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(54) **Edgebanding machine**

(57) An edgebanding machine for fixing an edge element to an edge of an element (3) made of wood or similar materials, comprises a gluing swivelling unit (4) for applying an adhesive substance to the edge element or to the edge itself, and a support (7) for rotatably supporting the gluing unit (4) around a swivel axis (B).

In order to reduce the machine downtimes necessary to replace the adhesive substance and/or to carry out maintenance operations on the gluing unit (4), a connecting device (9) is provided for removably connecting the gluing unit (4) to the support (7).

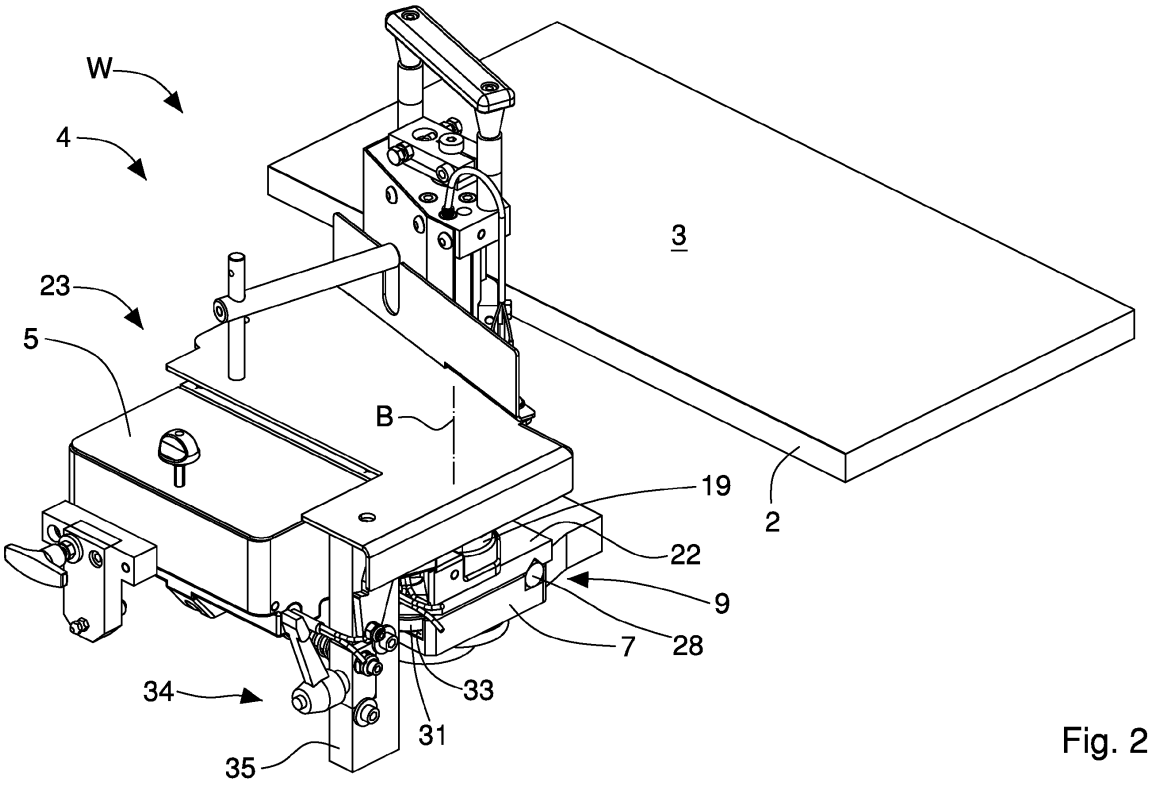

Fig. 2

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Description

[0001] The invention relates to an edgebanding machine, in particular of the single-sided linear type, for edgebanding workpieces made of wood or similar materials.

[0002] Edgebanding machines are known for fixing edge elements, such as strips, ribbons, listels, sticks having different rigidity and elasticity, to edges of elements, such as panels, tables, wings, doors, and the like, made of wood or similar materials.

[0003] Such edgebanding machines comprise a gluing swivelling unit, for applying an adhesive substance to the side of the edge element intended to abut on the edge of an element or panel, or to the edge itself.

[0004] In particular, the gluing unit comprises a tank, or reservoir, for containing the adhesive substance, and a gluing roller, having a knurled or rough outer surface, for removing the adhesive substance from the tank and transferring said adhesive substance to the edge element, or to the edge itself.

