(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 059 378 A1**

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
24.08.2016 Bulletin 2016/34

(51) Int Cl.:
E06B 9/42 *(2006.01)* ***E06B 9/50*** *(2006.01)*

(21) Application number: **16155909.1**

(22) Date of filing: **16.02.2016**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD

(30) Priority: **18.02.2015 BE 201505091**

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(54) SCREEN DEVICE

(57) This invention relates to a screen device (1) comprising two screen rollers (2, 4), which, with the aid of two fastening pieces (14, 17), are rotatably arranged in respective screen boxes (3, 5) arranged at an angle (α) relative to each other, wherein the fastening pieces (14, 17) are displaceable relative to each other between a first position, in which they are loose from the screen boxes (3, 5), and a second position, in which, with the aid of engagement elements (15, 16, 18, 19), they engage behind engagement elements (10, 11, 12, 13) of the top profiles (6, 7) and rear profiles (8, 9) of the screen boxes (3, 5).

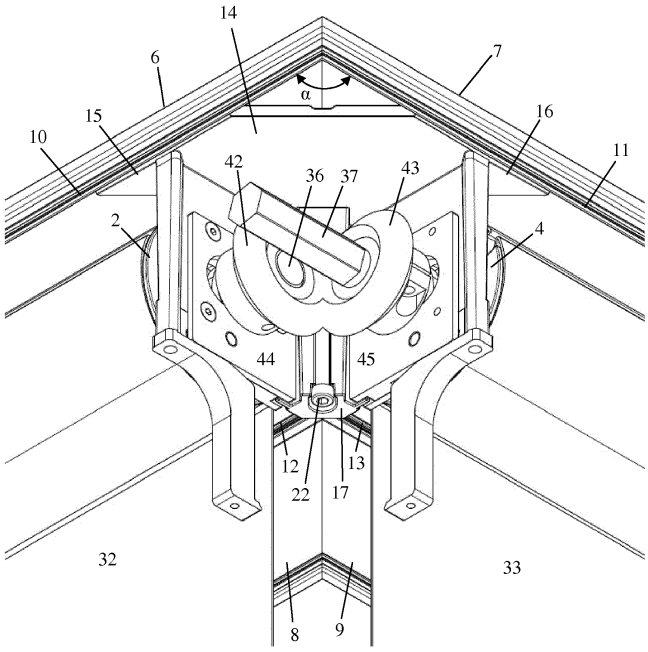

Fig. 2

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Description

[0001] This invention relates to a screen device comprising:

- a first screen roller, which is rotatably arrangeable in a first screen box;
- a second screen roller, which is rotatably arrangeable in a second screen box;
- a first top profile and a second top profile, which delimit the first screen box and the second screen box, respectively, on the top side;
- and a first rear profile and a second rear profile, which delimit the first screen box and the second screen box, respectively, on the rear side;

wherein the screen boxes, in the mounted state of the screen device, are arranged at an angle relative to each other.

[0002] Increasingly often, glass sections which stand arranged at an angle relative to each other are constructed up to this angle in glass, so that the view through these glass sections is not obstructed by a corner column or an angle profile. In glass sections of this type, there is also a desire to provide screen devices having screens which can be rolled up and unrolled and with which the glass section can be shielded also up to this angle. The screen boxes of these screen devices should then be arranged for these glass sections up to this angle. For aesthetic reasons, it is here wished to have these screen boxes connected up to each other also at this angle, this preferably without visible fastening means.

Screen rollers on which the screens of screen devices can be rolled up and unrolled are typically fitted rotatably in these screen boxes by being rotatably fastened to end walls of these screen boxes. Where it is wished to have these screen boxes connected at an angle to each other, it is not however possible to provide in this angle such an end wall. There is hence a need for alternative fastening means in order to be able in such situations to accommodate a screen roller in a screen box. Such fastening means should be sufficiently strong and robust to be able to absorb alternating loads in the rolling up and unrolling of a screen and/or in connection with wind loads, etc.

[0003] The object of this invention is to find a solution for fastening screen rollers for screen devices, in situations in which no end wall can be provided at the ends of the screen boxes, rotatably in this screen box.

[0004] This object of the invention is achieved by providing a screen device comprising:

- a first screen roller, which is rotatably arrangeable in a first screen box;
- a second screen roller, which is rotatably arrangeable in a second screen box;
- a first top profile and a second top profile, which delimit the first screen box and the second screen box, respectively, on the top side;
- a first rear profile and a second rear profile, which delimit the first screen box and the second screen box, respectively, on the rear side;

wherein the screen boxes, in the mounted state of the screen device, are arranged at an angle relative to each other;
wherein each top profile and each rear profile comprises, towards the inner side of the screen box, an engagement element;
and wherein the screen device:

- comprises a first fastening piece, which comprises a first engagement element in order to engage behind the engagement element of the first top profile and comprises a second engagement element to engage behind the engagement element of the second top profile;
- and comprises a second fastening piece, which comprises a first engagement element to engage behind the engagement element of the first rear profile and comprises a second engagement element to engage behind the engagement element of the second rear profile;

wherein the first fastening piece and the second fastening piece are displaceable relative to each other between a first position, in which the engagement elements of the fastening pieces are freely movable relative to the engagement elements of the profiles, and a second position, in which the engagement elements of the fastening pieces engage behind the engagement elements of the profiles,
and wherein each screen roller is rotatably fastenable to a said fastening piece in order to arrange this rotatably in the respective screen box.

[0005] Such fastening pieces can be easily and yet particularly firmly fixed with respect to the top profiles and rear profiles of the screen boxes of such a screen device. In the mounted state of the screen device, these fastening pieces can be fully accommodated in the screen boxes, so that the aesthetic image of the screen boxes at the angle should not be disturbed by fastening means. Instead of rotatably fastening the screen rollers to end walls, these can now be rotatably fastened to these fastening pieces.

