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(54) Jacking device

(57) A jacking device 1 is disclosed which comprises a tubular member 2 adapted to be received in a first end of an aperture through a door frame or window frame, and having a threaded internal surface and an elongate head portion 8 having screw holes 9. A jacking device 1 also comprises a jacking member 3 having a threaded external surface adapted to be received in the tubular member 2 and to engage the threaded internal surface of the tubular member, and a head portion 18

for engaging a wall surrounding the door frame and/or window frame. The jacking member 3 is adapted to be engaged in use by the interior of the tubular member 2 from a second end of the aperture in the door frame or window frame to rotate the jacking member 3 relative to the tubular member 2 to cause axial relative movement between said members to bring the head portion 18 into engagement with the wall.

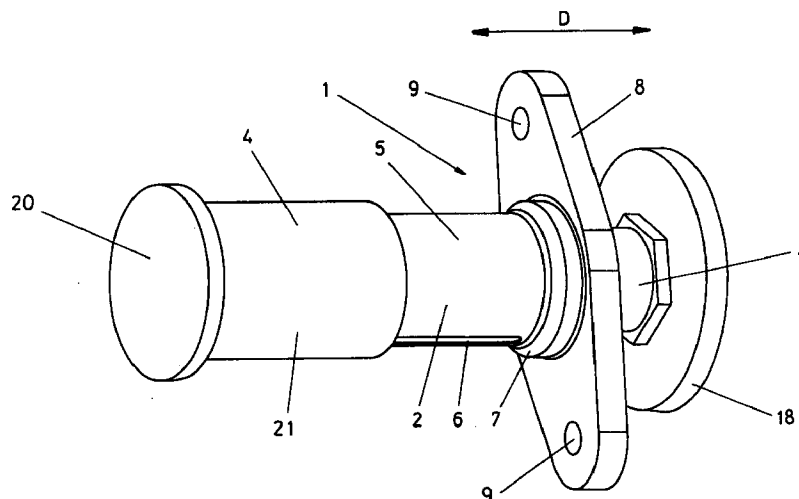


FIG. 1

Description

[0001] The present invention relates to a jacking device for securing a door frame or a window frame in an aperture in a surrounding wall.

[0002] It is currently the practice to mount a door frame or window frame to a surrounding wall by locating the frame in an aperture in the surrounding wall, wherein the aperture is of larger dimensions than the periphery of the frame, and to fix the frame relative to the wall by placing wooden wedges at a series of locations in the gaps between the frame and the wall. The remaining gaps between the frame and the wall, together with the wooden wedges, are then plastered over to provide a continuous wall surface.

[0003] This known arrangement suffers from the drawback that the frame is often not very securely attached to the surrounding wall, as a result of which the frame can often easily be removed from the wall, regardless of any security features of the door or window mounted to the frame. In addition, the integrity of the attachment cannot be checked after the gaps between the frame and the wall have been plastered over.

[0004] Preferred embodiments of the present invention seek to overcome the above disadvantages of the prior art.

[0005] According to an aspect of the present invention, there is provided a jacking device comprising a tubular member adapted to be received in a first end of an aperture through a door frame or window frame, and having a threaded internal surface and means for preventing inward axial movement of the tubular member into the aperture; and

a jacking member having a threaded external surface adapted to be received in the tubular member and to engage the threaded internal surface of the tubular member, and an engaging portion for engaging a wall surrounding the door frame and/or window frame,

wherein the jacking member is adapted to be engaged in use via the interior of the tubular member from a second end of the aperture in the door frame or window frame to rotate the jacking member relative to the tubular member to cause axial relative movement between said members to bring said engaging portion into engagement with the wall.

[0006] Because the jacking member is at least partially received within the tubular member, the axial length of the jacking device is adjustable. This gives the advantage of greater adjustability of the device to different sizes of gap between a door frame or window frame and the surrounding wall. In addition, the tubular member is located in the first end of the aperture through the door frame or window frame, and the jacking member is rotated relative to the tubular member (for example by

means of a screwdriver) via the second end of the aperture. This provides the further advantage that if the second end of the aperture is made accessible (for example in a door or window jamb which can be accessed when the door or window is in its open position), the jacking device is adjustable after installation of the door frame or window frame in the surrounding wall is complete. By locating the second end of the aperture in a door or window jamb, the aperture through the frame can thus be arranged so that the second end of the aperture is accessible when the door or window is open but inaccessible when it is closed.