[0005] The known edgebanding machines further comprise a support for rotatably supporting the gluing unit around a swivel axis between an operating position, in which the gluing unit applies, by means of the gluing roller, the adhesive substance to the edge element, or to the edge itself, and a non-operating position, in which the gluing unit does not apply the adhesive substance to the edge element, or to the edge itself.

[0006] A drawback of the known edgebanding machines is that they need prolonged machine downtimes in order to change the type, for example, the colour, of the adhesive substance employed by the gluing unit, or to carry out maintenance operations on the same gluing unit, this decreasing the efficiency of such edgebanding machines.

[0007] In fact, in order to change the type of the adhesive substance, it is necessary to first completely empty the tank, thoughtfully remove from the latter, and optionally from the gluing roller, any possible residue of the adhesive substance to be replaced, and to fill the tank with a new type of adhesive substance.

[0008] On the other hand, the limited space available in the edgebanding machine also makes the maintenance operations on the gluing unit particularly slow and difficult to be carried out.

[0009] An object of the invention is to improve the edgebanding machines.

[0010] A further object is to obtain an edgebanding machine which allows reducing the machine downtimes necessary to replace the adhesive substance and/or to carry out maintenance operations on the gluing unit.

[0011] The invention provides for an edgebanding machine as defined in the independent claim 1.

[0012] Owing to the invention, it is possible to obtain an edgebanding machine which allows reducing the machine downtimes necessary to replace the adhesive substance and/or to carry out maintenance operations on the gluing unit.

[0013] In fact, said connecting means allows rapidly removing said gluing unit from said edgebanding machine and positioning, as rapidly, another gluing unit on said edgebanding machine, said other gluing unit containing, for example, a different type of said adhesive substance.

[0014] Furthermore, this makes possible to carry out maintenance operations on said gluing unit when said gluing unit is disassembled from said edgebanding machine, which simplifies and speeds up such operations.

[0015] The invention will be better understood and implemented with reference to the annexed drawings, which illustrate an exemplary, non-limiting embodiment thereof, in which:

Figure 1 is a front view, with some details omitted in order to better highlight other ones, of an edgebanding machine according to the invention;
Figure 2 is a perspective view of a gluing unit included in the edgebanding machine of Figure 1;
Figure 3 is a rear view of the gluing unit of Figure 2;
Figure 4 is a partially cross-sectioned side view of the gluing unit of Figure 2;
Figure 5 is a section of connecting means included in the edgebanding machine of Figure 1.

[0016] With reference to Figure 1, an edgebanding machine 1, in particular of the single-sided linear type, is shown, for fixing an edge element, not shown, such as a strip, a ribbon, a listel, a stick, to an edge 2 of an element 3, made of wood or a similar material, typically a straight, or rounded, or curved, or shaped panel.

[0017] The edgebanding machine 1, of a known type and thereby not described in detail, comprises a gluing swivelling unit 4 (Figures 2 to 4) for applying an adhesive substance, for example a hot melt glue, to a side of the edge element intended to abut on the edge 2, or directly to the edge 2 itself.

[0018] The gluing unit 4 comprises a tank 5, or reservoir, for containing the adhesive substance, and a gluing roller 6, having a knurled or rough outer surface, for removing the adhesive substance from the tank 5 and transferring said adhesive substance to the edge element, or directly to the edge 2 itself.

[0019] In particular, the gluing roller 6 extends along, and is rotatable around a rotation axis R.

[0020] The edgebanding machine 1 further comprises connecting means 9 (Figure 5) for removably connecting the gluing unit 4 to a fixed support 7 of the machine 1, the support 7 being intended to rotatably support the gluing unit 4 around a swivel axis B that is substantially parallel to the rotation axis R.

[0021] In particular, the gluing unit 4 is rotatable around the swivel axis B between an operating position W, in which the gluing unit 4 applies, by means of the gluing roller 6, the adhesive substance to the edge element, or to the edge 2, and a non-operating position, not shown,

in which the gluing unit 4 does not apply the adhesive substance to the edge element, or to the edge 2.

[0022] The above-mentioned connecting means 9 comprises a first coupling element 10 extending substantially along the swivel axis B.

[0023] In particular, the first connecting element includes, for example, a screw 10, or a threaded pin.

[0024] The connecting means 9 further comprises a second coupling element 11, suitable for coupling with the first coupling element 10.

[0025] In particular, the second coupling element 11 is connected to the support 7, by means of an elastic ring 12, so as to extend around the swivel axis B.

