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**Description**

The invention relates to a door with a door frame, a door leaf comprising a plurality of door leaf elements connected in an articulated manner, rails fastened to the door frame, in which rails the door leaf segments are guided  
5 laterally, and with a seal arranged on the door frame for sealing a gap between the door frame and the door leaf when the door is closed. The door leaf can be moved between an open position and a closed position. The seal comprises at least one sealing strip, which abuts against the door leaf when the door leaf is in the closed position. The door is in particular a sectional door or a roller door.

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A door with the aforementioned features is known for example from DE 10 2004 010 367 U1. The door frame has a vertical frame profile, which engages over the edge-side portion of the door leaf when the door leaf is in the closed position. A sealing strip made of an elastomer plastic is fastened in each case  
15 to the frame profiles, which sealing strip abuts against the outer face of the door leaf. During an opening and closing movement of the door leaf, the door leaf segments slide along the sealing strips. The sealing strips are therefore subject to wear. Furthermore, the sealing strips abutting against the door leaf create a resistance which has to be overcome by a door drive during the opening and  
20 closing of the door. In order to ensure proper functioning and a good seal between the door frame and the door leaf, an exact distance has to be adjusted between the door leaf segments and the sealing strips. If the distance is selected somewhat too large so as to avoid the aforementioned drawbacks, this leads to losses in respect of the sealing effect.

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In a sectional door known from US 1,869,347, the door leaf segments are guided on vertical rails, which are mounted movably on swinging arms on the door frame. During a closing movement, the door leaf reaches a stop at the bottom end of the rails, so that the weight of the door leaf is transmitted to the  
30 rails and the rails mounted movably on the swinging arms perform a sideways movement towards the door frame as a result of the weight force acting on them. As a result of the sideways movement, the door leaf is pressed against the sealing strips fastened to the door frame.

35 A similar structural solution is described in DE 103 00 302 A1. The door leaf segments of a sectional door leaf are guided laterally in rails, which comprise a

vertical portion arranged on the frame and an arc-shaped portion lying adjacent at the upper side. An actuatable rocker arm is arranged on the vertical portion of the rails, by means of which rocker arm the vertical rail portion can be brought from a first position, in which the rail is aligned with the arc-shaped portion lying adjacent at the upper side, into a second position. As a result of a sideways movement of the rails arranged movably on the frame, the door leaf in the door leaf closed position is pressed against a seal arranged on the door frame. A large mass has to be moved during a sideways movement of the rails holding the door leaf in the closed position. Great demands are therefore made on the design and the bearing of the rails. The rails mounted movably on the door frame for guiding the door leaf also represent a weak point with regard to anti-burglary protection. US 2010/077671 A1 shows a door with a door leaf and a door frame, which comprises sealing strips, in accordance with the preamble according to the subject-matter of claim 1.

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Against this background, the problem underlying the invention is to constitute a door which comprises the features described at the outset in such a way that the door leaf can be moved along the seal arranged on the door frame without friction resistance during the opening and closing of the door and is effectively sealed against the door frame in the closed position of the door. The mass of the parts mounted movably should be small. Furthermore, the design should not display any drawback with regard to anti-burglary protection.

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The subject-matter of the invention and the solution to this problem is a door with the features of claim 1.

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The features mentioned at the outset belong to the basic structure of the door. A seal for sealing a gap between the door frame and the door leaf is arranged on the door frame, which seal comprises at least one sealing strip which abuts against the door leaf when the door leaf is in the closed position. According to the invention, the sealing strip is fastened to a seal carrier, which is mounted movably on the door frame and can be displaced between a first position and a second position transversely to the door opening. Furthermore, a retention device is provided, which holds the seal carrier in the first position when the door leaf is not in the closed position. An actuating device is provided for displacing the seal carrier, which actuating device moves the seal carrier from

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the first position into the second position as soon as the door leaf reaches the closed position during a closing movement, and which moves the seal carrier of the door leaf back into the first position as soon as the door leaf again leaves the closed position with an opening movement. The first position is expediently  
5 selected such that the sealing strip does not touch the surface of the door leaf segments when the seal carrier is in this position. When the seal carrier occupies the second position, the sealing strip abuts against the door leaf surface with a sufficient pretensioning for the sealing. The mass of the seal carrier to be moved is small compared to the mass of the door leaf, so that the  
10 bearing of the seal carrier is not subjected to any great forces and can be designed in a structurally straightforward manner. The door leaf segments are guided laterally in guide rails, which are fastened to the door frame. The frame elements of the door frame and rails fastened thereto form dimensionally stable units which can meet the high demands on anti-burglary protection. The  
15 movably mounted seal carrier neither restricts the stability of the door frame, nor is the movably mounted seal carrier relevant for the guidance of the door leaf segments.