[0006] With a view to ease of assembly, the screen boxes of a screen device according to this invention will always comprise a said top profile and a said rear profile. This top profile and this rear profile can be provided as separate profiles, but preferentially form part of one and the same profile, which, still more preferentially, is realized as an L-profile. The top profiles preferably connect to each other in mitred arrangement, whilst the rear profiles preferably connect to each other at the said angle. On the front side of the screen boxes of a screen device according to this invention, a front profile can be provided

in order to delimit the screen box on the front side. Generally, such a front profile should also aesthetically finish off the screen boxes on the front side. It is also possible, however, to delimit the screen boxes on the front side, for example, by a part of a wall of a niche in which the screen rollers of the screen device are accommodated. In such a niche, there will always also be accommodated, however, for ease of assembly, a said top profile and a said rear profile. A front profile is then not always necessary, however.

The bottom side of the screen boxes of a screen device according to this invention are typically, as in the known devices, partially shielded with a profile which still leaves free an opening through which the screen can be rolled up and unrolled on the screen roller.

[0007] The first fastening piece and the second fastening piece of a screen device according to this invention preferably comprise a first clamping surface and a second clamping surface, respectively, which are designed to meet and to stand at an angle relative to each of the said profiles in the second position of the fastening pieces. The screen device then further also comprises adjusting means to brace the clamping surfaces one against the other during the displacement motion of the fastening pieces, wherein the clamping surfaces can shift relative to each other.

[0008] The clamping surfaces are thus braced one against the other according to the principle of wedging, whereby a large force, with which the engagement elements of the fastening pieces engage behind the engagement elements of the profiles, can be developed.

[0009] The angle at which the clamping surfaces stand relative to the various profiles is preferably chosen as a function of the distances which the engagement elements of the fastening pieces, during the displacement motion of the fastening pieces, need to bridge up to the engagement elements of the profiles. If this distance relative to the various profiles is equal, then this angle can be chosen at 45°, or somewhat larger or somewhat smaller. If this distance, for example, is greater of the engagement element of the first fastening piece relative to the engagement element of the top profile than of the engagement element of the second fastening piece relative to the engagement element of the rear profile, then the smallest angle at which the clamping surfaces stand relative to the top profile is preferably also chosen greater than the smallest angle at which the clamping surfaces stand relative to the rear profile.

[0010] Preferably, a set screw is chosen as the said adjusting means.

Still more preferentially, such a set screw, in the second position of the fastening pieces, is arranged virtually parallel to the rear profiles.

Furthermore, such a set screw is preferably arranged such that it is adjustable from the bottom side of the screen box.

[0011] Particularly preferentially, the set screw is freely rotatable relative to the first fastening piece and engages in a bore in the second fastening piece in order to adjust the position of the fastening pieces relative to each other. The first fastening piece is then preferably provided with a locking device to lock the set screw in the second position of the fastening pieces.

Conversely, the set screw can in particular, for example, also be freely rotatable relative to the second fastening piece and engages in a bore in the first fastening piece in order to adjust the position of the fastening pieces relative to each other. The second fastening piece is then preferably provided with a locking device to lock the set screw in the second position of the fastening pieces.

In this way, it is possible to ensure in a simple manner that, with the aid of this set screw, the clamping surfaces can be drawn together, wherein they can move relative to each other in order to build up the necessary tension.

[0012] In a particularly preferential screen device according to this invention, the first fastening piece and the second fastening piece comprise a first guide surface and a second guide surface, respectively, which are designed to meet in order to guide the displacement motion between the first position and the second position, wherein these guide surfaces stand at an angle relative to the clamping surfaces of these fastening pieces.

By virtue of such guide surfaces, a situation in which the fastening pieces tilt relative to each other upon the mutual bracing of the clamping surfaces can be avoided.

[0013] In a specific embodiment, the guide surface of the first fastening piece forms part of a guide slot in this first fastening piece, and the guide surface of the second fastening piece preferably forms part of a guide rib in this second fastening piece. This guide rib in this case engages in the guide slot in order to guide the displacement motion between the first position and the second position.

Conversely, the guide surface of the first fastening piece could also, for example, form part of a guide rib, wherein the guide surface of the second fastening piece then forms part of a corresponding guide slot.

[0014] In embodiments comprising such a guide slot and such a guide rib, the guide slot and the guide rib, in the second position of the fastening pieces, are preferably arranged substantially parallel to the rear profiles.

[0015] In embodiments comprising a set screw and comprising such a guide slot and guide rib, the set screw is preferably freely rotatable relative to the first fastening piece or the second fastening piece, the said set screw engages in a bore in the guide rib of the second fastening piece and the first fastening piece, respectively, in order to adjust the position of the fastening pieces relative to each other, and the first fastening piece and the second fastening piece, respectively, is provided with a locking device to lock the set screw in the second position of the fastening pieces.

[0016] In order to be easily able in the assembly process to make the fastening pieces engage with their engagement elements behind the engagement elements of the profiles, the first engagement element and the second engagement element of the first fastening piece are

preferably arranged at a distance apart.
When the top profiles on the front side of the screen boxes connect to each other into the angle at which the screen boxes connect to each other, the first fastening piece in this case, in the second position, leaves free the top profiles, preferably adjacent to this angle, over a certain distance.

[0017] In a specific embodiment of a screen device according to this invention, at least one engagement element of a said profile is realized as a rib. This allows a simple production of such a profile. This rib then preferentially forms part of a screw channel, in which, possibly on the other side of the screen box, screws can be engaged in order to fasten an end wall hereto.

[0018] In order to accommodate the screen rollers in a screen device according to this invention in the screen boxes, said screen rollers are preferably rotatably fastenable to the first fastening piece. This can be done, for example, with one of the many known ways of fastening screen rollers rotatably to end walls.