[0007] In a preferred embodiment, the means for preventing inward axial movement of the tubular member comprises a flange for abutting the first end of the aperture.

[0008] This provides the advantage of enabling the flange to seal the end of the aperture to prevent entry of moisture into the aperture, which may otherwise cause degradation of the window or door frame.

[0009] Alternatively, or in addition, the means for preventing inward axial movement of the tubular member may comprise one or more screws for attaching the tubular member to the door frame or window frame.

[0010] This provides the advantage of preventing rotation of the tubular member relative to the frame when the jacking member is rotated, so that rotation of the jacking member relative to the tubular member results.

[0011] In a preferred embodiment, the engaging portion further comprises a screw, wherein the screw is adapted to penetrate the wall as a result of rotation of the jacking member relative to the tubular member.

[0012] The device preferably further comprises a sealing member for sealing the second end of the aperture.

[0013] This provides the advantage of preventing penetration of dirt or moisture into the aperture.

[0014] The sealing member preferably comprises an elongate body portion for engaging the tubular member adjacent an end thereof remote from the jacking member in use.

[0015] This gives the advantage of providing additional stability to the device in use.

[0016] The tubular member preferably further comprises a substantially longitudinal slot therethrough.

[0017] This provides the advantage of preventing air from being trapped within the tubular member as the sealing member is mounted to the second end of the aperture, which would otherwise impede mounting of the sealing member.

[0018] The device may be made of plastics material, such as nylon.

[0019] Alternatively, the device may be made of metal, such as stainless steel.

[0020] According to another aspect of the invention, there is provided a window frame or door frame arrangement, the arrangement comprising a window frame or door frame secured to a surrounding wall by means of at least one jacking device as defined above.

[0021] According to a further aspect of the invention, there is provided a method of securing a door frame or window frame to a surrounding wall, the method comprising locating a door frame or window frame in an aperture in a surrounding wall, arranging at least one jacking device as defined above between the frame and the wall adjacent the frame, and engaging said jacking member via the second end of the aperture to rotate the jacking member relative to said tubular member to cause the engaging portion of the jacking member to engage the wall.

[0022] The method may further comprise the step of plastering over the gaps between the frame and the surrounding wall.

[0023] A preferred embodiment of the invention will now be described, by way of example only and not in any limitative sense, with reference to the accompany drawings, in which:-

Figure 1 is a perspective view of a jacking device embodying the present invention;

Figure 2(a) is a cross-section elevational view of the device of Figure 1 installed in a door frame;

Figure 2(b) is a view along the line A-A in Figure 2(a);

Figure 2(c) is a view along the line B-B in Figure 2(a); and

Figure 3 is a schematic cross-section elevational view of the jacking device of Figures 1 and 2 mounted to a door frame installed in an aperture in a surrounding wall.

[0024] Referring to Figure 1, a jacking device 1 comprises a tubular member 2, a jacking member 3, and a cap member 4.

[0025] The tubular member 2 comprises a generally cylindrical tubular body portion 5 having a longitudinal slot 6 therein (the function of which will be described below) such that the interior of the body portion 5 is in communication with its exterior. The body portion 5 is joined by means of a flange 7 of generally circular cross section having inclined sides to an elongate head portion 8 having a pair of screw holes 9.

[0026] As can be seen in Figure 2(b), the tubular member 2 is received in a hole 10 drilled through a door frame 11, which in the figure is in the form of an extruded section of aluminium or plastics material. The tubular body portion 5 of the tubular member 2 has an open end 12 and a screw thread 13 on the internal surface thereof.

[0027] The hole 10 has a first end 14 in which the tubular member 2 is received such that the end 14 of the aperture 10 is sealed by the flange 7 of the tubular member 2, and the tubular member 2 is secured to the

door frame 11 by means of screws 15 (see Figure 2(a)) through screw holes 9 such that the tubular member 2 is prevented from rotating relative to the door frame 11. The hole 10 also has a second end 16 which is sealed by the cap member 4.

[0028] Referring back to Figure 1, the jacking member 3 has an external diameter slightly less than the internal diameter of the body portion 5 of the tubular member 2, and is provided with a screw thread 17 (see Figure 2(b)) for engaging the internal screw thread 13 of the tubular member 2, such that rotation of the jacking member 3 relative to the tubular member 2 causes longitudinal movement between the two members in the direction of arrow D in Figure 1.

