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(54) **Lock and modification package for a lock**

(57) The invention relates to a lock, comprising a lock part for mounting against an inner side of a door, in which a rod-like bolt provided with a bevelled side is slidably mounted, and a staple part for mounting against a door jamb provided with an opening into which the bolt drops

when a door is closed. In order to prevent the lock being opened using a flexible 'shim' by pressing this plate between the door and the door jamb, the bolt is given a length such that the bevelled side is positioned wholly inside the staple part when the door is closed.

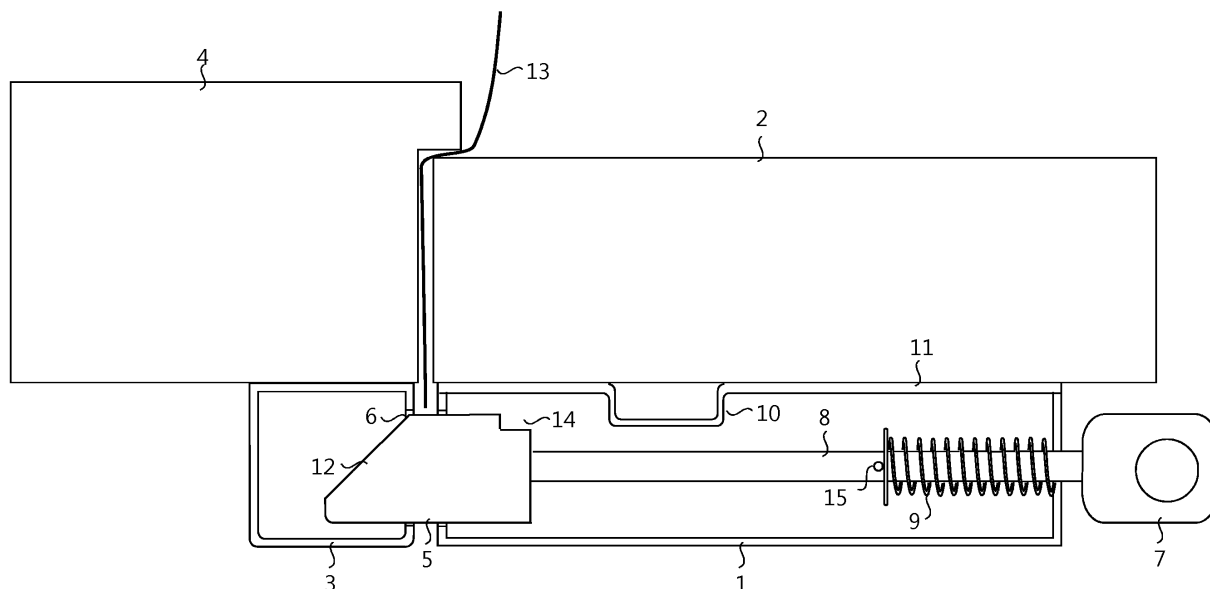


Fig. 2

Description

[0001] The invention relates to a lock comprising a lock part for mounting against an inner side of a door, in which an at least substantially rod-like bolt provided with a bevelled side is slidably mounted, and a staple part for mounting against a door jamb provided with an opening into which the bolt drops when a door is closed.

[0002] Locks of this type are generally known. They are for instance applied in substantially any front door in order to achieve that the front door locks automatically when it is pulled shut. The bevelled side here comes into contact with an edge of the staple part, and the bolt is pressed inward counter to the action of a spring up to the moment at which the bolt can drop into the opening. The drawback of the known lock is that a plate-like object can be pushed between the door jamb and the door such that an edge of this plate-like object comes to rest against the bevelled side of the bolt. If the plate-like object is now pushed further inward the bolt then slides into the lock part counter to the action of the spring, and the door can be opened.

[0003] The lock according to the invention obviates this drawback and has the feature that the bolt has a length such that the bevelled side is positioned at least substantially wholly inside the staple part when the door is closed. In this way it is possible in simple manner to prevent the bolt being pressed into the lock part by a plate-like object since the force exerted by the plate-like object is directed perpendicularly of a possible direction of movement of the bolt.