[0019] In order to fasten the fastening pieces firmly in the screen boxes, the first fastening piece further preferably comprises an abutting surface, which, in the second position of the fastening pieces, abuts against a said top profile.
The first fastening piece is preferentially provided with such an abutting surface for each top profile. These abutting surfaces can in this case also form part of one and the same abutting surface.
It is also possible to provide the second fastening piece with an abutting surface, which, in the second position of the fastening pieces. abuts against a said rear profile. This second fastening piece can also be provided with such an abutting surface for each rear profile.

[0020] This invention is now explained in greater detail on the basis of the hereinafter following detailed description of a preferential screen device according to this invention. The aim of this description is to provide solely illustrative embodiments and to indicate further advantages and particularities of this invention, and thus cannot be interpreted as a limitation of the field of application of the invention or of the patent rights claimed in the claims.

[0021] In this detailed description, reference is made by means of reference numerals to the hereto appended drawings, wherein in

- Figure 1 a screen device according to this invention is represented in perspective;
- Figure 2 a part of a screen device according to this invention is represented in perspective, at the level of the connection of the two screen boxes, wherein the front profiles of the screen boxes are omitted;
- Figure 3 an embodiment of the fastening pieces of a screen device according to this invention is represented separately in perspective;
- Figure 4 the fastening pieces from Figure 3 are represented separately in cross section, in their first position;
- Figure 5 the fastening pieces from Figure 3 are represented separately in cross section, in their second position;
- Figure 6, the fastening pieces from Figure 3 are represented in perspective in mounted state in the top profile and the rear profile of a screen box, with the top profile and the rear profile in cross section and with a guide piece for fastening of a screen roller fitted in the first fastening piece.

[0022] The screen device (1) represented in Figures 1 and 2e comprises two screen rollers (2, 4), which are each accommodated in a respective screen box (3, 5).

[0023] The screen boxes (3, 5) are arranged at an angle (α) relative to each other. Each screen box (3, 5) comprises a top profile (6, 7) to delimit its top side, a rear profile (8, 9) to delimit its rear side, a front profile (34, 35) to delimit its front side, and a bottom profile (not represented) to partially delimit its bottom side. The bottom profile respectively leaves an opening free, so that a screen (32, 33) can extend through this opening. In each screen box (3, 5), the top profile (6, 7) and the rear profile (8, 9) form part of a same L-shaped profile (6, 8, 7, 9). The top profiles (6, 7) and bottom profiles of the screen boxes (3, 5) connect to each other in mitred arrangement. The rear profiles (6, 7) and the front profiles (34, 35) of the screen boxes (3, 5) connect to each other at the said angle (α).

[0024] The screen rollers (2, 4) are each rotatable about a respective screen roller axis (36, 37). Given that these screen roller axes (36, 37) extend according to the longitudinal direction of the screen boxes (3, 5), these screen roller axes (36, 37) are hereby also arranged at the said angle (α) relative to each other.
To each of the screen rollers (2, 4), a screen (32, 33) is fastened at one of its ends. Given that the screen rollers (2, 4) are arranged rotatably about their screen roller axis (36, 37), the hereto fastened screens (32, 33) can be rolled up and unrolled on the respective screen roller (2, 4).
To the end of the screens (32, 33) placed opposite to the end by which they are fastened to the respective screen roller (2, 4) is respectively fastened a bottom lath (38, 39), so that the screens (32, 33), under the weight of this bottom lath (38, 39), can sag. In the angle (α), the bottom laths (38, 39) are mutually connected.
On the lateral side of the screens (32, 33), away from the angle (α), are arranged screen and lath guides (40, 41), for guiding the corresponding lateral sides of the screens (32, 33) and the hereto fastened bottom laths (38, 39) during rolling up and unrolling of the screens (32, 33).

[0025] In order to arrange the screen rollers (2, 4) rotatably in the screen boxes (3, 5), the represented screen device (1) comprises two fastening pieces (14, 17), as can be seen in Figures 2-6.
The screen rollers (2, 4) are fitted rotatably with their screen roller axis (36, 37) in a guide piece (44, 45), which is fastened in a slot (47) in the first fastening piece (14).

The first fastening piece (14) and the second fastening piece (17) are mutually couplable with the aid of a set screw (22) (Figures 2, 4-5). In the coupled state, the fastening pieces (14, 17), with the aid of this set screw (22), are mutually displaceable between a first position, as represented in Figure 4, and a second position, as represented in Figure 5.

[0026] In the mounted state of the screen device (1), the fastening pieces (14, 17) are located in their second position, in which, with the aid of engagement elements (15, 16, 18, 19), they engage behind ribs (10, 11, 12, 13) of the top profiles (6, 7) and the rear profiles (8, 9), as can be seen in Figures 2 and 6.

Each top profile (6, 7) and each rear profile (8, 9) comprises a screw channel of which the said ribs (10, 11, 12, 13) form part. At the other end of the screen boxes (3, 5), such an end wall can be fastened to the screen box (3, 5) by the engagement of screws in these screw channels. At the represented end of the screen boxes (3, 5), these screw channels should behind here effect the engagement of the engagement elements (15, 16, 18, 19) of the fastening pieces (14, 17).

In the mounted state:

- the first engagement element (15) of the first fastening piece (14) engages behind the engagement element (10) of the first top profile (6);
- the second engagement element (16) of the first fastening piece (14) engages behind the engagement element (11) of the second top profile (7);
- the first engagement element (18) of the second fastening piece (17) engages behind the engagement element (12) of the first rear profile (8);
- the second engagement element (19) of the second fastening piece (17) engages behind the engagement element (13) of the second rear profile (9).

[0027] In order to be able to fit the fastening pieces (14, 17) in the screen boxes (3, 5), these should first be brought into their first position, in which their engagement elements (15, 16, 18, 19) can move freely relative to the engagement elements (10, 11, 12, 13) of the top profiles (6, 7) and the rear profiles (8, 9).