[0026] Again, the second connecting element can include a hub 11 provided with a threaded hole 13 extending along the swivel axis B and suitable for engaging with the screw 10.

[0027] The connecting means 9 further comprises first centering means 14 supported by the support 7, and second centering means 15 facing the first centering means 14 and supported by the second coupling element 11, the first centering means 14 cooperating with the second centering means 15 to center the second coupling element 11 with respect to the swivel axis B.

[0028] In particular, the first centering means and the second centering means respectively comprise a first conical supporting washer 14 and a second conical supporting washer 15 having their corresponding conical supports facing one another.

[0029] The connecting means 9 further includes antirotation means 16 to prevent the second coupling element 11 from rotating around the swivel axis B, typically in a coupling step of the first coupling element 10 to the second coupling element 11.

[0030] In particular, the antirotation means 16 comprises antirotation pins 17 fixed to, and projecting from, the second coupling element 11, and holes 18 obtained in the support 7 and suitable for engaging with the pins 17 in order to prevent the second coupling element 11 from rotating around the swivel axis B.

[0031] The connecting means 9 further comprises housing means 19 for receiving the first coupling element 10.

[0032] The housing means 19, for example comprising a sleeve 20, extends around the swivel axis B and comprises an outer threaded end 21 connected to a support plate 22 of the gluing unit 4.

[0033] Furthermore, the housing means 19 rotatably supports, by means of bushings 24, a body 23 of the gluing unit 4 around the swivel axis B.

[0034] In other terms, the housing means 19 acts as a fulcrum for the body 23.

[0035] Again, a further elastic ring 25 is provided, which is connected to a further end 26 opposite the end 21 of the housing means 19, to prevent an axial relative displacement between the housing means 19 and the body 23 of the gluing unit 4.

[0036] The connecting means 9 further comprises positioning means 27 for positioning the gluing unit 4 in a position that is determined with respect to the support 7.

[0037] In particular, the positioning means 27 includes a peg 28 secured to, and partially projecting from the support 7, and a groove 29 obtained in the support plate 22, arranged for coupling with the peg 28.

[0038] Again, the connecting means 9 comprises adjusting means 30 connected to the gluing unit 4 for adjusting a tilt of the swivel axis B with respect to the support 7.

[0039] In particular, the adjusting means 30 comprises a pin 31 connected, by means of a threaded coupling, to the support plate 22.

[0040] The pin 31 is provided with a contact, for example, concave, surface 32, which is suitable for contacting a supporting surface 33 of the support 7, the supporting surface 33 being substantially perpendicular to the swivel axis B.

[0041] In use, by screwing/unscrewing the pin 31 to/from the support plate 22, it is possible to adjust a tilt of the swivel axis B, and therefore of the rotation axis R of the gluing roller R, with respect to the support 7, and therefore with respect to the edge 2 of the element 3.

[0042] The edgebanding machine 1 further comprises a device 34, of a known type and thereby not described in detail, which is removably connected to a frame 35 of the edgebanding machine 1, in order to contrast the swivelling of the gluing unit 4. In use, in order to remove the gluing unit 4 from the edgebanding machine 1, it is sufficient, after electrically disconnecting the gluing unit 4 from the edgebanding machine 1 and disconnecting the device 34 from the frame 35, uncoupling, in particular unscrewing, the first coupling element 10 from the second coupling element 11.

[0043] Vice versa, in order to connect the gluing unit 4 to the edgebanding machine 1, it is sufficient to position the gluing unit 4 on the edgebanding machine 1 with the aid of the positioning means 27; coupling, in particular screwing, the first coupling element 10 to the second coupling element 11; and subsequently electrically connecting the gluing unit 4 to the edgebanding machine 1 and the device 34 to the frame 35.

[0044] It should be noted that the edgebanding machine 1 allows reducing the machine downtimes that are necessary to replace the adhesive substance and/or to carry out maintenance operations on the gluing unit 4.

[0045] In fact, the connecting means 9 allows rapidly removing the gluing unit 4 from the edgebanding machine 1 and positioning, as rapidly, another gluing unit on the edgebanding machine 1, such other gluing unit containing, for example, a different type of adhesive substance. Furthermore, this makes possible to carry out maintenance operations on the gluing unit 4 when the latter is disassembled from the edgebanding machine, 1, which simplifies and speed up such operations.

[0046] In a version of the invention, which is not shown, the connecting means comprises a quick bayonet coupling.