[0004] During fitting of the lock according to the invention it is important to mount the staple part such that on the one hand an edge of the staple part only just comes in contact with the bevelled side and that on the other the bevelled side can disappear almost completely into the staple part. An advantageous embodiment of the lock according to the invention which can significantly simplify fitting has the feature that an edge of the staple part which is contacted by the bolt during closing of the door is provided with a rounded portion. The rounded portion preferably has a radius here of at least 5 millimetres.

[0005] An advantageous alternative embodiment has the feature that a transition from a side of the at least substantially rod-like bolt to the bevelled side is provided with a rounded portion. As a result of the rounded portion the bolt will on the one hand be pressed into the lock part by an edge of the staple part during closing of the door, while it is on the other hand the case that a plate-like object still lies substantially perpendicularly of a possible movement of direction of the bolt. It is of course also possible to provide an edge of the staple part as well as a transition from a side of the at least substantially rod-like bolt to the bevelled side with a rounded portion.

[0006] The invention also relates to a modification package for a lock consisting of a lock part and a staple part, whereby it becomes impossible to open the lock by inserting a plate-like object between the door and the

door jamb. For this purpose the modification package must comprise at least an at least substantially rod-like bolt provided with a bevelled side, and the bolt must have a length such that the bevelled side can be positioned at least substantially wholly inside the staple part.

[0007] An advantageous embodiment of the modification package which can significantly simplify fitting of the modified lock has the feature that a transition from a side of the at least substantially rod-like bolt to the bevelled side is provided with a rounded portion.

[0008] A further advantageous embodiment of the modification package has the feature that a side of the bolt remote from the bevelled side is provided with a recess which can co-act with a stop arranged on or in a cover of the lock part so that the cover does not have to be replaced.

[0009] An advantageous alternative embodiment has the feature that the modification package also comprises a staple part provided with an edge with a rounded portion having a radius of at least 5 millimetres. It is of course also possible in a modification package to provide an edge of the staple part as well as a transition from a side of the at least substantially rod-like bolt to the bevelled side with a rounded portion.

[0010] The invention will now be further elucidated with reference to the following figures, in which:

- Fig. 1 is a cross-sectional view of a prior art lock;
- Fig. 2 is a cross-sectional view of a possible embodiment of a lock according to the invention;
- Fig. 3 is a cross-sectional view of an alternative embodiment of a lock according to the invention;
- Fig. 4 is a cross-sectional view of a further alternative embodiment of a lock according to the invention.

Fig. 1 is a cross-sectional view of a prior art lock, consisting of a lock part 1 which can be mounted on a door 2 and a staple part 3 which can be mounted on a door jamb 4. Lock part 1 comprises a bolt 5 which drops into an opening 6 when the door is pulled shut, after which the door is closed and locked. In order to open the door again from the inside a handle 7 is provided with which bolt 5 can be pulled out of opening 6 via a pull rod 8 counter to the action of a spring 9. The free stroke of bolt 5 is limited here by a rib 10 which is pressed into a cover 13 of lock part 1. Generally provided for the purpose of opening the door from the outside is a cylinder lock (not shown) via which bolt 5 can also be pulled out of opening 6. In order to allow bolt 5 to drop smoothly into opening 6 during closing of door 2, bolt 5 is provided with a bevelled side 12 which makes contact with staple part 3 during closing and which is pressed into lock part 1 by staple part 3 counter to the action of spring 9. It is this bevelled side 12 which also makes it possible for the lock to be opened relatively easily from the outside by a burglar. It is sufficient here to slide

in a flexible plate-like object 13 via a gap between door 2 and door jamb 4 until plate-like object 13 rests against bevelled side 12. By now pressing forcefully on plate-like object 13 the bolt 10 is pressed into lock part 1 counter to the action of spring 9, and the door can be opened.