In order to be able to fit the fastening pieces (14, 17) in their first position in the L-shaped profiles (6, 8, 7, 9), which connect to one another, the first engagement element (15) and the second engagement element (16) of the first fastening piece (14) are located at a distance apart, such that, in the mounted state, the first fastening piece (14) leaves free the top profiles (6, 7) on the front side of the screen boxes (3, 5), adjacent to the angle (α), over a certain distance.

After the fastening pieces (14, 17) have been fitted in the L-shaped profiles (6, 8, 7, 9), they can be brought with the aid of the set screw (22) into their second position. The set screw (22) can in this case rotate freely relative to the first fastening piece (14) and engages in a bore (31) in a guide rib (26) of the second fastening piece (17). The first fastening piece (14) is provided with a locking device (30), in which the set screw (22) is locked.

The first fastening piece (14) comprises a guide slot (25), in which the guide rib (26) of the second fastening piece (17) engages in order to guide the displacement motion between the first position and the second position. The guide slot (25) and the guide rib (26) also ensure that the fastening pieces (14, 17) do not start to tilt relative to each other during the displacement motion from the first position into the second position. The guide slot (25) and the guide rib (26) extend substantially parallel to the rear profiles (8, 9). In this way, it is possible to operate the set screw (22) from below. For production engineering reasons, the guide slot (25) and the guide rib (26) are probably provided with a draft angle. The guide rib (26) shifts during the displacement motion substantially vertically relative to the guide slot (25). This guide rib (26) can also however move over a limited distance transversely to this direction relative to the guide slot (25), this, during the displacement motion into the second position, towards the rear profiles (8, 9).

The first fastening piece (14) and the second fastening piece (17) comprise a first clamping surface (20) and a second clamping surface (21), respectively. These clamping surfaces (20, 21) stand at an angle relative to each of the top profiles (6, 7) and rear profiles (8, 9). During the displacement motion, these clamping surfaces (20, 21) are first drawn together, after which they shift relative to each other and the guide rib (26) shifts over the said transverse distance relative to the guide slot (25) until the set screw (22) is fully locked in the locking device (30) of the first fastening piece (14). During this transverse displacement, according to the principle of wedging, a force with which the engagement elements (15, 16, 18, 19) of the fastening pieces (14, 17) engage behind the engagement elements (10, 11, 12, 13) of the top profiles (6, 7) and the rear profiles (8, 9) is built up. In this way, a particularly strong connection between the fastening pieces (14, 17) and the top profiles (6, 7) and rear profiles (8, 9) is obtained. The fastening means (14, 17, 22) can in this case also be fully accommodated in the screen boxes (3, 5), so that, with the screen boxes (3, 5), in the mounted state of the screen device (1), no fastening means are visible at this angle (α).

Given that the engagement elements (18, 19) of the second fastening piece (17) have to cover a shorter distance up to the engagement elements (12, 13) of the rear profiles (8, 9) than the engagement elements (15, 16) of the first fastening piece (14) up to the engagement elements (10, 11) of the top profiles (6, 7), the angle which the clamping surfaces (20, 21) make relative to the rear profiles (8, 9) is taken smaller than the angle which the clamping surfaces (20, 21) make relative to the top profiles (6, 7).

In order also to guide the displacement motion of the fastening pieces (14, 17) relative to the top profiles (6, 7) and the rear profiles (8, 9), the first fastening piece (14) comprises for each top profile (6, 7) an abutting surface

(27, 28), which, in the second position of the fastening pieces (14, 17), abuts against the respective top profile (6, 7). These abutting surfaces (27, 28) also play an important role in the strength of the obtained connection.

[0028] The represented screen device (1) is further provided with drive means (42, 43) for the synchronous driving of both screen rollers (2, 4). With mutually connected bottom laths (38, 39), the screens should namely always be able to be rolled up and unrolled simultaneously on the screen rollers (2, 4). Specifically, the drive means (42, 43) of the represented screen device (1) comprise a geared transmission (42, 43) having conical gears (42, 43), for transmitting the drive of one of the two screen rollers (2, 4) in order to drive the other of the two screen rollers (4, 2).

Claims

1. Screen device (1) comprising:

- a first screen roller (2), which is rotatably arrangeable in a first screen box (3);
- a second screen roller (4), which is rotatably arrangeable in a second screen box (5);
- a first top profile (6) and a second top profile (7), which delimit the first screen box (3) and the second screen box (5), respectively, on the top side;
- a first rear profile (8) and a second rear profile (9), which delimit the first screen box (3) and the second screen box (5), respectively, on the rear side;

wherein the screen boxes (3, 5), in the mounted state of the screen device (1), are arranged at an angle (α) relative to each other;
characterized in that

- each top profile (6, 7) and each rear profile (8, 9) comprises, towards the inner side of the screen box (3, 5), an engagement element (10, 11, 12, 13);

and **in that** the screen device (1):

- comprises a first fastening piece (14), which comprises a first engagement element (15) to engage behind the engagement element (10) of the first top profile (6) and comprises a second engagement element (16) to engage behind the engagement element (11) of the second top profile (7);
- and comprises a second fastening piece (17), which comprises a first engagement element (18) to engage behind the engagement element (12) of the first rear profile (8) and comprises a second engagement element (19) to engage behind the engagement element (13) of the second rear profile (9);

wherein the first fastening piece (14) and the second fastening piece (17) are displaceable relative to each other between a first position, in which the engagement elements (15, 16, 18, 19) of the fastening pieces (14, 17) are freely movable relative to the engagement elements (10, 11, 12, 13) of the profiles (6, 7, 8, 9), and a second position, in which the engagement elements (15, 16, 18, 19) of the fastening pieces (14, 17) engage behind the engagement elements (10, 11, 12, 13) of the profiles (6, 7, 8, 9) and wherein each screen roller (2, 4) is rotatably fastenable to a said fastening piece (14, 17) in order to arrange this rotatably in the respective screen box (3, 5).