Claims

1. Edgebanding machine (1) for fixing an edge element to an edge (2) of an element (3) made of wood or similar materials, comprising a gluing unit (4) for applying an adhesive substance to said edge element or to said edge (2), and supporting means (7) for rotatably supporting said gluing unit (4) around a swivel axis (B) between an operating position (W), wherein said gluing unit (4) applies said adhesive substance to said edge element or to said edge (2), and a non-operating position, wherein said gluing unit (4) does not apply said adhesive substance to said edge element or to said edge (2), ***characterised in that*** connecting means (9) is provided for removably connecting said gluing unit (4) to said supporting means (7).

2. Machine according to claim 1, wherein said connecting means (9) comprises a first coupling element (10) extending substantially along said swivel axis (B).

3. Machine according to claim 2, wherein said connecting means (9) comprises a second coupling element (11) connected to said supporting means (7) and arranged for coupling with said first coupling element (10).

4. Machine according to claim 3, wherein said second coupling element (11) extends substantially around said swivel axis (B).

5. Machine according to claim 3, or 4, wherein said first coupling element comprises a screw (10) and said second coupling element (11) comprises a threaded hole (13).

6. Machine according to any one of claims 3 to 5, wherein said connecting means comprises first centering means (14) supported by said supporting means (7), and second centering means (15), facing said first centering means (14), supported by said second coupling element (11), said first centering means (14) cooperating with said second centering means (15) to center said second coupling element (11) with respect to said swivel axis (B).

7. Machine according to claim 6, wherein said first centering means and said second centering means respectively comprise a first conical supporting washer (14) and a second conical supporting washer (15) cooperating together.

8. Machine according to any one of claims 3 to 7, wherein said connecting means (9) comprises anti-rotation means (16) to prevent said second coupling element (11) rotating around said swivel axis (B).

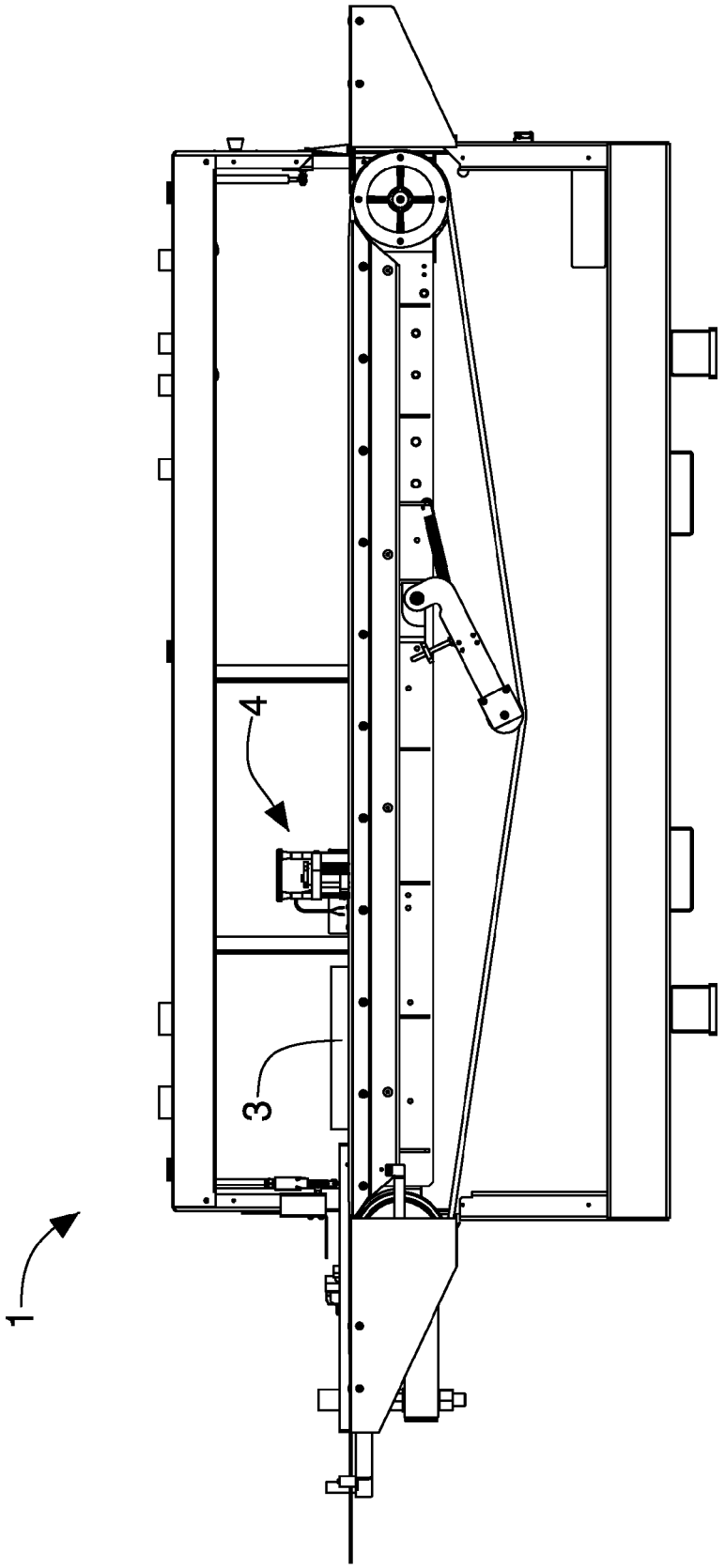
9. Machine according to any one of claims 2 to 8, wherein said connecting means (9) comprises housing means (19) for receiving said first coupling element (10), said housing means (19) being configured for rotatably supporting a body (23) of said gluing unit (4) around said swivel axis (B).

