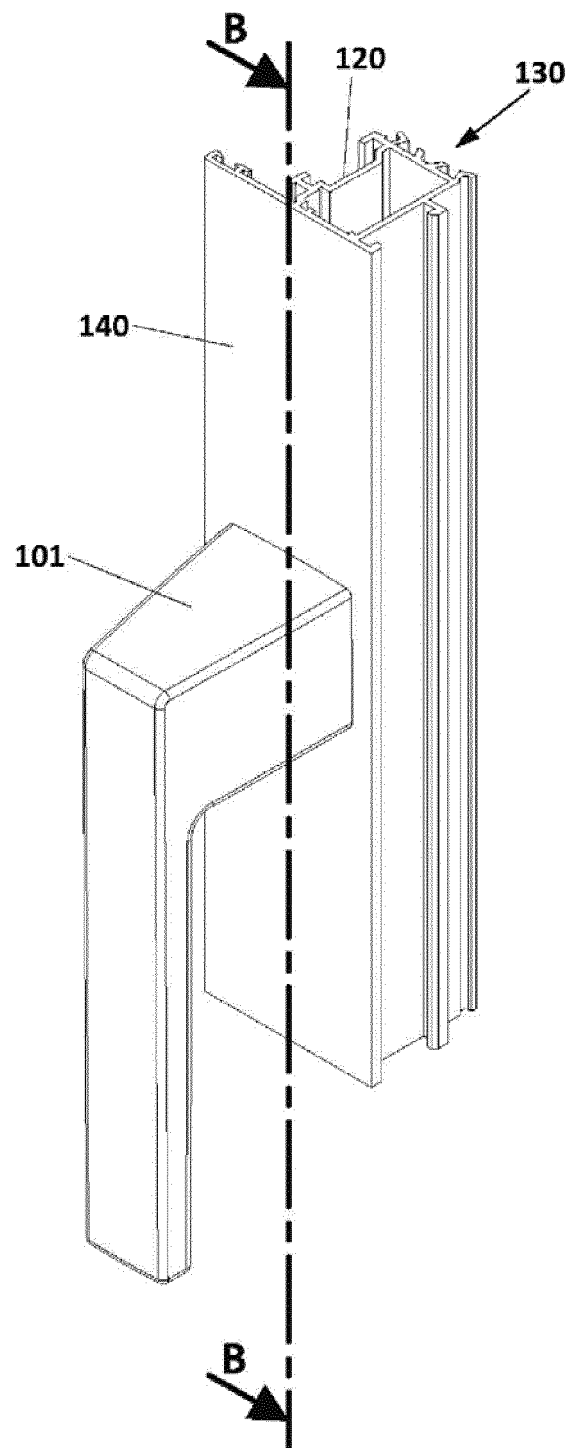


FIG. 2

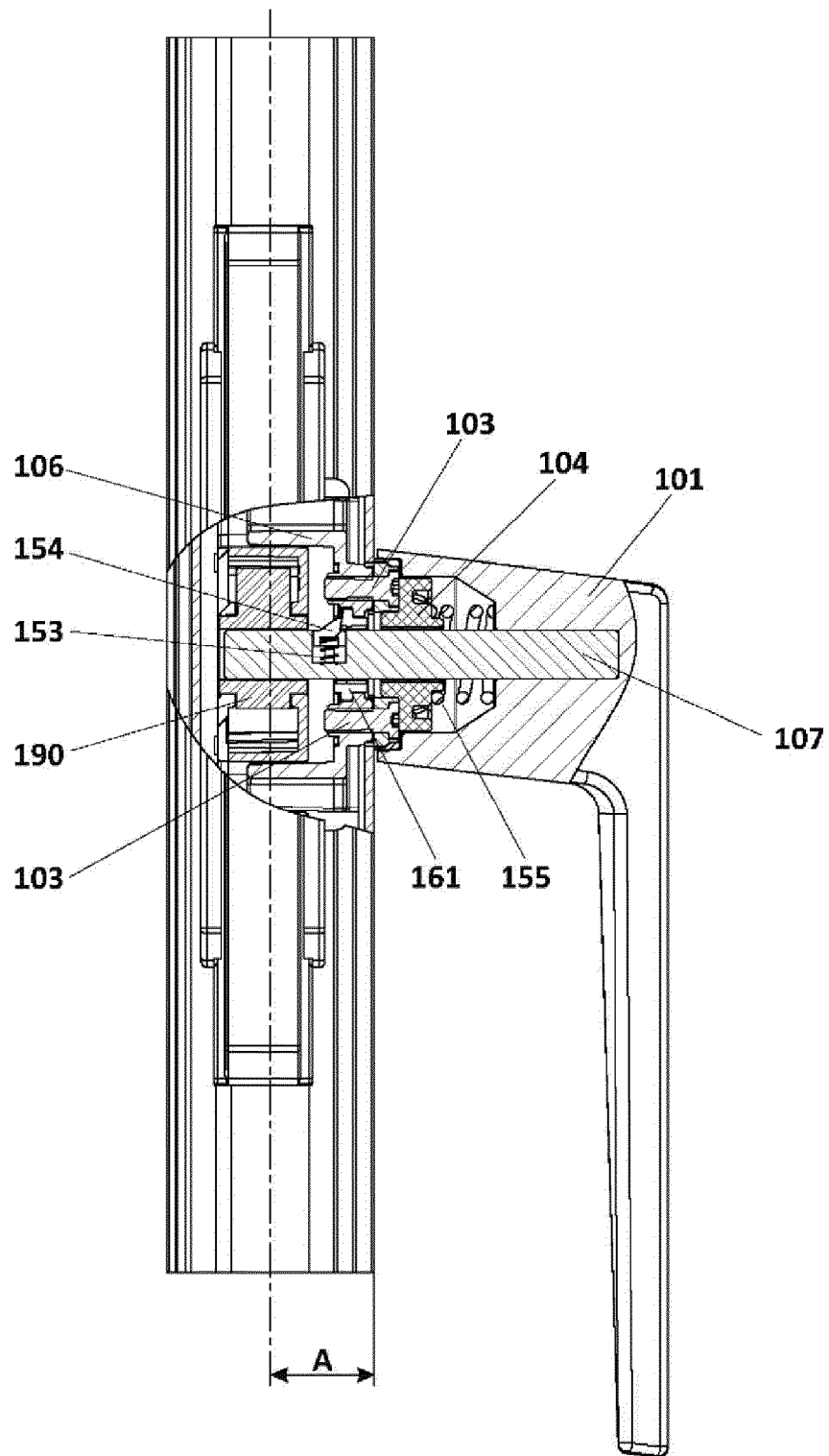


FIG. 3

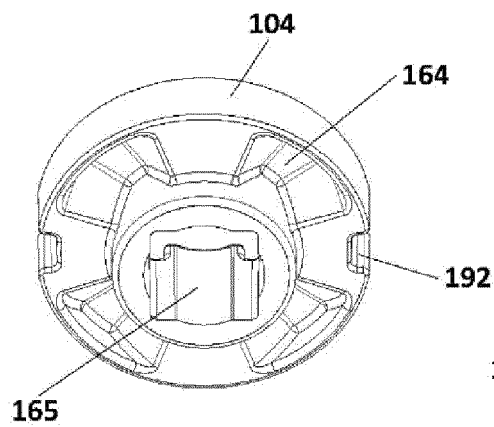


FIG. 4

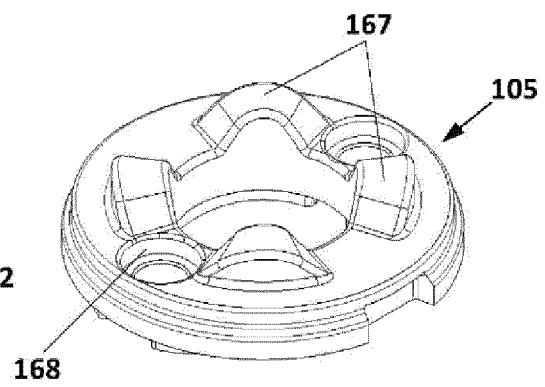


FIG. 5

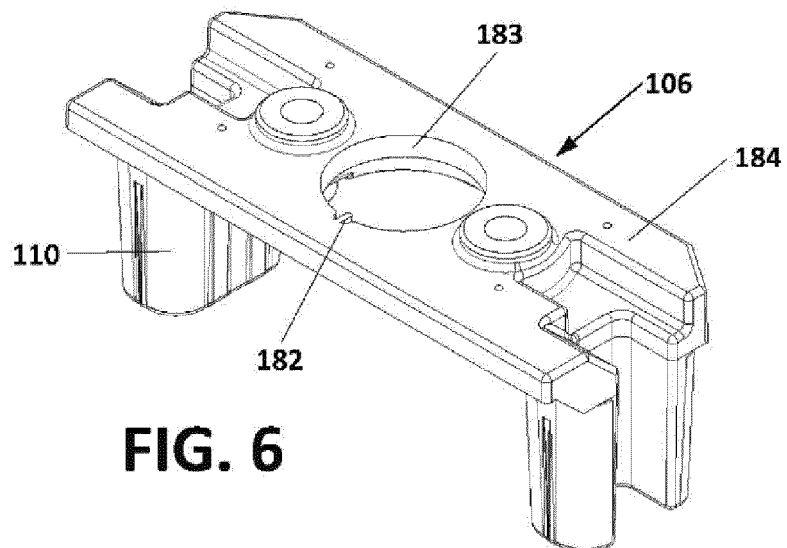


FIG. 6

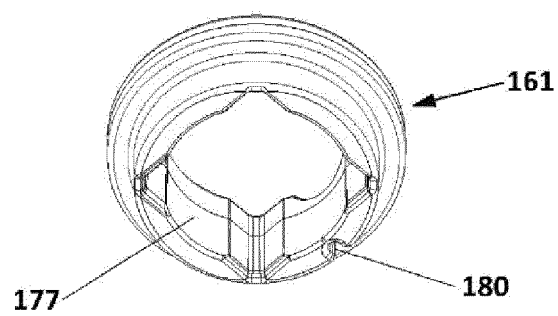


FIG. 7

INFORME DE BÚSQUEDA INTERNACIONAL

Solicitud internacional N°

PCT/ES2016/070890

A. CLASIFICACIÓN DEL OBJETO DE LA SOLICITUD

INV. E05C9/00 E05B3/04 E05B3/06

De acuerdo con la Clasificación Internacional de Patentes (CIP) o según la clasificación nacional y CIP.

B. SECTORES COMPRENDIDOS POR LA BÚSQUEDA

Documentación mínima buscada (sistema de clasificación seguido de los símbolos de clasificación)

E05B E05C

Otra documentación consultada, además de la documentación mínima, en la medida en que tales documentos formen parte de los sectores comprendidos por la búsqueda