The seal carrier is preferably mounted in an articulated manner on levers of an articulation arrangement, wherein the seal carrier and the articulation  
20 arrangement form an articulated parallelogram.

According to the invention, the actuating device operates without external energy and comprises a switch lever, which is connected kinematically to the  
25 seal carrier and is arranged in the travel path of the door leaf. The arrangement is such that the switch lever can be switched by a running-wheel axle of a running roller guiding the lowermost door leaf segment along the rail. The switch lever is expediently constituted as an angle lever, which is mounted in a swivellable manner on a bearing bracket fastened to the door frame and is  
30 connected kinematically by a sliding link to the articulation arrangement assigned to the seal carrier.

For the resetting of the seal carrier from the second position, a restoring spring is preferably provided, which acts on the seal carrier or the switch lever  
35 connected kinematically to the seal carrier. As soon as the seal carrier reaches

the first position or approaches the first position, the retention device becomes active. The latter preferably comprises at least one magnet.

5 The seal carrier and the parts assigned to the seal carrier can be integrated in the door frame. An advantageous embodiment of the invention makes provision such that at least parts of the door frame are manufactured from a hollow profile and that the seal carrier, the retention device and the actuating device are arranged inside the hollow profile.

10 The invention is explained below with the aid of a drawing representing only one example of embodiment. In the figures, diagrammatically:

Fig. 1 shows a horizontal cross-section through a lower portion of a door frame of a sectional door with a movable seal arrangement for sealing a gap between the door frame and the door leaf when the door is closed,

Fig. 2a and 2b show a side view of the sealing arrangement represented in fig. 1 inside the door frame of a sectional door in different functional positions,

Fig. 3a and 3b show perspective representations of the arrangements shown in fig. 2a and 2b.

25 Fig. 1 shows, as a detail in a horizontal cross-section, a sectional door with a door frame 1, a door leaf 2 comprising a plurality of door leaf segments 3 connected in an articulated manner, a rail 4 fastened to door frame 1, in which rail door leaf segments 3 are guided laterally, as well as a seal 5 arranged on door frame 1 for sealing a gap between door frame 1 and door leaf 2 when the door is closed. Door leaf 2 can be moved between a closed position, in which a door opening is completely closed, and an open position opening the door opening. Seal 5 comprises at least one sealing strip 6, which abuts against door leaf 2 when door leaf 2 is in the closed position.

35 From a comparative consideration of the figures, it emerges that sealing strip 6 is fastened to a seal carrier 7, which is mounted movably on door frame 1 and

can be displaced between a first position and a second position transversely to the door opening. The first position is represented in fig. 2a and 3a. When seal carrier 7 is in the first position represented in fig. 2a and 3a, sealing strip 6 does not touch the surface of door leaf segments 3 and a gap  $s$  is present between  
5 sealing strip 6 and the outer face of door leaf segments 3. During an opening or closing movement represented by a movement arrow in fig. 2a and 3a, sealing strip 6 is not subject to any wear. A retention device 8 holds seal carrier 7 in the first position represented in fig. 2a and 3a as long as door leaf 2 is not in the closed position. Retention device 8 preferably comprises at least one magnet.

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An actuating device 9 is provided for displacing seal carrier 7. Said actuating device moves the seal carrier out of the first position into a second position represented in fig. 2b and 3b as soon as door leaf 2 reaches the closed position during the closing movement. Furthermore, actuating device 9 moves seal  
15 carrier 7 back into the first position represented in fig. 2a and 3a as soon as door leaf 2 again leaves the closed position with an opening movement.