[0029] The jacking member 3 has a generally flat head portion 18 for abutting the adjacent portion of the wall surrounding the door frame 11. The head portion 18 may be provided with a screw (not shown) which penetrates the wall adjacent to the frame 11 as a result of rotation of the jacking member 3 relative to the tubular member 2 to provide additional fixing of the head portion 18 to the wall. Alternatively, the screw may extend axially along the entire length of the jacking member 3. The jacking member 3 also has a slot 19 at the end thereof remote from the head portion 18 to enable a tool such as a screwdriver (not shown) to be inserted through the second end 16 of the hole 10 in the door frame 11 to rotate the jacking member 3.

[0030] The cap member 4 has a cap portion 20 for sealing the second end of the aperture 10, and a tubular body portion 21 which has an external diameter approximately equal to that of the flange 7 to enable sealing of the hole 10, and an internal diameter approximately equal to the external diameter of the body portion 5 of the tubular member 2, such that the body portion 21 can slide over the body portion 5. Lateral movement of the body portion 5 of the tubular member 2 is therefore minimised as a result of the location of the body portion 21 of the cap member 4 thereon.

[0031] The operation of the jacking device 1 will now be described with reference to Figure 3.

[0032] The tubular member 2 is first inserted into the first end 14 of the hole 10 in the door frame 11, and is fixed thereto by means of the screws 15 in screw holes 9 such that the flange 7 seals the first end 14 of the hole 10. The jacking member 3 is then screwed into the tubular member 2 so that the head portion 18 of the jacking member is located close to the head portion 8 of the tubular member 2.

[0033] The door frame 11 is then located in an aperture 22 in surrounding wall 23, the aperture 22 being slightly larger than the external periphery of the door frame 11. It is envisaged that several jacking devices (for example 6 or 8 in the case of a door) would be used to securely attach the door frame 11 in the aperture 22 to the surrounding wall 23.

[0034] The jacking member 3 is then rotated relative to the tubular member 2 by inserting the shaft of a

screwdriver (not shown) into the second end 16 of the hole 10 to engage the slot 19 of the jacking member 3. The jacking member 3 can then be rotated relative to the tubular member 2 which causes it to move axially outwards relative to the door frame 11 in the direction of arrow E in Figure 4 until the head portion 18 of the jacking member 3 abuts the surrounding wall 23 to take up the differences in dimensions between the door frame 11 and the surrounding wall 23.

[0035] When the door frame 11 is securely located in the aperture 22, the body portion 21 of cap member 4 is then inserted into the second end 16 of hole 10 such that the body portion 21 thereof slides over the body portion 5 of the tubular member 2. As the cap member 4 slides over the body portion 5, any air trapped between the tubular member 2 and the cap member 4 is expelled through longitudinal slot 6, and therefore does not resist movement of the cap member 4 relative to the tubular member. As a result of the engagement of body portion 21 of cap member 4 with the body portion 5 of tubular member 2, the tubular member 2 is located in the hole 10 with increased stability. The remaining gaps between the door frame 11 and the wall 23 can then be plastered over.

[0036] If, subsequently to this plastering step, it is desired to check the integrity of the fixing of the frame 11 in the wall 23 or, if necessary, to adjust the jacking device 1, the jacking device 1 can be adjusted by removal of the cap member 4 from the hole 10 and inserting a screwdriver into the second end 16 of the hole 10. Otherwise, the second end 16 of hole 10 is inaccessible when a door 24 mounted to the frame 11 is in a closed position, but is accessible when the door is open.

[0037] It will be appreciated by persons skilled in the art that the above embodiment has been described by way of example only, and not in any limitative sense, and that various alterations and modifications are possible without departure from the scope of the invention as defined by the appended Claims. For example, the jacking member 3 may be rotated by other means than a screwdriver, for example an Allen key or socket spanner of suitable dimensions for insertion through the second end 16 of the hole 10.

Claims

1. A jacking device comprising a tubular member adapted to be received in a first end of an aperture through a door frame or window frame, and having a threaded internal surface and means for preventing inward axial movement of the tubular member into the aperture; and
a jacking member having a threaded external surface adapted to be received in the tubular member and to engage the threaded internal surface of the tubular member, and an engag-

ing portion for engaging a wall surrounding the door frame and/or window frame, wherein the jacking member is adapted to be engaged in use via the interior of the tubular member from a second end of the aperture in the door frame or window frame to rotate the jacking member relative to the tubular member to cause axial relative movement between said members to bring said engaging portion into engagement with the wall.