2. Screen device (1) according to Claim 1, **characterized in that** the first fastening piece (14) and the second fastening piece (17) comprise a first clamping surface (20) and a second clamping surface (21), respectively, which are designed to meet and to stand at an angle relative to each of the said profiles (6, 7, 8, 9) in the second position of the fastening pieces (14, 17), and **in that** the screen device (1) comprises adjusting means (22) to brace the clamping surfaces (20, 21) one against the other during the displacement motion of the fastening pieces (14, 17), wherein the clamping surfaces (20, 21) shift relative to each other.

3. Screen device (1) according to one of the preceding claims, **characterized in that** the screen device (1) comprises a set screw (22) as the said adjusting means (22).

4. Screen device (1) according to Claim 3, **characterized in that** the set screw (22), in the second position of the fastening pieces (14, 17), is arranged virtually parallel to the rear profiles (8, 9).

5. Screen device (1) according to Claim 3 or 4, **characterized in that** the set screw (22) is arranged such that it is adjustable from the bottom side of the screen boxes (3, 5).

6. Screen device according to one of Claims 3 to 5, **characterized in that** the set screw (22) is freely rotatable relative to the first fastening piece (14) and engages in a bore (31) in the second fastening piece (17) in order to adjust the position of the fastening pieces (14, 17) relative to each other, and **in that** the first fastening piece (14) comprises a locking device (30) to lock the set screw (22) in the second position of the fastening pieces (14, 17).

7. Screen device (1) according to one of Claims 2 to 6, **characterized in that** the first fastening piece (14)

and the second fastening piece (17) comprise a first guide surface (23) and a second guide surface (24), respectively, which are designed to meet in order to guide the displacement motion between the first position and the second position, wherein these guide surfaces (23, 24) stand at an angle relative to the clamping surfaces (20, 21) of these fastening pieces (14, 17).

8. Screen device (1) according to Claim 7, **characterized in that** the guide surface (23) of the first fastening piece (14) forms part of a guide slot (25) in this first fastening piece (14), and **in that** the guide surface (24) of the second fastening piece (17) forms part of a guide rib (26) in this second fastening piece (17), and **in that** the guide rib (26) engages in the guide slot (25) in order to guide the displacement motion between the first position and the second position.

9. Screen device (1) according to Claim 8, **characterized in that** the guide slot (25) and the guide rib (26), in the second position of the fastening pieces (14, 17), are arranged substantially parallel to the rear profiles (8, 9).

10. Screen device (1) according to Claim 6 and Claim 8 or 9, **characterized in that** the set screw (22) engages in a bore (31) in the guide rib (26) of the second fastening piece (17) in order to adjust the position of the fastening pieces (14, 17) relative to each other.

11. Screen device (1) according to one of the preceding claims, **characterized in that** the first engagement element (15) and the second engagement element (16) of the first fastening piece (14) are arranged at a distance apart.

12. Screen device (1) according to Claim 11, **characterized in that** the top profiles (6, 7) on the front side of the screen boxes (3, 5) connect to each other into the angle (α) at which the screen boxes (3, 5) connect to each other, and **in that** the first fastening piece (14) in the second position leaves free the top profiles (6, 7), adjacent to this angle (α), over a certain distance.

13. Screen device (1) according to one of the preceding claims, **characterized in that** at least one engagement element (10, 11, 12, 13) of a said profile (6, 7, 8, 9) is realized as a rib (10, 11, 12, 13).

14. Screen device (1) according to one of the preceding claims, **characterized in that** the screen rollers (2, 4) are rotatably fastenable to the first fastening piece (14).

15. Screen device (1) according to one of the preceding claims, **characterized in that** the first fastening piece (14) comprises an abutting surface (27, 28), which, in the second position of the fastening pieces (14, 17), abuts against a said top profile (6, 7).