Seal carrier 7 is mounted in an articulated manner on levers of an articulation arrangement 10. Seal carrier 7 and articulation arrangement 10 form an  
20 articulated parallelogram. Actuating device 9 comprises a switch lever 11, which is connected kinematically to seal carrier 7 and is arranged in the travel path of door leaf 2. According to the representation in fig. 2a/2b and fig. 3a/3b, switch lever 11 can be switched by running-wheel axle 12 of a running roller 13 guiding lowermost door leaf segments 3 along rail 4. Switch lever 11 is constituted as  
25 an angle lever, which is mounted in a swivellable manner on a bearing bracket 14 fastened to the door frame and is connected kinematically by a sliding link 15 to articulation arrangement 10 assigned to seal carrier 7. For resetting seal carrier 7 from the second position represented in fig. 2b/3b into the first position (fig. 2a/3a), a restoring spring 16 is also provided, which acts on seal carrier 7  
30 or switch lever 11 connected kinematically to the seal carrier. Restoring spring 16 is constituted as a leaf spring in the example of embodiment. As soon as door seal 2 leaves the closed position represented in fig. 2b/3b, the restoring force of restoring spring 16 becomes active and initiates a restoring movement of carrier seal 7 into the first position represented in fig. 2a/3a. The magnet of  
35 retention device 8 then takes over the restoring movement and pulls seal carrier

7 into its rest position represented in fig. 2a/3a. Seal carrier 7 is held in the first position by a force of attraction of the magnet.

5 According to the representation in fig. 3a and 3b, at least parts of door frame 1 are manufactured from a hollow profile 17 and seal carrier 7, retention device 8 and actuating device 9 are arranged inside the hollow profile.



## Patentkrav

### 1. Port med

en portramme (1),

et portblad (2) af en flerhed af portbladssegmenter (3), der er ledforbundet  
5 med hinanden,

skinner (4), der er fastgjort til portrammen (1), og i hvilke portbladssegmen-  
terne (3) er ført i siden, og

en tætning (5), der er anbragt på portrammen (1), til tætning af en spalte mel-  
lem portrammen (1) og portbladet (2), når porten er lukket,

10 hvor portbladet (2) kan bevæges mellem en åben stilling og en lukket stilling,  
og hvor tætningen (5) omfatter mindst en tætningsstrimmel (6), der ligger an

mod portbladet (2), når portbladet (2) befinder sig den lukkede stilling, og  
hvor tætningsstrimlen (6) er fastgjort på en tætningsbærer (7), der er monte-

ret bevægeligt på portrammen (1) og kan indstilles mellem en første position  
15 og en anden position på tværs af portåbningen, at der er tilvejebragt en tilba-

geholdelsesindretning (8), der holder tætningsbæreren (7) i den første positi-  
on, når portbladet (2) ikke befinder sig i den lukkede stilling, og at der til ind-

stilling af tætningsbæreren (7) er tilvejebragt en indstillingsindretning (9), der  
bevæger tætningsbæreren (7) fra den første position til den anden position,

20 så snart portbladet (2) ved en lukkebevægelse når den lukkede stilling, og  
som bevæger tætningsbæreren (7) tilbage til den første position, så snart

portbladet (2) med en åbnebevægelse forlader den lukkede stilling igen, hvor  
indstillingsindretningen (9) omfatter en koblingsarm (11), der er kinematisk

25 forbundet med tætningsbæreren (7) og er anbragt i portbladets bevægelses-  
bane (2), **kendetegnet ved, at** koblingsarmen (11) kan kobles ved hjælp af

løbehjulsaksen (12) af en løberulle (13), der fører det nederste portblads-  
segment (3) langs skinnen (4).

### 2. Port ifølge krav 1, **kendetegnet ved, at** tætningsstrimlen (6) ikke er i berø-

30 ring med portbladssegmentets (3) overflade, når tætningsbæreren (7) befin-  
der sig i den første position.