2. A device according to claim 1, wherein the means for preventing inward axial movement of the tubular member comprises a flange for abutting the first end of the aperture.
3. A device according to claim 1 or 2, wherein the means for preventing inward axial movement of the tubular member comprises one or more screws for attaching the tubular member to the door frame or window frame.
4. A device according to any one of the preceding claims, wherein the engaging portion further comprises a screw, wherein the screw is adapted to penetrate the wall as a result of rotation of the jacking member relative to the tubular member.
5. A device according to any one of the preceding claims, further comprising a sealing member for sealing the second end of the aperture.
6. A device according to claim 5, wherein the sealing member comprises an elongate body portion for engaging the tubular member adjacent an end thereof remote from the jacking member in use.
7. A device according to any one of the preceding claims, wherein the tubular member further comprises a substantially longitudinal slot therethrough.
8. A device according to any one of the preceding claims, wherein the device is made of plastics material, such as nylon.
9. A device according to any one of claims 1 to 7, wherein the device is made of metal, such as stainless steel.
10. A window frame or door frame arrangement, the arrangement comprising a window frame or door frame secured to a surrounding wall by means of at least one jacking device according to any one of the preceding claims.
11. A method of securing a door frame or window frame to a surrounding wall, the method comprising locating a door frame or window frame in an aperture in

a surrounding wall, arranging at least one jacking device according to any one of claims 1 to 10 between the frame and the wall adjacent the frame, and engaging said jacking member via the second end of the aperture to rotate the jacking member 5 relative to said tubular member to cause the engaging portion of the jacking member to engage the wall.

12. A method according to claim 11, further comprising 10 the step of plastering over the gaps between the frame and the surrounding wall.

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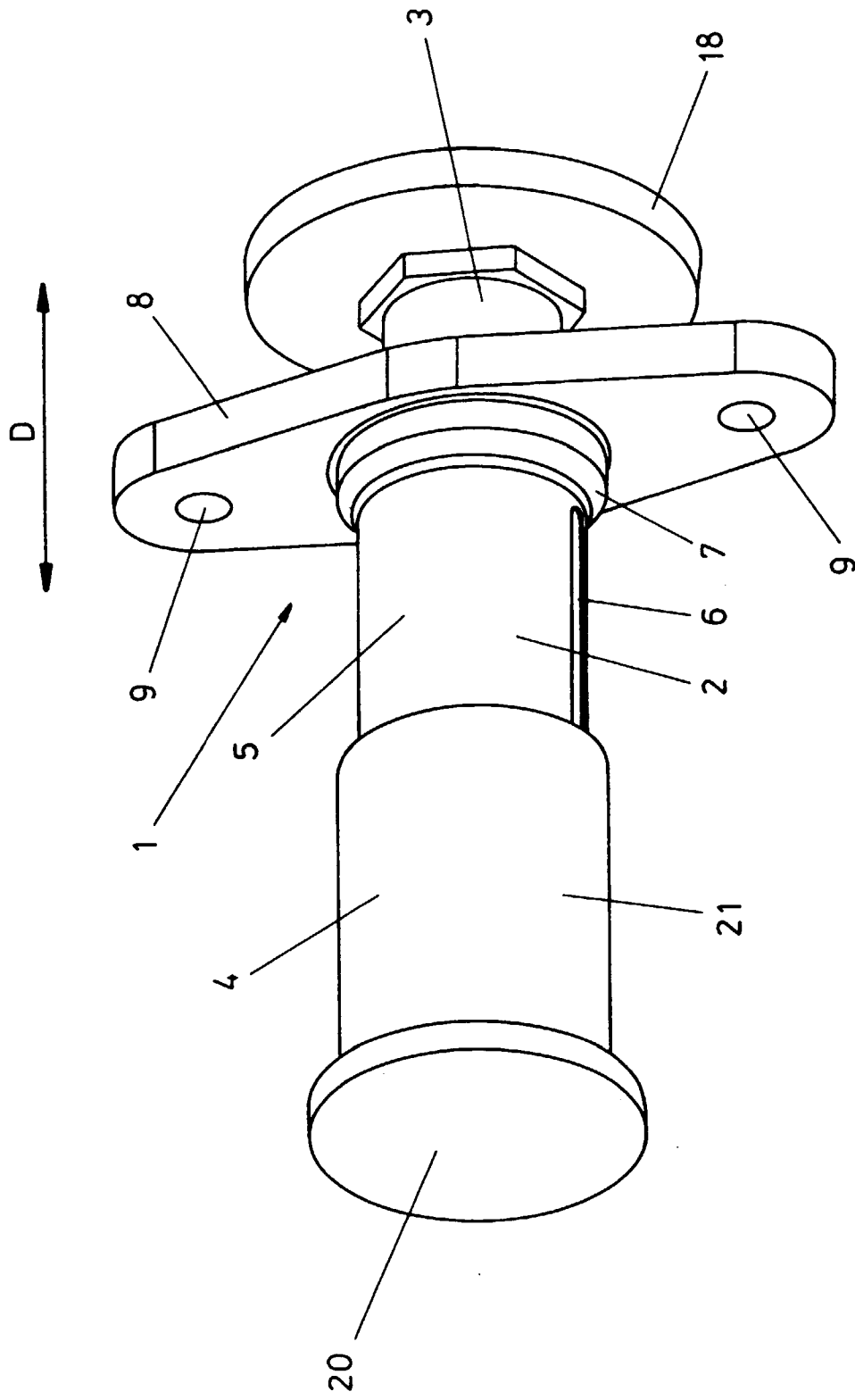


