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(54) **Panel cutting machine**

Plattensägemaschine

Machine à couper des panneaux

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Description

[0001] The present invention relates to a panel cutting machine according to the preamble of independent claim 1. Such a panel cutting machine is known from EP 132 1 252.

[0002] Panels for cabinet construction are produced in large dimensions; such panels, depending on one's needs, must be subsequently cut to size and squared to obtain the various cabinet components such as sides, doors, shelves, etc..

[0003] Cutting to size is normally carried out by cutting panels first in longitudinal direction in order to obtain strips having a width equal to the width of the components, and subsequently cutting said strips transversally to obtain the individual elements. During this last phase the strips have to be duly pressed against the machine square fence in order to make sure panels are perfectly aligned and squared.

[0004] Recently a particular aligning device described in european patent EP-B1-1 321 252 has been developed. This aligning device entails the use of a single pushing member that operates precisely in the saw dust removal plane of the saw blade. It is evident that in this system the thickness of the single pushing member is equal to or less than the saw blade thickness itself.

[0005] The system described in the above patent is surely effective when aligning strips which extend on both sides of the cutting line, as for example when executing intermediate cuts on the same strip.

[0006] However it is not the same situation during the front and rear trimming operation of the strips. In fact it is known that to save material and to increase the overall working efficiency, the trim cuts could be only one millimeter thick. In this case the single aligning member would align with minimum interference with the panel, with the risk of being bent and consequently blocked between one sidewall of the saw gap and the front of the same panel. For this reason, this aligning member is suitable only in case of execution of large front and rear trim cuts on strips, with an unquestionable waste of material.

[0007] The main object of the present invention is therefore that of providing a cutting machine with an aligning device which is free from the drawbacks previously described.

[0008] Accordingly, the present invention provides a panel cutting machine as claimed in claim 1. The dependent claims disclose preferred embodiments of the invention.

[0009] Present invention relates therefore to a cutting machine provided with an aligning device comprising a double aligning element, that, when at rest, is positioned under the working table, and that is able to go through the saw gap in order to be placed in working position above the panel working table in an area external to the same saw gap in order to align any panel of any measurement.

[0010] For a better understanding of the present invention some preferred embodiments will now be described as non limiting examples, in reference to the enclosed drawing in which:

- figure 1 shows a front view of a panel cutting machine portion in accordance with the present invention which includes an innovative type panel aligning device;
- figure 2 shows some details, during their effective operation, of a first solution of the aligning device shown in figure 1;
- figure 3 shows the same elements of figure 2 in a different panel aligning arrangement;
- figure 4 shows an assembly side view of the aligning device in a first embodiment as shown in figures 2, 3;
- figure 5 shows a front view of the device shown in figure 4 with the relative guiding and activating systems in rest position under a working table;
- figure 6 shows a front view of the device shown in figures 4, 5 with the relative guiding and activating systems in an extracting position above a working table
- figure 7 shows a front view of a second embodiment of the aligning device;
- figure 8 shows a plan section (executed above the stack of panels) of a detail of the device as per figure 2-7 with a first arrangement of the stack of panels;
- figure 9 shows a plan section (executed above the stack of panels) of a detail of the device as per figure 2-7 with a second arrangement of the stack of panels;
- figure 10 shows a plan section (executed above the stack of panels) of a detail of the device as per figure 2-7 with a third arrangement of the stack of panels;
- figure 11 shows a plan section (executed above the stack of panels) of a third embodiment of the aligning device;
- figure 12 shows an assembly side view of a fourth embodiment of the aligning device;
- figure 13 shows a front view of the aligning device as per figure 12 with relative guiding and activating systems in rest position under a working table; and
- figure 14 shows a front view of the aligning device as per figures 12, 13 with relative guiding and activating systems in an extracting position above a working table.

[0011] Number 10 in figure 1, indicates as a whole, a portion of a cutting machine 10* provided with a device 100 for the alignment of a stack (P) of panels in accordance with the present invention. The portion 10 is in proximity of the cross cut section of the stack (P) of panels.

[0012] Portion 10 includes, in known manner, an end upright support 11 in the top portion of which a guide 12 is secured for the vertical movement (along the two directions as per double pointed arrow (F1)) of a pressure unit 13.

[0013] Pressure unit 13, in known manner, includes two pressing beams 14 disposed symmetrically at the

sides of saw blades 16, 17, (in figure 1 only one pressing beam 14 is visible), which, during the cutting operation of the stack (P), are lowered to press the same stack (P) against a machine table 15.