### 3. Port ifølge krav 1 eller 2, **kendetegnet ved, at** tætningsbæreren (7) er ledmonteret på arme af en ledanordning (10), hvor tætningsbæreren (7) og

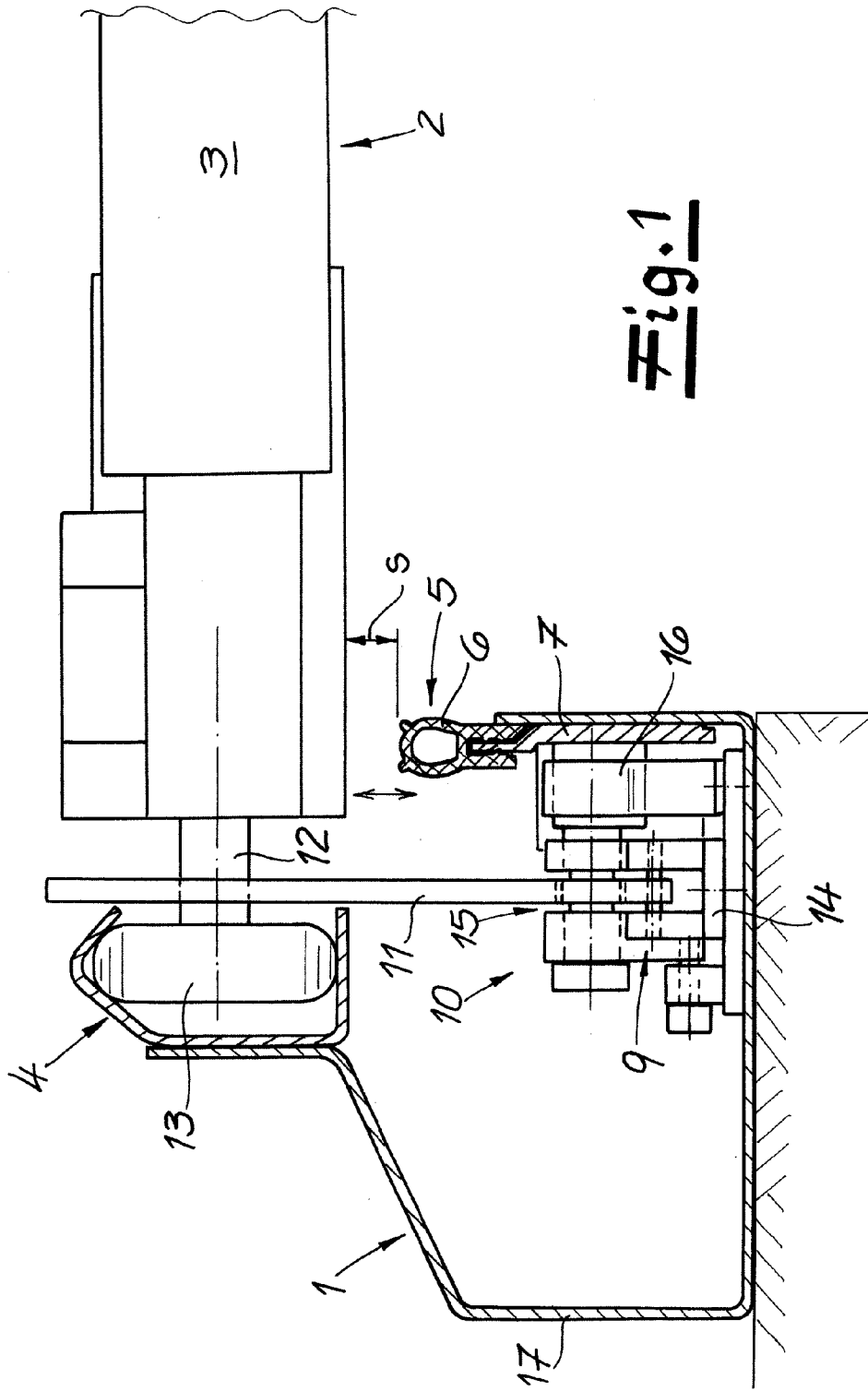
ledanordningen (10) danner et ledparallelogram.

5 **4.** Port ifølge krav 1 til 3, **kendetegnet ved, at** koblingsarmen (11) er udformet som vinkelarm, der er monteret drejeligt på en lejekonsol (14), der er fastgjort til portrammen (1), og er kinematisk forbundet med ledanordningen (10), der er tilordnet tætningsbæreren (7), via et skydeled (15).