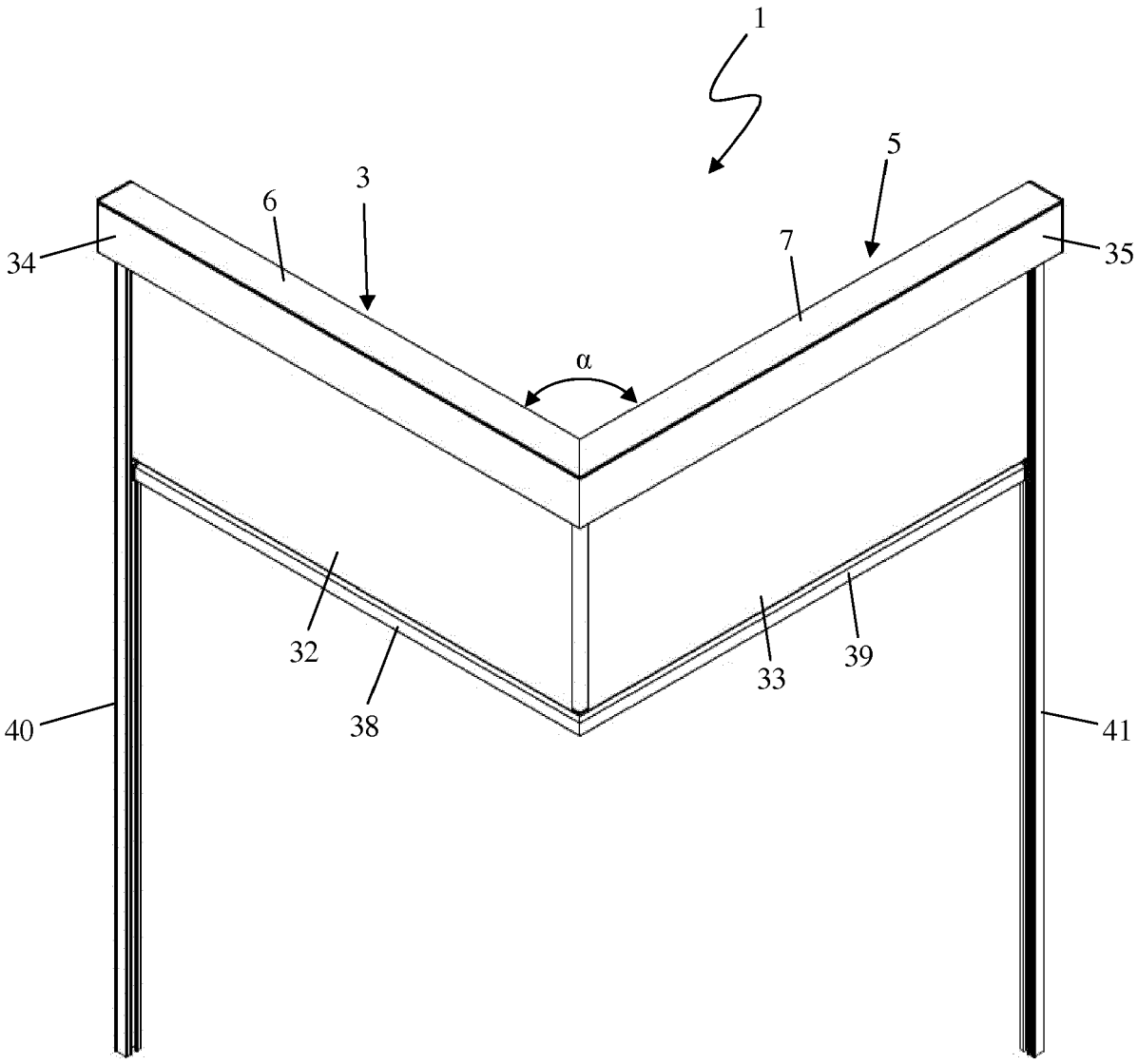

Fig. 1

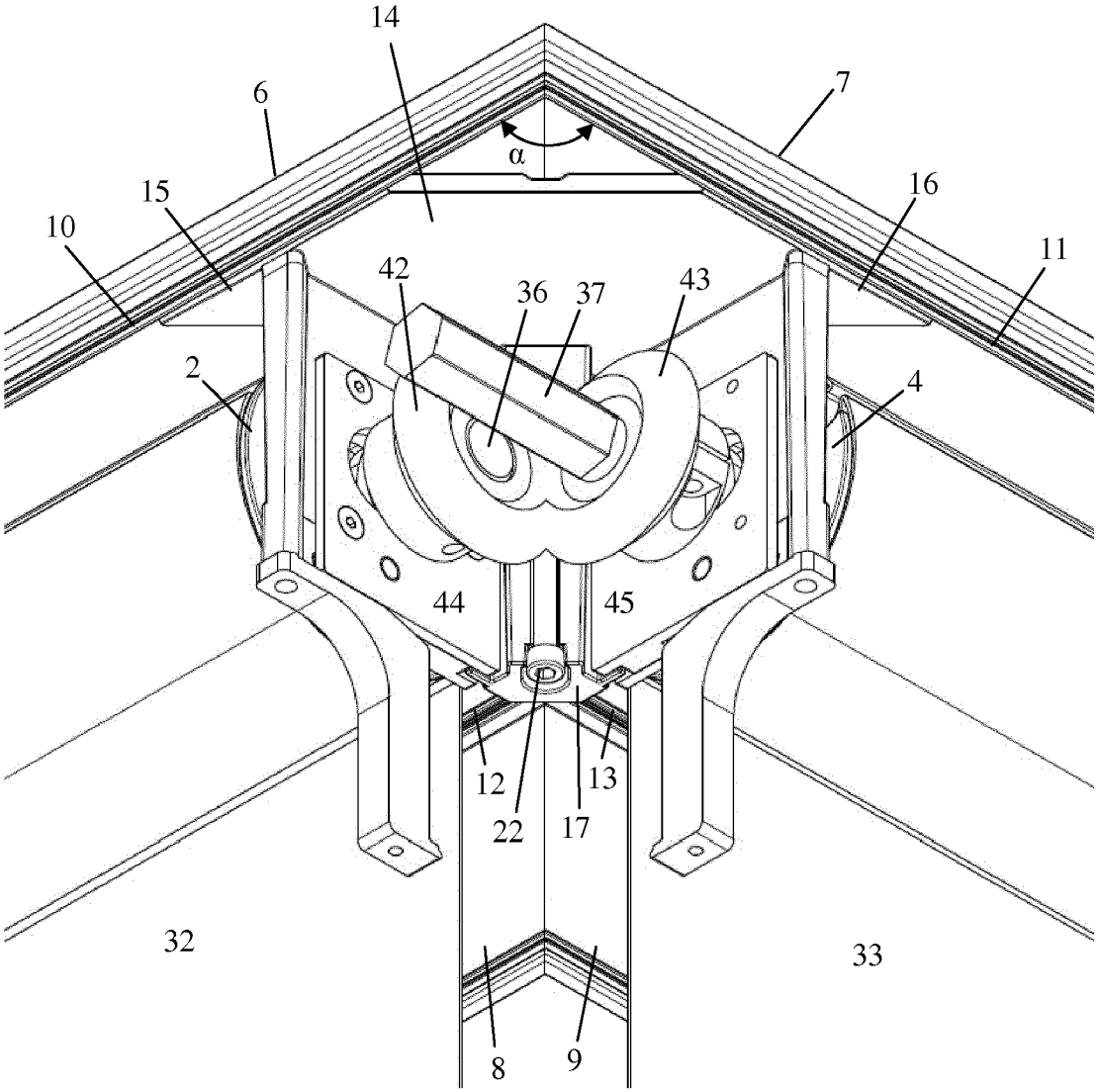

Fig. 2

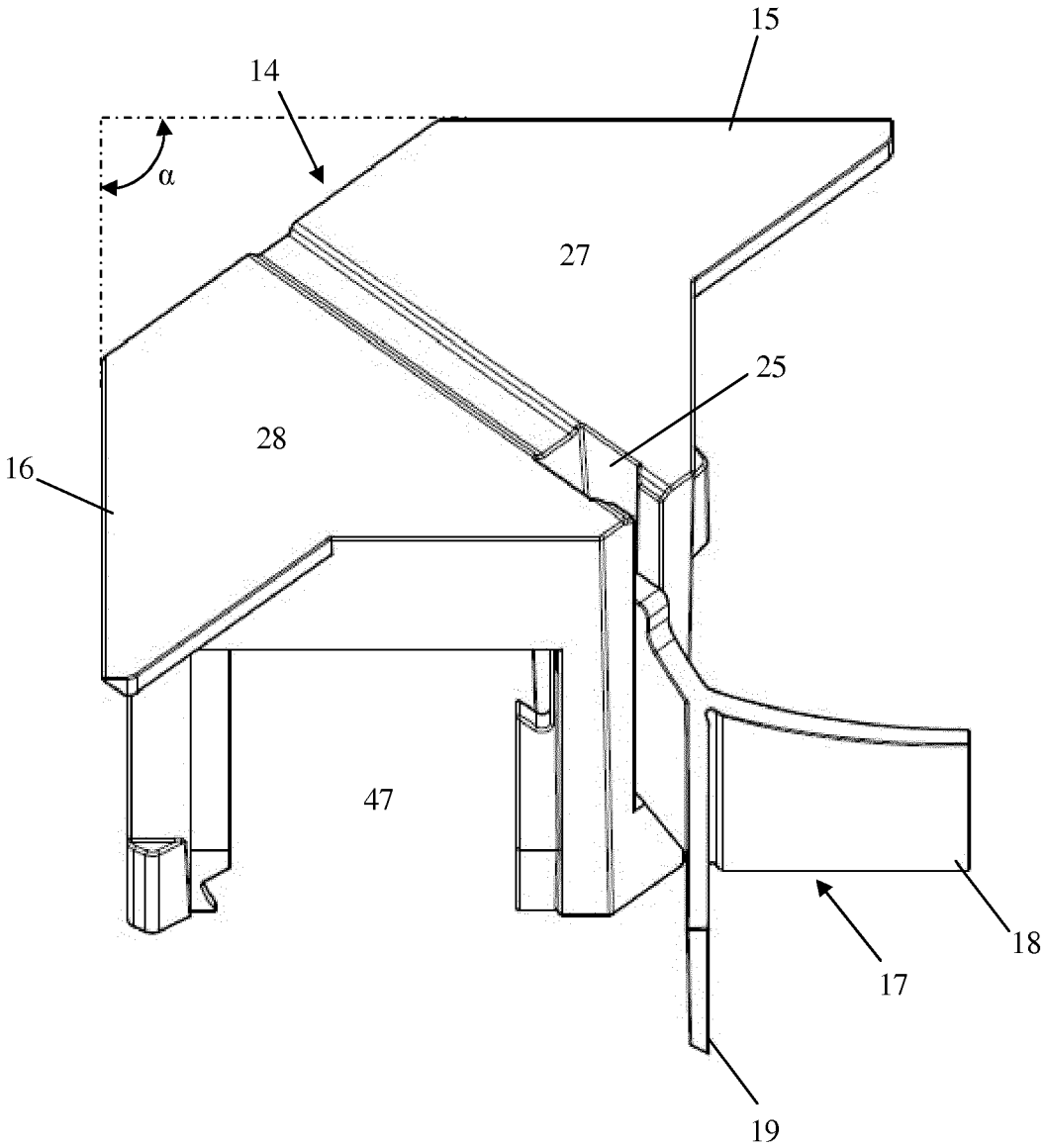