Bases de datos electrónicas consultadas durante la búsqueda internacional (nombre de la base de datos y, si es posible, términos de búsqueda utilizados) EPO-Internal

C. DOCUMENTOS CONSIDERADOS RELEVANTES

Categoría*	Documentos citados, con indicación, si procede, de las partes relevantes	Relevante para las reivindicaciones N°
X	GB 531 175 A (SAMUEL BARTLETT MACKENZIE) 31 Diciembre 1940 (1940-12-31) todo el documento	1,2,4-8, 10-20, 24-29
A	ES 1 146 109 U (STAC S L SIST S TÉCNICOS DEL ACCESORIO Y COMPONENTES S L [ES]) 17 Noviembre 2015 (2015-11-17) citado en la aplicación todo el documento	1-29
A	DE 20 2009 013586 U1 (SIEGENIA AUBI KG [DE]) 17 Diciembre 2009 (2009-12-17) todo el documento	1-29
	-/--	

☒ En la continuación del Recuadro C se relacionan otros documentos
 ☒ Los documentos de familias de patentes se indican en el Anexo

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"P" documento publicado antes de la fecha de presentación internacional pero con posterioridad a la fecha de prioridad reivindicada.		

Fecha en que se ha concluido efectivamente la búsqueda internacional.
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12/04/2017Nombre y dirección postal de la Administración encargada de la búsqueda internacional
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NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Funcionario autorizado

Robelin, Fabrice

N° de fax

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Formulario PCT/ISA/210 (segunda hoja) (Enero 2015)

INFORME DE BÚSQUEDA INTERNACIONAL

Solicitud internacional N°

PCT/ES2016/070890

C (continuación).	DOCUMENTOS CONSIDERADOS RELEVANTES	
Categoría*	Documentos citados, con indicación, si procede, de las partes relevantes	Relevante para las reivindicaciones N°
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