[0014] As shown in figure 2, the machine table 15 is crossed by a saw gap 18 for the saw blades path, rather narrow, the width of which is generally a few millimeters larger than the thickness of the same saw blades 16, 17 (which in turn have a variable thickness between 3,5 and 4,5 mm).

[0015] Furthermore, as shown in same figure 1, both saw blades 16, 17 are mounted on a carriage 20 able to be moved along two directions as indicated by double pointed arrow (F2). For the movement of saw carriage 20 a guide (not shown) secured on beam 21 below machine table 15 is used (figure 1).

[0016] The drive system of saw carriage 20 has been completely omitted to simplify as much as possible the enclosed drawings.

[0017] We will describe now, with reference to figures 1, 2, 3, 4, the main elements of the aligning device 100 for stacks of panels.

[0018] With reference to figure 4, the device 100 includes two fixing brackets 22 to fix actuator 23 to saw carriage 20.

[0019] Actuator 23 (possibly a hydraulic or pneumatic actuator) in turn includes, in known manner, a body 23A with rod 23B onto which a mobile aligning device 24 is secured.

[0020] Mobile aligning device 24 includes an aligning body 25 which, in turn, carries one or more aligning elements 26A, 26B (see also figures 5, 6).

[0021] In use, the aligning elements 26A, 26B push stack (P) of panels against a square fence 11A (figure 1) by means of the drive pushing action of saw carriage 20 (see later).

[0022] Moreover, the mobile aligning device 24 slides vertically along two directions as indicated by double pointed arrow (F3) by means of rod 23B of actuator 23. To this purpose the aligning body 25 is coupled, in known manner, with a guide 27 secured to saw carriage 20 (figure 4).

[0023] In other words, as shown in particular in figure 4, fixing brackets 22, body 23A of actuator 23, and guide 27 are always fixed in respect to saw carriage 20; while rod 23B of actuator 23 and mobile aligning device 24 (including aligning body 25 and the aligning elements 26A, 26B) are able to move in respect to the same saw carriage 20.

[0024] In an innovative manner the aligning elements 26A, 26B are laterally elastic while they are rigid in the pushing direction against the stack (P) of panels.

[0025] If we name (SP1) and (SP2) respectively the contact faces on stack (P) of aligning elements 26A, 26B, each one of these contact faces (SP1), (SP2), in working position, automatically and completely positions itself to one side of cutting section (SAL).

[0026] In present context the term "cutting section (SAL)" defines the actual saw dust section being removed by saw blade 17 during the cutting of stack (P) of panels.

[0027] In figure 3 the stack (P) of panels is in a trimming position and the cutting section (SAL) is in between a trim section (RFL) and the void. It is evident from observing figure 3, that, in spite of the minimum trim being removed from stack (P) of panels, the aligning operation by means of element 26B is carried out on the inside of the same stack (P) of panels on a surface completely external to cutting section (SAL).

[0028] The two aligning elements 26A, 26B can be connected to each other by a terminal cross section 28 as entailed in a first embodiment shown with reference to figures 2, 3, 4, 5, 6; or they can be detached as shown in a second embodiment on figure 7.

[0029] In both embodiments (the one in figures 2-6 and the one in figure 7) the aligning elements 26A, 26B are vertically movable (according to double pointed arrow (F3)) from a first rest position (PPR) under the machine table 15 (figure 5), to a second working position (PPL) above the working table 15 (figure 6), and viceversa. The raising and lowering of the aligning elements 26A, 26B (according to double pointed arrow (F3)) are carried out by actuator 23.

[0030] As shown in figure 5, the elastic aligning elements 26A, 26B, when in rest position (PPR) under machine table 15 are undeformed; however, since the distance (D1) between the aligning elements 26A, 26B is larger than the distance (D2) between sidewalls 18A and 18B of saw gap 18 on machine table 15, during aligning elements 26A, 26B crossing through this saw gap 18, the same are pressed between sidewall 18A, 18B and therefore the distance between the aligning elements 26A, 26B is reduced .

[0031] Once the elastic aligning elements 26A, 26B have been pushed upwardly beyond machine table 15, they will regain their normal configuration thanks to the elasticity of the material from which they are made.