Fig. 2 is a cross-sectional view of a possible embodiment of a lock according to the invention, likewise consisting of a lock part 1 which can be mounted on a door 2 and a staple part 3 which can be mounted on a door jamb 4. Lock part 1 comprises a bolt 5 which drops into an opening 6 when the door is pulled shut, after which the door is closed and locked. In order to open the door again from the inside a handle 7 is provided with which bolt 5 can be pulled out of opening 6 via a pull rod 8 and counter to the action of a spring 9. The free stroke of bolt 5 is limited here by a rib 10 which is pressed into a cover 13 of lock part 1. Generally provided for the purpose of opening the door from the outside is a cylinder lock (not shown) via which bolt 5 can also be pulled out of opening 6. In order to allow bolt 5 to drop smoothly into opening 6 during closing of door 2, bolt 5 is provided with a bevelled side 12 which makes contact with staple part 3 during closing and which is pressed into lock part 1 by staple part 3 counter to the action of spring 9. Compared to the bolt shown in Fig. 1 however, bolt 5 takes a lengthened form, whereby bevelled side 12 is wholly enclosed by staple part 3 and chamfering is no longer present in a gap between lock part 1 and staple part 3. This makes it impossible to open the lock by sliding in a plate-like object 13 via a gap between door 2 and door jamb 4. Mounting staple part 3 such that bevelled side 12 drops just inside staple part 3 achieves that, as is usual, bolt 5 is pressed into lock part 1 by staple part 3 during closing of door 2. In order to enable a greater free stroke of bolt 5, bolt 5 is provided with a recess 14 into which rib 10 can partially fall. It may moreover be necessary to displace a pin 15 which determines the length of spring 9 in order to enable a greater stroke of bolt 5.

Fig. 3 is a cross-sectional view of an alternative embodiment of a lock according to the invention, which embodiment wholly corresponds to the embodiment shown in Fig. 2, but wherein an edge 16 of staple part 3 is provided with a radius which simplifies pressing of bolt 5 into lock part 1 during closing of the door. More particularly, the positioning of staple part 3 relative to staple part 1 is less critical. Edge 16 has a radius here of for instance 8 millimetres and preferably a radius greater than 5 millimetres.

Fig. 4 is a cross-sectional view of a further alternative embodiment of a lock according to the invention, which embodiment wholly corresponds to the em-

bodiment shown in Fig. 2 and wherein an edge 16 of staple part 3 is provided with a radius which simplifies pressing of bolt 5 into lock part 1 during closing of the door. A transition 17 from a side of bolt 5 to bevelled side 12 of bolt 5 is moreover provided with a radius whereby bolt 5 is on the one hand pressed smoothly into lock part 1 by edge 16 of staple part 3 during closing of the door, while it is on the other hand the case that a plate-like object still lies substantially perpendicularly of a possible direction of movement of the bolt, so that the lock cannot be opened in this manner.

[0011] For existing locks it is possible to mount a new lengthened bolt 5, if desired in combination with a new staple part 3, and possibly with a modified pull rod 8 in which pin 15 is arranged at a different location in order to prevent the lock being opened using a plate-like object.

Claims

1. Lock, comprising a lock part for mounting against an inner side of a door, in which an at least substantially rod-like bolt provided with a bevelled side is slidably mounted, and a staple part for mounting against a door jamb provided with an opening into which the bolt drops when a door is closed, **characterized in that** the bolt has a length such that the bevelled side is positioned at least substantially wholly inside the staple part when the door is closed.
2. Lock as claimed in claim 1, **characterized in that** an edge of the staple part which is contacted by the bolt during closing of the door is provided with a rounded portion.
3. Lock as claimed in claim 2, **characterized in that** the rounded portion has a radius of at least 5 millimetres.
4. Lock as claimed in any of the foregoing claims, **characterized in that** a transition from a side of the at least substantially rod-like bolt to the bevelled side is provided with a rounded portion.
5. Modification package for a lock consisting of a lock part and a staple part, **characterized in that** the modification package comprises at least an at least substantially rod-like bolt provided with a bevelled side, and that the bolt has a length such that the bevelled side can be positioned at least substantially wholly inside the staple part.
6. Modification package as claimed in claim 5, **characterized in that** a transition from a side of the at least substantially rod-like bolt to the bevelled side is provided with a rounded portion.

7. Modification package as claimed in claim 5 or 6, **characterized in that** a side of the bolt remote from the bevelled side is provided with a recess.

8. Modification package as claimed in any of the claims 5-7, **characterized in that** the modification package also comprises a staple part provided with an edge with a rounded portion having a radius of at least 5 millimetres.