Fig. 3

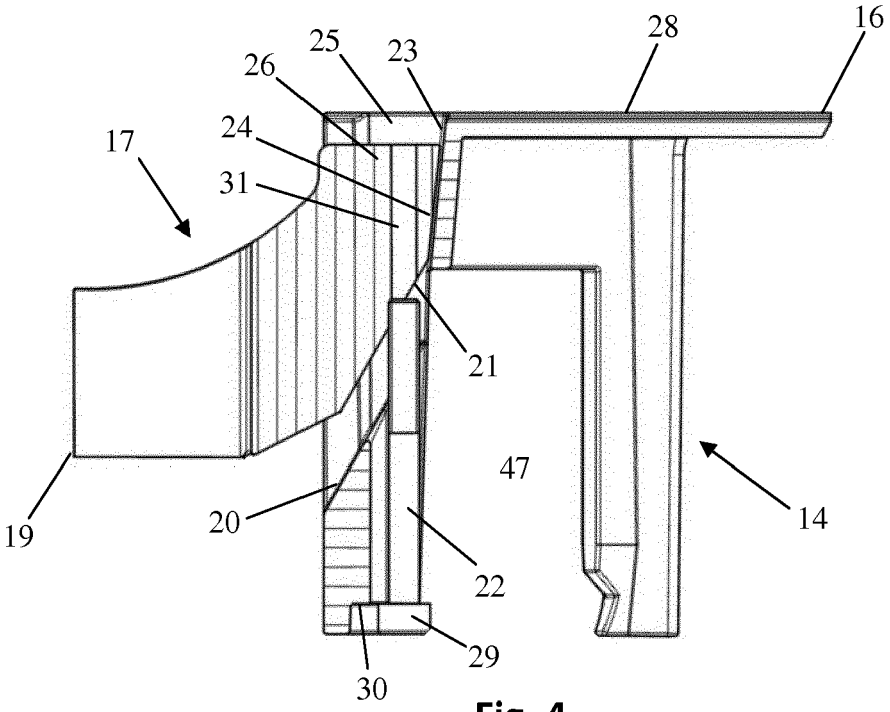
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Fig. 4