[0032] To this end, it is useful that the aligning elements 26A, 26B be very thin (of a thickness, for example, between 0,6mm and 0,8mm), and they could be made of spring steel and possibly covered, where necessary, with plastic material. Nevertheless, aligning elements 26A, 26B could be made of preformed and very resilient plastic material in order to be squeezed when going through saw gap 18, and to reopen to their normal configuration once the same aligning elements 26A, 26B are above (or below) machine table 15.

[0033] Aligning elements 26A, 26B must be obviously higher than working stack (P) of height (H) to ensure a perfect alignment of the same full stack (P).

[0034] Moreover, (SP1) and (SP2) have always an height equal to (H).

[0035] Advantageously each sidewall (18A, 18B) of the saw gap (18) is provided with a respective upper or lower rounded or beveled profile radiused with the machine table (15) in order to ease crossing of aligning el-

ements 26A, 26B.

[0036] Over and above this, it is of advantage that each aligning element 26A, 26B be provided with a respective upper radiused profile 29A, 29B, shaped, for example, as a respective curvilinear portion.

[0037] Radiused profiles 29A, 29B and/or rounded or beveled profiles on sidewalls 18A, 18B of saw gap 18, avoid that aligning elements 26A, 26B get stuck against sidewalls 18A, 18B during raising of the mobile aligning device 24.

[0038] For the same reasons aligning elements 26A, 26B are also provided with lower radiused profiles 30A, 30B to avoid that they get stuck during lowering from second working position (PPL) to first rest position (PPR).

[0039] In use, once the grippers of a pushing carriage (not shown) have positioned stack (P) on cutting line (LT), actuator 23 raises aligning elements 26A, 26B bringing them into second working position (PPL), saw carriage 20 moves toward the left in accordance with arrow (F2), making sure aligning elements 26A, 26B are up against the side of the pack (P) of panels. Right after aligning elements 26A, 26B start pressing stack (P) against square fence 11A. In this way the alignment of stack (P) is carried out.

[0040] At this point, after lowering pressure unit 13 on stack (P) and accordingly moving away saw carriage 20, aligning elements 26A, 26B are lowered from second working position (PPL) to first rest position (PPR), therefore saw gap 18 is made free, which can now be used by saw blades 16, 17 to carry out the scoring and the cutting of the stack (P) of panels.

[0041] As shown in figures 8 and 9 having two aligning elements 26A, 26B is particularly useful when making a front trim cut (figure 8) or a rear trim cut (figure 9) on a pack of panels (P).

[0042] In the first case (figure 8) only aligning element 26B pushes stack (P) of panels; while in the second case (figure 9) it is only aligning element 26A that pushes stack (P) against square fence 11A.

[0043] In fact, as it is known, to save material, front or rear trimming of strips of panels can be just a single millimeter. As we said, in this case a single central aligning element, and in use coinciding with the cut section, would align the stack (P) with minimum interference. Moreover, it is very likely that a single aligning element (for example the one described in EP-B1-1 312 252) would get stuck between the cutting line saw gap and the front or the rear face of panels.

[0044] Therefore, using aligning elements 26A, 26B in accordance with the teachings of the present invention, it is possible to consider making small front and rear trim cuts, with much less material waste.

[0045] In figure 7 a second embodiment is shown where the aligning elements 26A*, 26B* are detached from each other.

[0046] Moreover, each aligning element 26A*, 26B* entails a respective independent actuator 23*, 23**, and also each aligning body 25*, 25** entails a respective guide (not visible in figure 7) secured to saw carriage 20.

[0047] It is in this case a double actuator with a double guiding system, each with a respective aligning element. According to one's needs, in relation to the panel to align (front trim, rear trim or intermediate cut), the rear aligning element 26B* can be activated in case of a small front trim, the front aligning element 26A* in case of a small rear trim, or both the aligning elements 26A*, 26B* for large trims or intermediate cuts as the one for example shown in figures 2 and 10.

[0048] It is worth reaffirming again that when the aligning elements 26A*, 26B* are detached from each other, they can be utilized either in the second embodiment of figure 7, or in the first embodiment shown in figures 2-6, where, as it has been said, a single actuator 23 is moving simultaneously both aligning elements 26A*, 26B*.

[0049] A third embodiment of device 100 is shown in figure 11.

[0050] In this case the two aligning elements 26A**, 26B** are joined together in correspondance with a longitudinal vertical side (31) opposite to contact faces ((SP1), (SP2)) on stack (P).