10. Machine according to any preceding claim, wherein said connecting means (9) comprises positioning means (27) for positioning said gluing unit (4) in a position that is determined with respect to said supporting means (7).

11. Machine according to any preceding claim, wherein said connecting means (9) comprises adjusting means (30) connected to said gluing unit (4) for adjusting a tilt of said swivel axis (B) with respect to said supporting means (7).

12. Machine according to any preceding claim, wherein said gluing unit (4) comprises a tank (5) for containing said adhesive substance and a gluing roller (6) for removing said adhesive substance from said tank (5) and transferring said adhesive substance to said edge element or to said edge (2), said gluing roller (6) extending along and being rotatable around a rotation axis (R) that is substantially parallel to said swivel axis (B).

Fig. 1



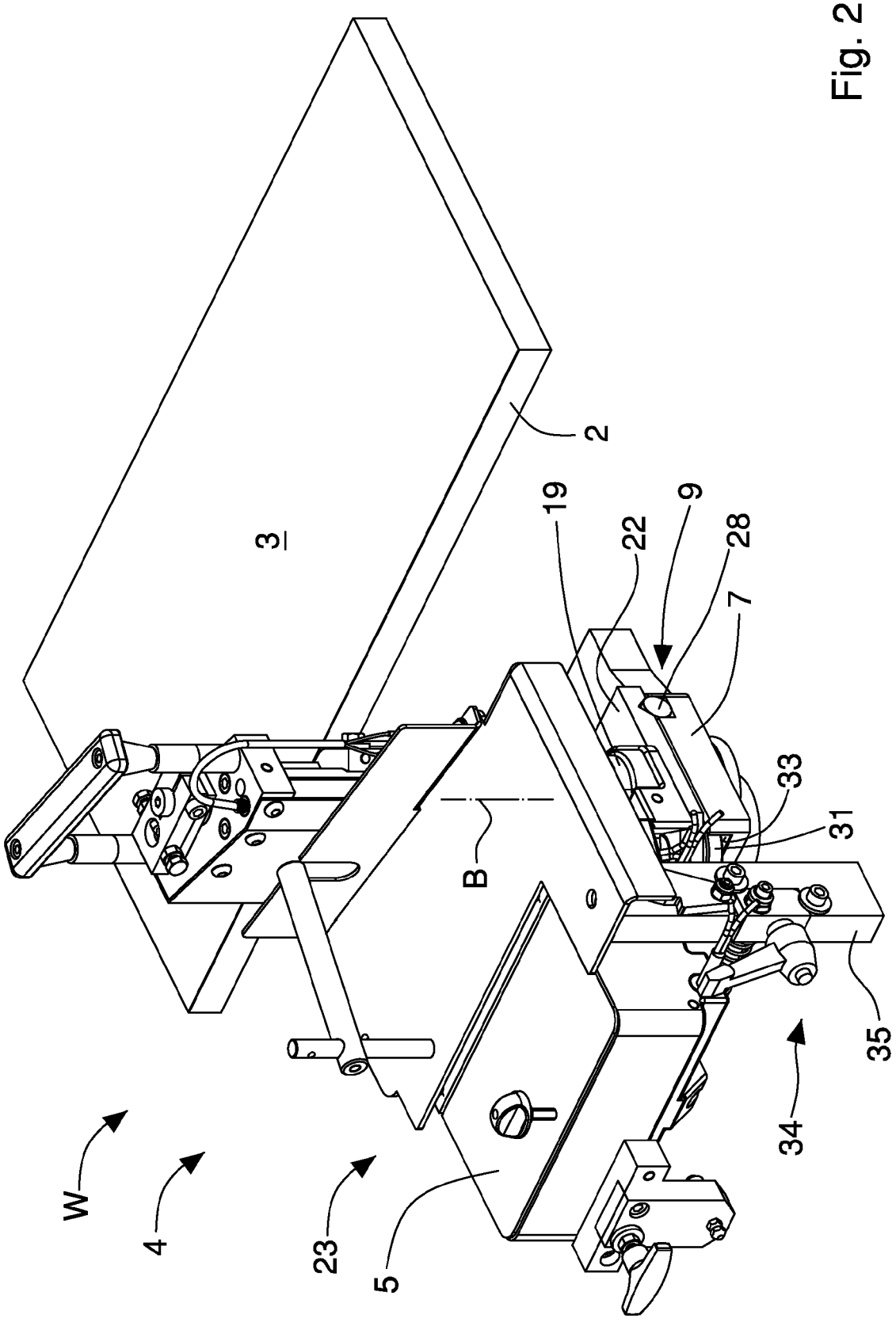


Fig. 2

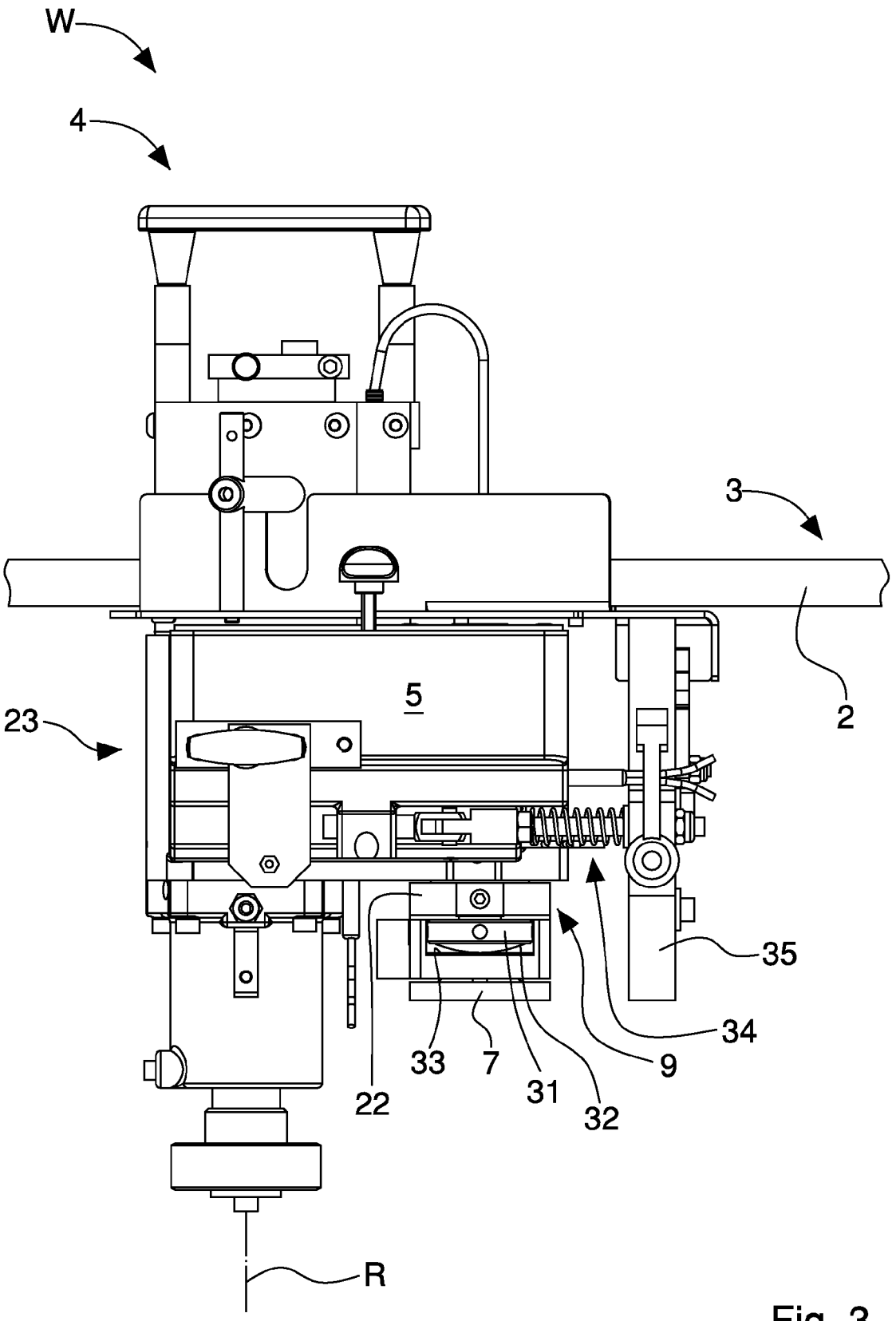
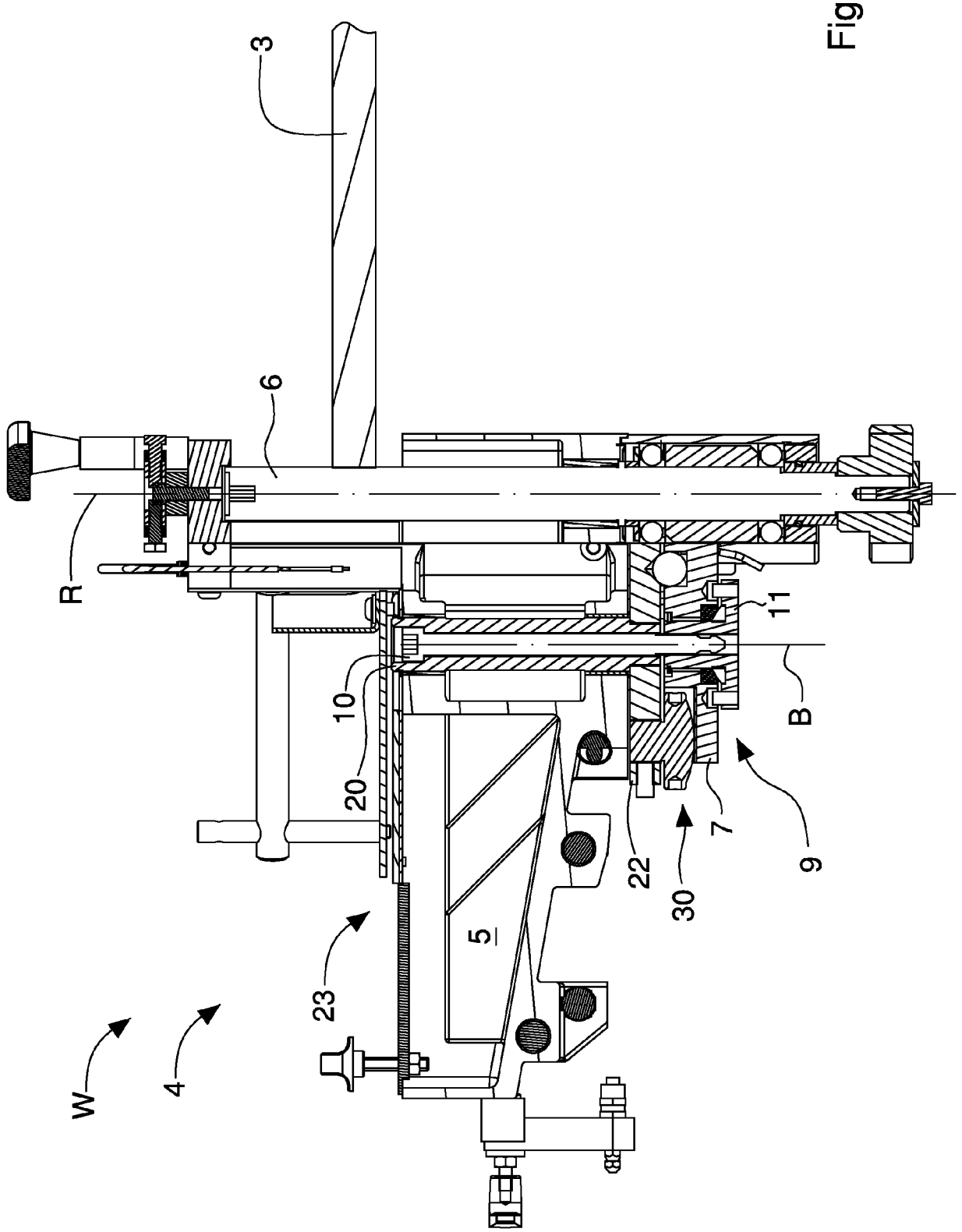