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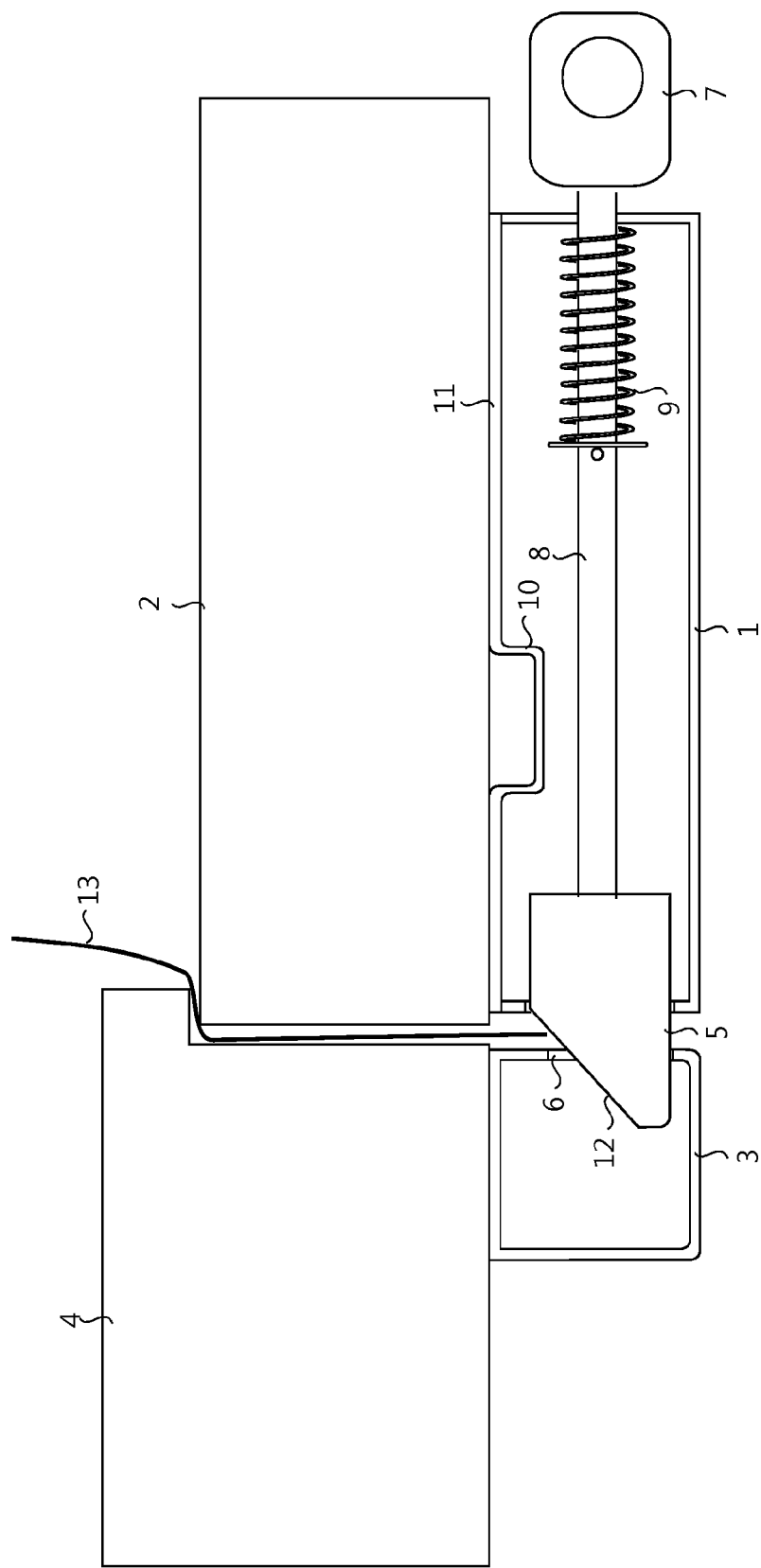