[0051] Eventually, also in this embodiment, the two aligning elements 26A**, 26B** can be connected to each other by means of a cross terminal portion (not shown).

[0052] Should the saw gap width allow it, it would also be possible to provide for two fixed and rigid aligning elements which, in working position, position themselves always to the side of cutting section (SAL), or two vertically rigid aligning elements which would open above the working table by means of a mechanism as shown in a fourth embodiment in figures 12, 13 and 14.

[0053] As we will see in this fourth embodiment, the two aligning elements are operated in opening and closing by means of a cam and link rod mechanism fixed centrally to a rod drive and laterally, at least indirectly, to the same aligning elements.

[0054] With reference to figure 12, device 100 includes two fixing brackets 220 to fix actuator 230 to saw carriage 200.

[0055] Actuator 230 (possibly a hydraulic or pnematic actuator) in turn includes, in known manner, a body 230A with rod 230B onto which a mobile aligning device 240 is secured.

[0056] Mobile aligning device 240 includes, in turn, two aligning bodies 250*, 250**, each one provided with a respective aligning element 260A, 260B (see also figures 13, 14).

[0057] As said, in operation, the aligning elements 260A, 260B push stack (P) of panels against a square fence 11A (figure 1) by means of the drive pushing action of saw carriage 200.

[0058] The mobile aligning device 240 slides vertically along two directions as indicated by double pointed arrow (F4) by means of rod 230B of actuator 230.

[0059] To this purpose each aligning body 250*, 250** is coupled with a pair of hollow cam guides 261A, 262A, and, respectively, 261B, 262B secured to saw carriage

200. To be noted, in particular, that the small upper portions of guides 261A, 262A, and, respectively, 261B, 262B are externally divergent. In particular, the coupling of aligning body 250* with its relevant pair of guides 261A, 262A is carried out by means of two special cam followers 263A, 264A; each cam follower 263A, 264A being able to slide in a respective guide 261A, 262A.

[0060] In similar manner, the coupling of aligning body 250** with its relevant pair of guides 261B, 262B is carried out by means of two special cam followers 263B, 264B; each cam follower 263B, 264B being able to slide in a respective guide 261B, 262B.

[0061] As shown in figure 13, 14 bottom part of aligning body 250* is hinged to shaft 230B by means of a pair of hinges (HG1), (HG2) and a respective link rod 265A.

[0062] By analogy, also the bottom part of aligning body 250** is hinged to shaft 230B by means of a pair of hinges (HG3), (HG2) and a respective link rod 265B.

[0063] To be noted that hinge (HG2) is common to both link rods 265A and 265B.

[0064] In other words, fixing brackets 220, body 230A of actuator 230, and guides 261A, 262A, and, respectively, 261B, 262B are always fixed with respect to saw carriage 200; while shaft 230B and mobile aligning device 240, are able to move with respect to same saw carriage 200.

[0065] In this fourth embodiment aligning elements 260A, 260B are rigid and not elestic as in previous embodiments, and in particular also in pushing direction against pack (P) of panels.

[0066] After passing, upwards through saw gap 180 on machine table 150, aligning elements 260A, 260B are in second working position (PPL) (figure14), and automatically dispose themselves to a respective side of cutting section (SAL) already seen in relation to figure 2 since cam followers 263A, 264A, respectively 263B, 264B, are forced to follow respective guides 261A, 262A, and, respectively, 261B, 262B and in turn force, in upper stroke portion, the opening during rising movement and closing during lowering movement of bodies 250*, 250** and of the connected aligning elements 260A, 260B.

[0067] Moreover, in the fourth embodiment shown in figure 12, 13, 14 the two aligning elements 260A, 260B are detached from each other.

[0068] As already seen in the embodiment described in relation to figure 4, 5, 6 in this fourth embodiment aligning elements 260A, 260B are vertically movable (according to double pointed arrow (F4) (figure 12)) from a first rest position (PPR) under the machine table 150 (figure 13), to a second working position (PPL) above the working table 150 (figure 14), and viceversa. The raising and lowering of the aligning elements 260A, 260B (according to double pointed arrow (F4)) are carried out by actuator 230 but could also be individually and independently actuated as described previously for solution as per figure 7.