FIG. 1

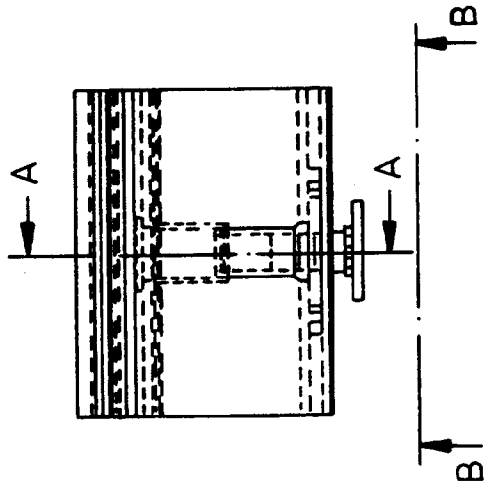


FIG. 2(a)

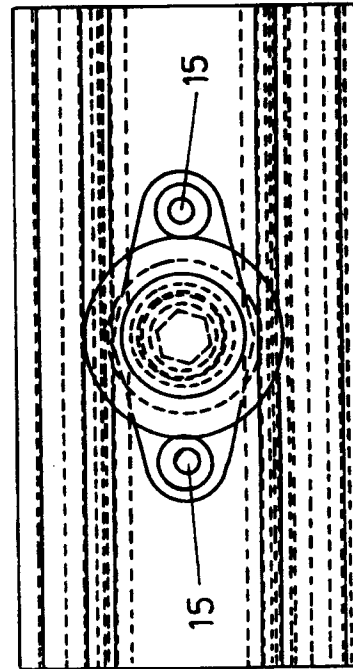


FIG. 2(c)

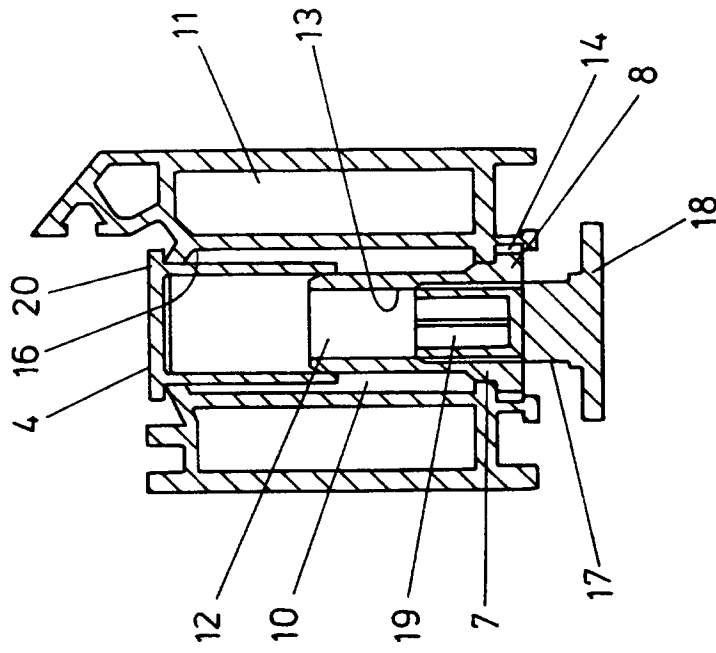


FIG. 2(b)