Fig. 1

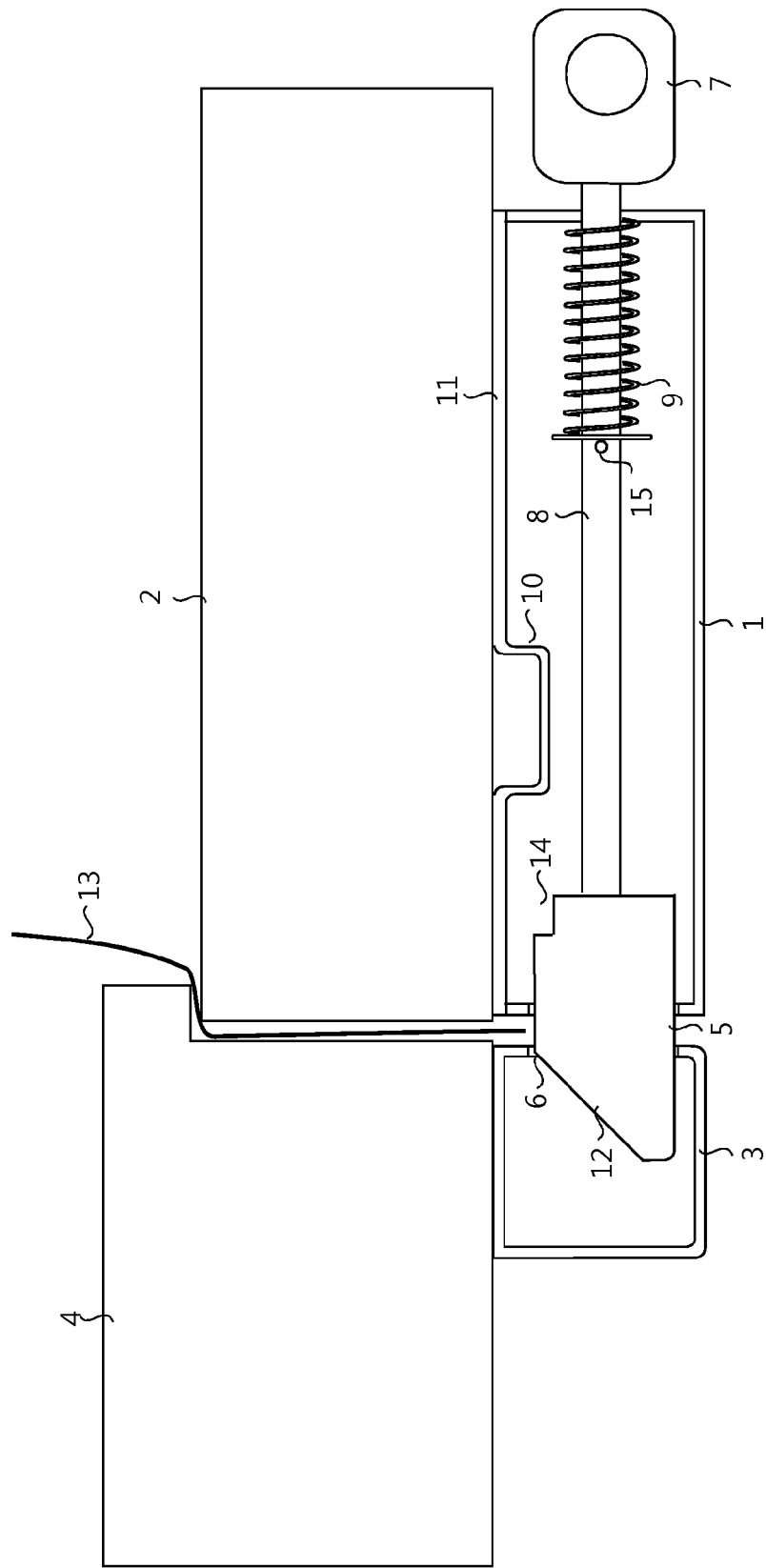


Fig. 2

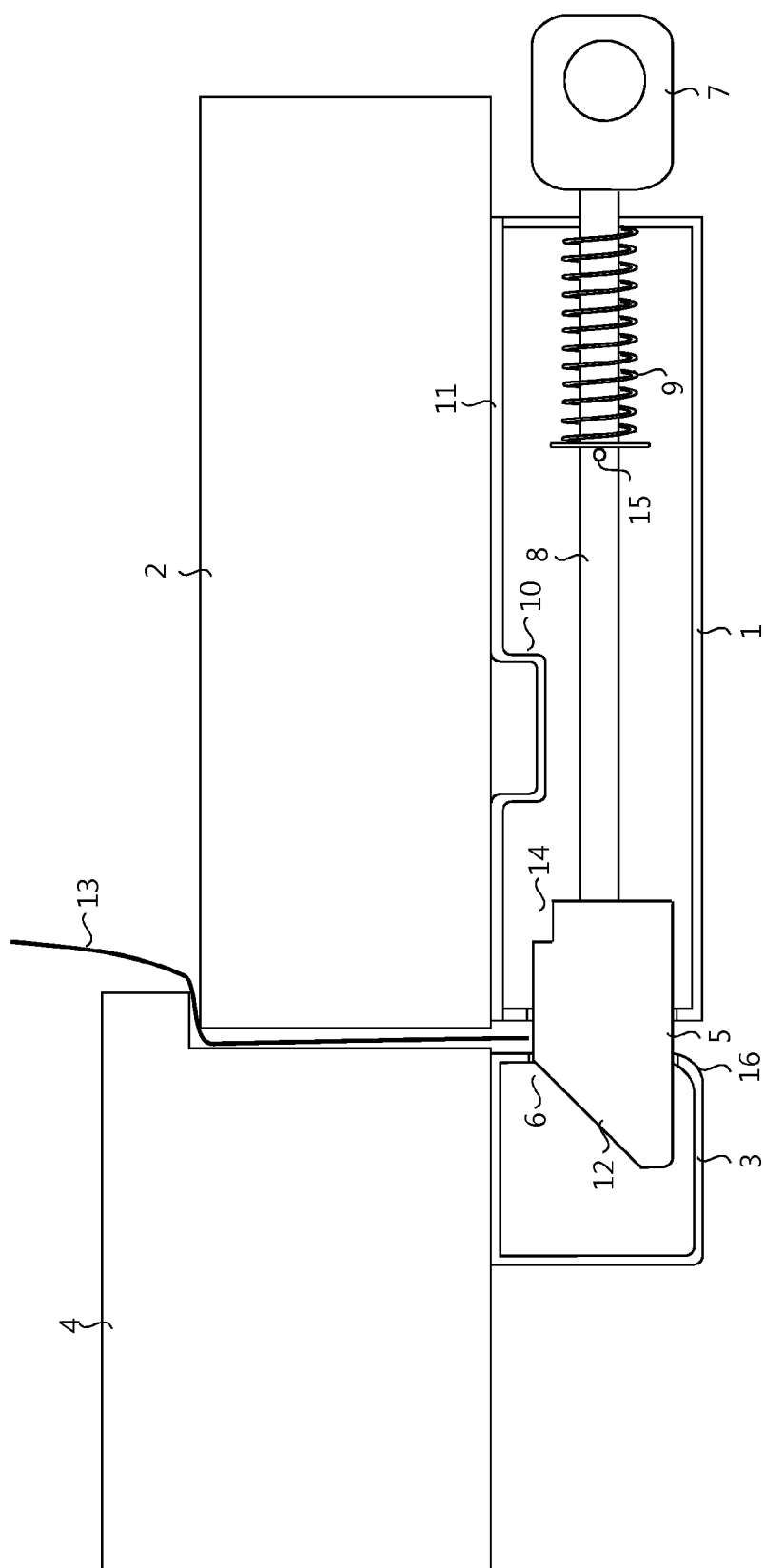


Fig. 3

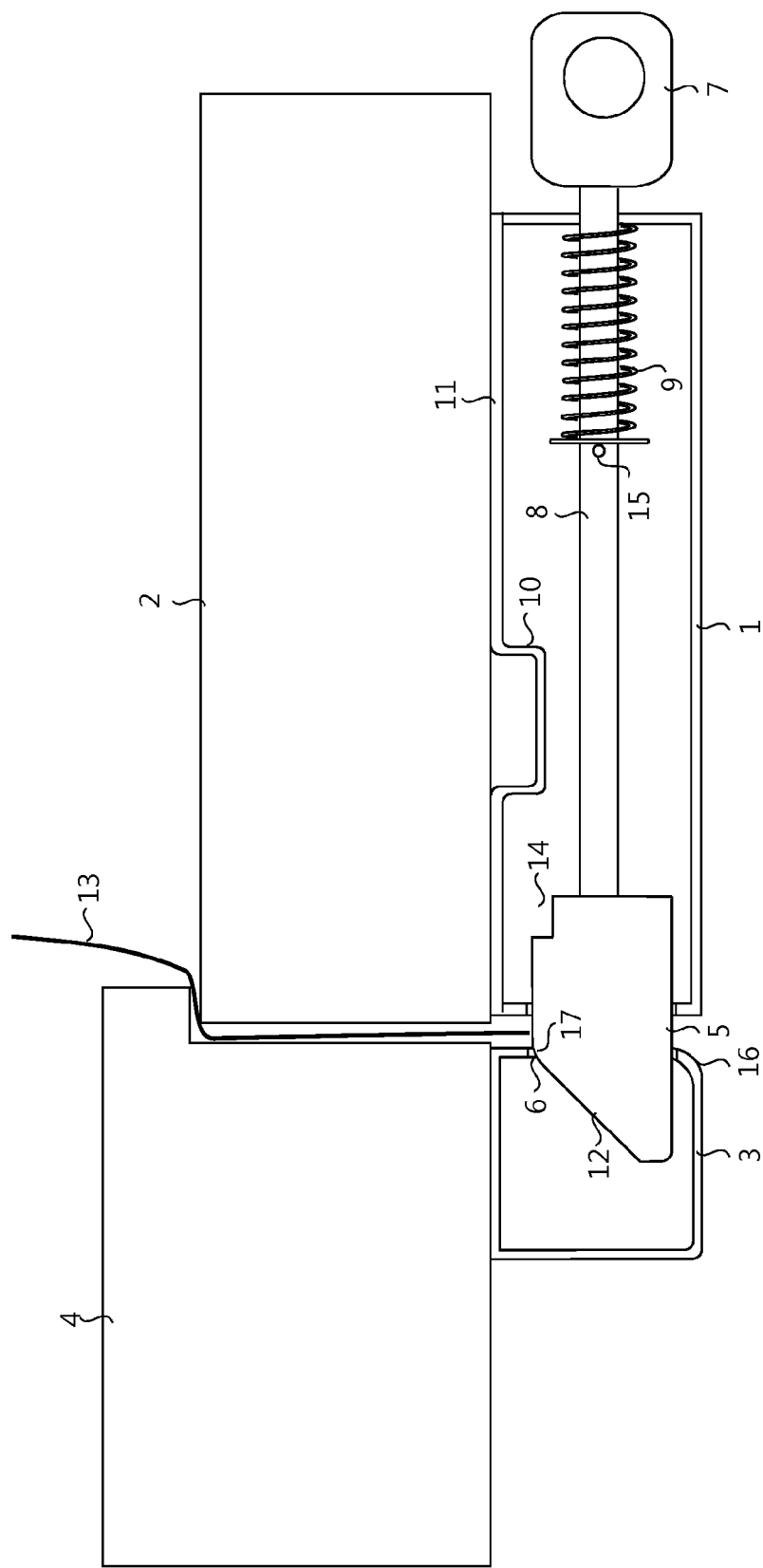


Fig. 4



EUROPEAN SEARCH REPORT

Application Number
EP 10 15 3310

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 332 438 A (H & T VAUGHAN LTD; HAROLD GILBERT RAMSELL) 24 July 1930 (1930-07-24) * the whole document *	1-8	INV. E05B17/20 E05B15/10
X	US 1 599 459 A (COLOMBI UGO P ET AL) 14 September 1926 (1926-09-14) * the whole document *	1-8	
			TECHNICAL FIELDS SEARCHED (IPC)
			E05B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 1 October 2010	Examiner Westin, Kenneth
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 10 15 3310

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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01-10-2010

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 332438	A	24-07-1930	NONE	

US 1599459	A	14-09-1926	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82