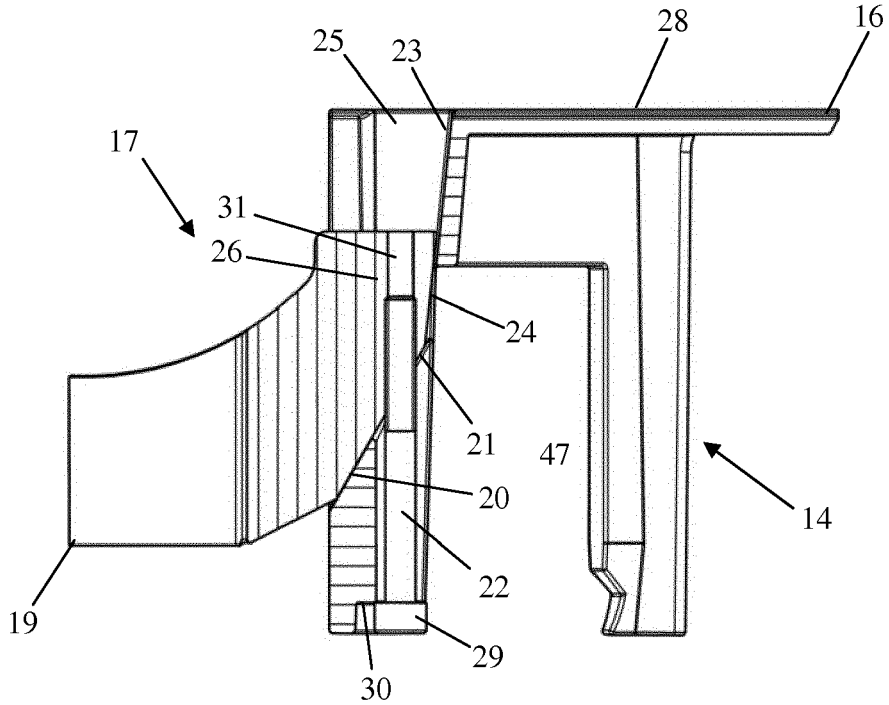
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Fig. 5

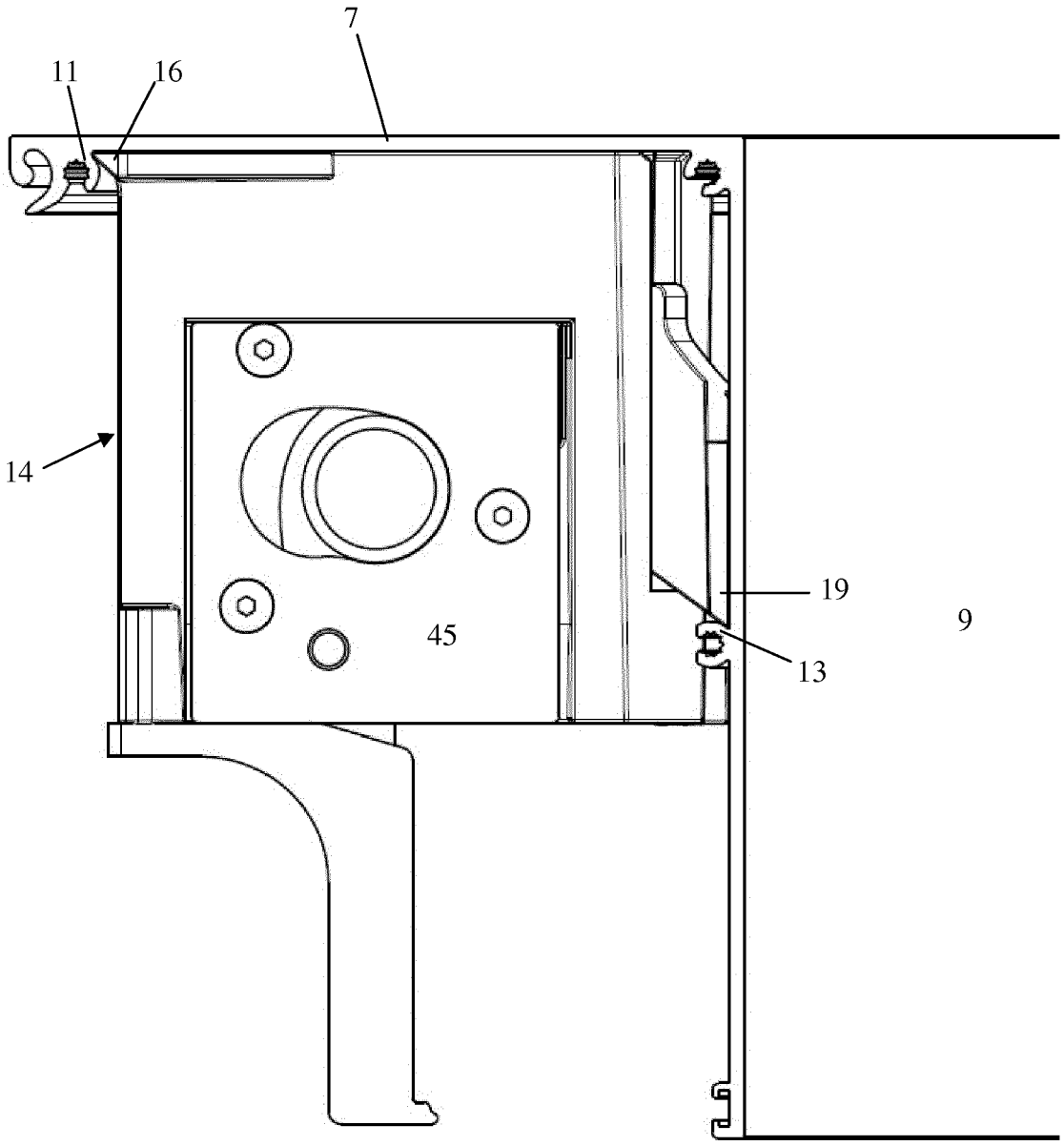

Fig. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 16 15 5909

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	1 July 2016	Kofoed, Peter

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