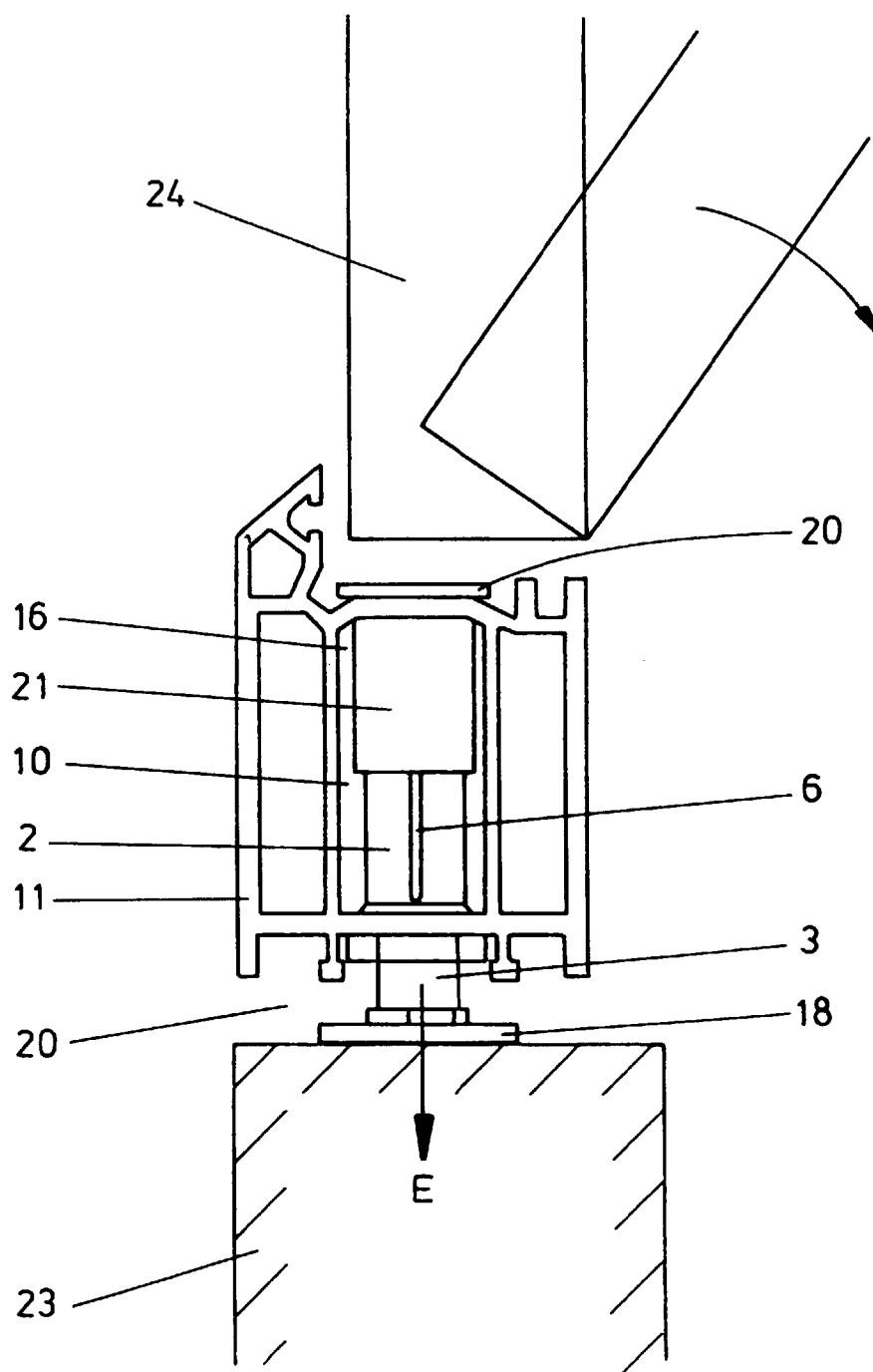


FIG. 3