Fig. 3

Fig. 4



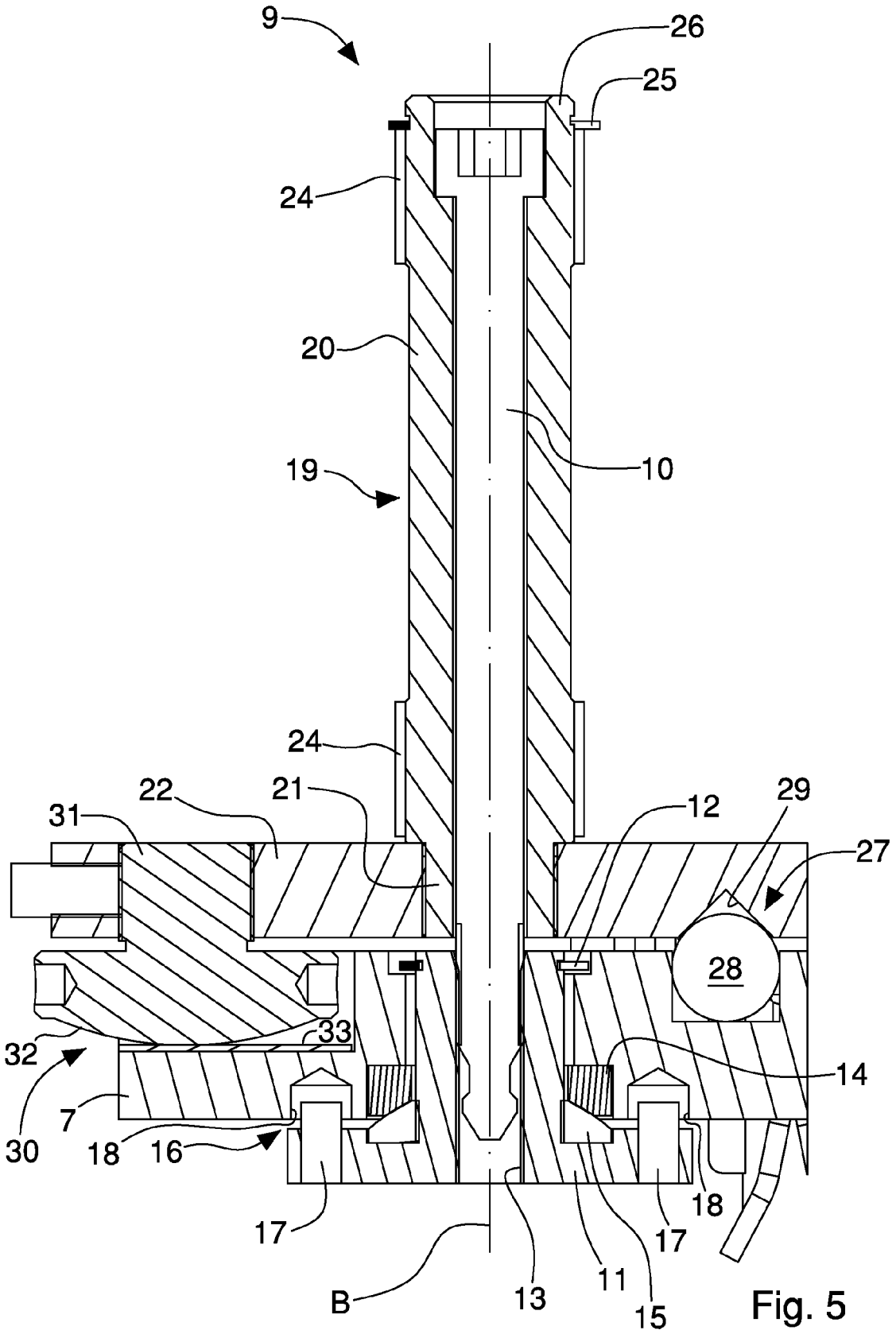

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Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 12 16 9272

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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
The Hague	18 July 2012	Huggins, Jonathan

CATEGORY OF CITED DOCUMENTS

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EUROPEAN SEARCH REPORT

Application Number
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The Hague	18 July 2012	Huggins, Jonathan

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