10 **5.** Port ifølge et af kravene 1 til 4, **kendetegnet ved, at** der til tilbagestilling af tætningsbæreren (7) fra den anden position til den første position er tilvejebragt en returfeder (16), der påvirker tætningsbæreren (7) eller koblingsarmen (11), der er kinematisk forbundet med tætningsbæreren (7).

15 **6.** Port ifølge et af kravene 1 til 5, **kendetegnet ved, at** tilbageholdelsesindretningen (8) omfatter mindst en magnet.

20 **7.** Port ifølge et af kravene 1 til 6, **kendetegnet ved, at** i det mindste dele af portrammen (1) er fremstillet af et hulprofil (17), og at tætningsbæreren (7), tilbageholdelsesindretningen (8) og indstillingsindretningen (9) er anbragt i hulprofilet (17).



**Fig. 1**

Fig. 2A

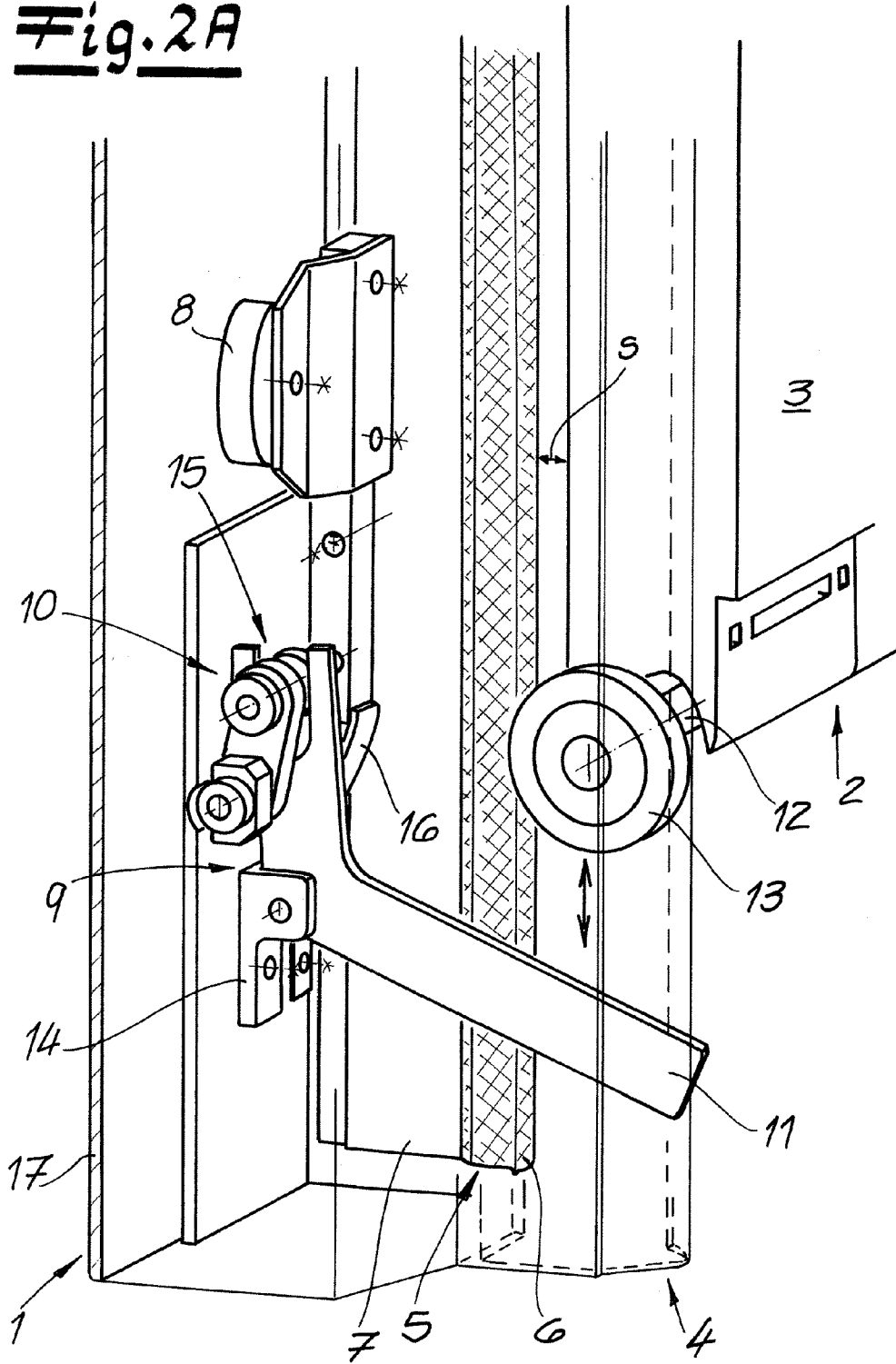
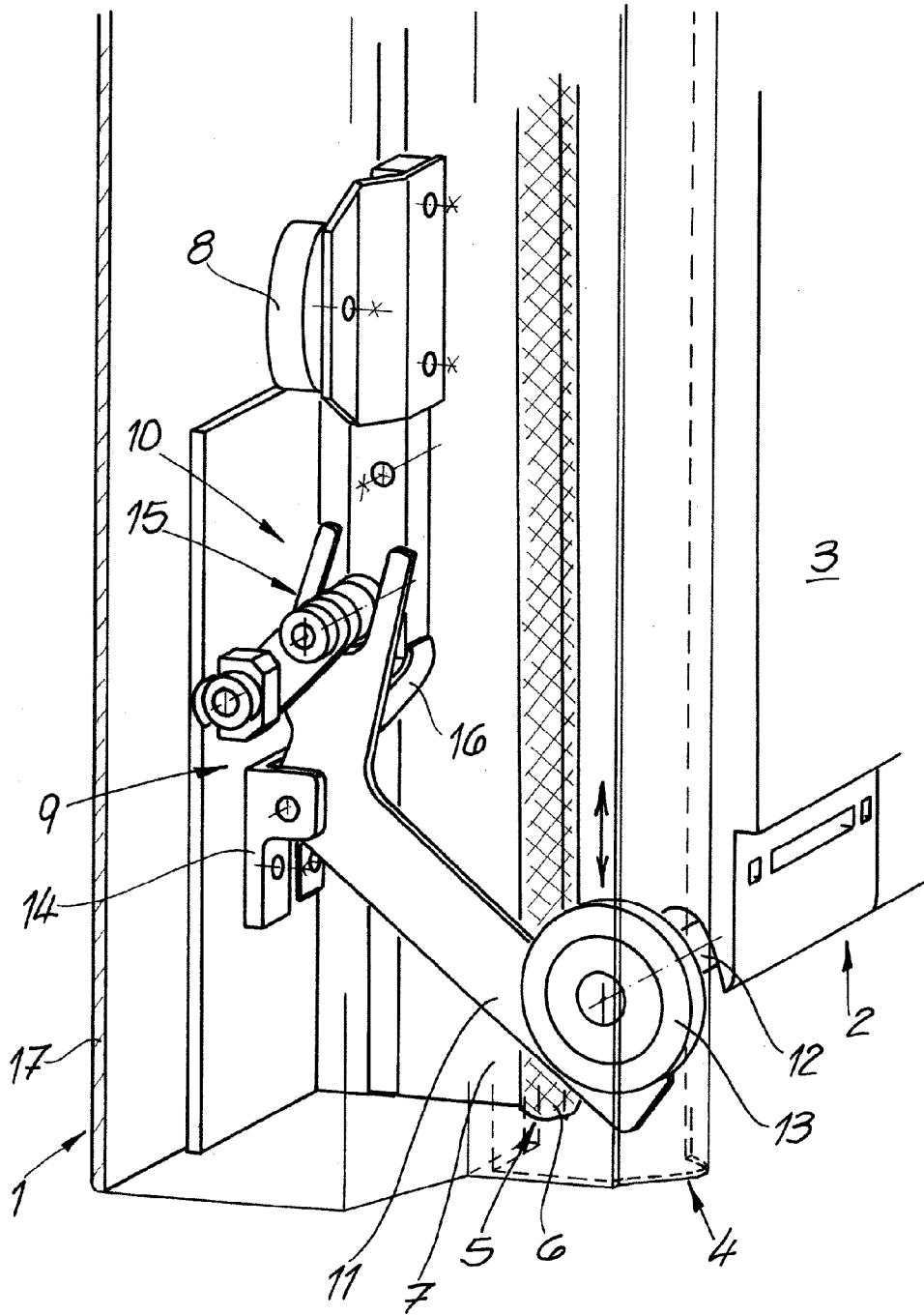
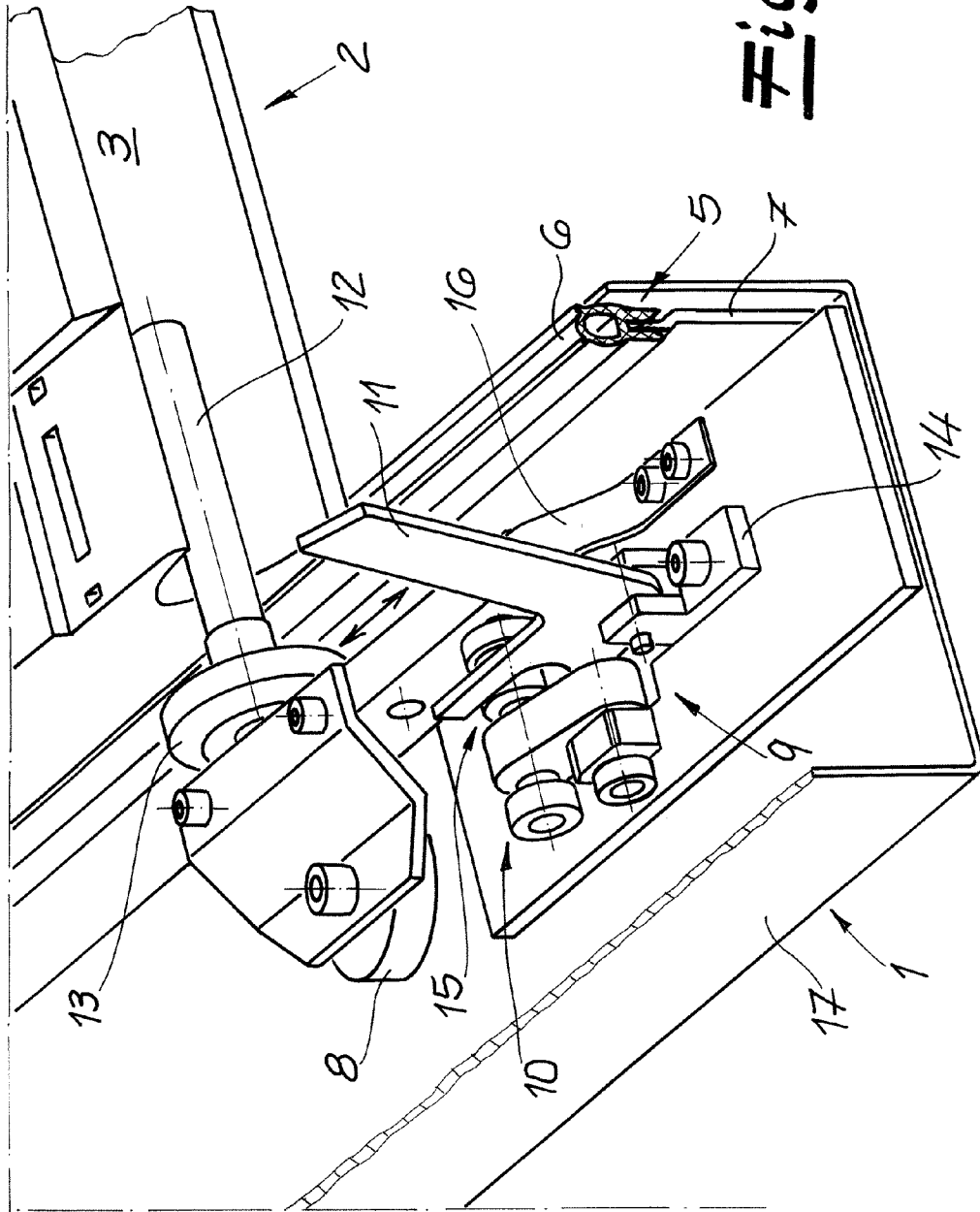
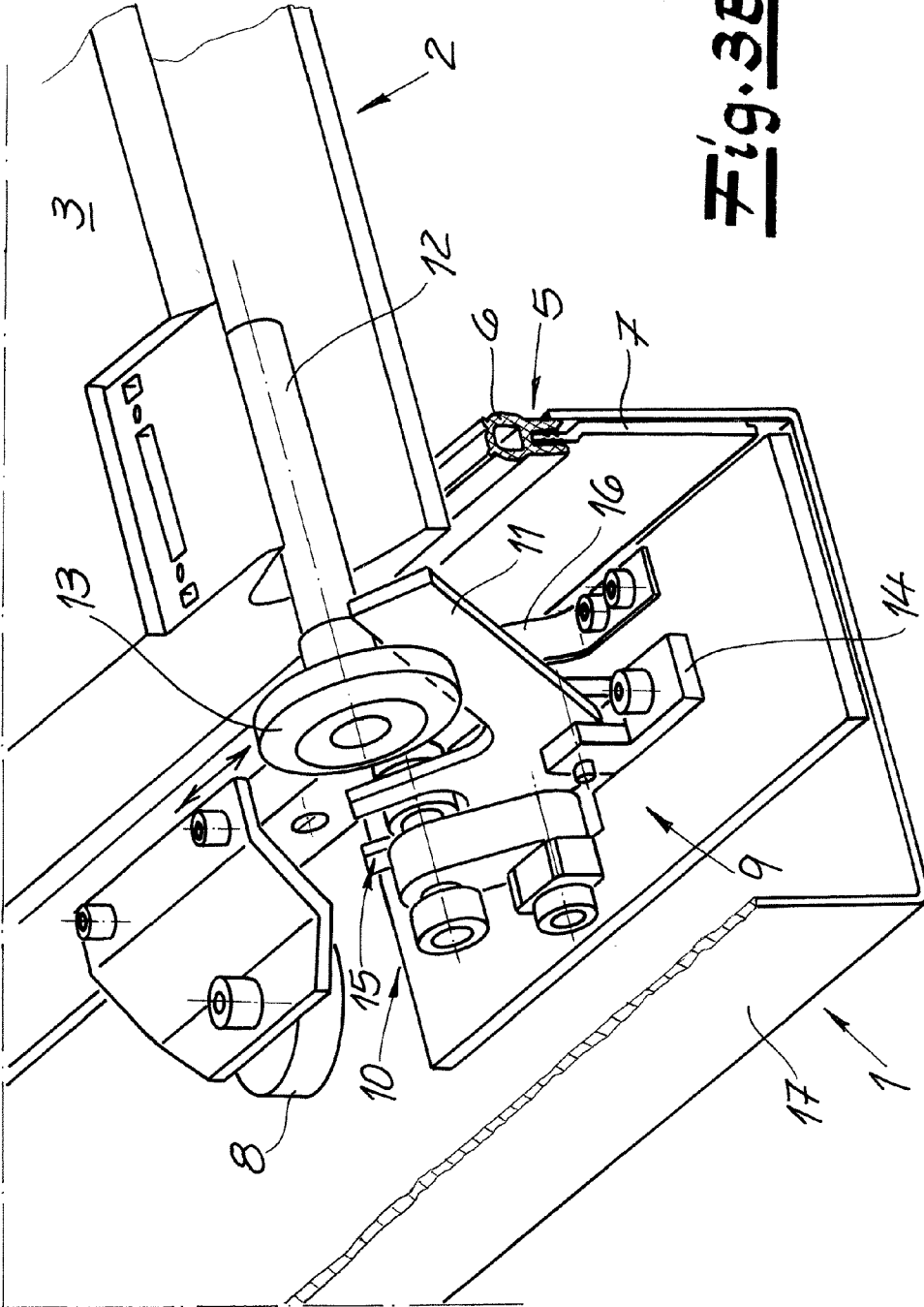


Fig. 2B



**Fig. 3A**





**Fig. 3B**