[0069] Aligning elements 260A, 260B could be made of steel and eventually covered, where necessary, with plastic material. Nevertheless, aligning elements 260A, 260B could be made of preformed and very resilient and practically undeformable plastic material

[0070] Moreover aligning elements 260A, 260B must be obviously higher than height (H) of working stack (P) to ensure a perfect alignment of the same full stack (P).

[0071] In use, once the grippers of a pushing carriage (not shown) have positioned stack (P) on cutting line (LT), actuator 230 raises its shaft 230B forcing cam followers 263A, 264A, and, respectively, 263B, 264B to follow relative couple of guides 261A, 262A and 261B, 262B, and opening the two link rods 265A, 265B. All of this also causes bodies 250*, 250** and relative aligning elements 260A, 260B to be raised in such a way that the same aligning elements 260A, 260B are moved from a first rest position (PPR) under machine table 150 (figure 13), to a second working position (PPL) protruding from the same machine table 150 (figure 14) and positioning themselves to the side of cutting section (SAL).

[0072] The stack alignment is carried out with the same method as seen previously in relation to other embodiments.

[0073] The main advantage of the panel aligning device object of the present invention is constituted by the fact that with it, it is possible to perfectly align packs of panels against a square fence even when it is necessary to remove from the same pack a small trim (front and rear) with extremely reduced dimension, in the order of even a few millimeters.

Claims

1. Panel cutting machine (10*) comprising an aligning device (100) for a stack (P) of panels; said aligning device (100) being fitted to a saw carriage (20, 200) and provided with an aligning element which, going through a saw gap (18, 180) of saw blades (16, 17), is mounted in such a way as to be moved vertically from a rest position (PPR) under a machine table (15, 150) to a working position (PPL) above said machine table (15, 150); said panel cutting machine (10*) being **characterized in that**,
the aligning device (100) is provided with at least one aligning element (26A, 26B; 26A*, 26B*; 26A**, 26B**, 260A, 260B;); and **in that**,
in working position (PPL), the contact face ((SP1), (SP2)) with the stack (P) of said at least one aligning element (26A, 26B; 26A*, 26B*; 26A**, 26B**; 260A, 260B) automatically positions itself to at least one side of a cutting section (SAL).

2. Panel cutting machine (10*) according to claim 1, **characterized in that** said at least one aligning element (26A, 26B; 26A*, 26B*; 26A**, 26B**) is an elastic aligning element (26A, 26B; 26A*, 26B*; 26A**, 26B**).

3. Panel cutting machine (10*) according to claim 2,

characterized in that said at least one elastic aligning element (26A, 26B; 26A*, 26B*; 26A**, 26B**) automatically positions itself to at least one side of a cutting section (SAL) after undergoing an elastic deformation.

4. Panel cutting machine (10*) according to any of the preceding claim, **characterized in that** in said aligning device (100) at least two elastic aligning elements (26A, 26B; 26A**, 26B**) are joined together.

5. Panel cutting machine (10*), according to claim 4, **characterized in that** in said aligning device (100) the aligning elements (26A**, 26B**) are joined together in correspondence with a longitudinal vertical side (31) opposite the contact faces ((SP1), (SP2)).

6. Panel cutting machine (10*), according to claim 1, **characterized in that** in said aligning device (100) the aligning elements (260A, 260B) are operated in opening and closing by a mechanical system (261A, 262A; 263A, 264A; 261B, 262B; 263B, 264B) through actuating means (230B, 265A, 265B).

7. Panel cutting machine (10*), according to claim 6, **characterized in that** said mechanical system (261A, 262A; 263A, 264A; 261B, 262B; 263B, 264B) consists of a cam and link rod mechanism, comprising an actuator (230) which acts on link rods (265A, 265B) and cam followers (263A, 264A, 263B, 264B), in such a way so that said cam followers (263A, 264A, 263B, 264B) following respective pairs of cam type guides (261A, 262A; 261B, 262B), cause said aligning elements (260A, 260B) to open and close.

8. Panel cutting machine (10*), according to any one of the preceding claims, **characterized in that** in said aligning device (100) said at least two aligning elements (26A*, 26B*; 260A, 260B) are detached from each other, each one of them being provided with a respective independent actuator (23*, 23**), and moreover each aligning element (26A*, 26B*; 260A, 260B *) comprises a respective independent guide (261A, 262A, 261B, 262B) fitted to the saw carriage (20, 200).

9. Panel cutting machine (10*), according to any one of the preceding claims, **characterized in that** in said aligning device (100) said aligning elements (26A, 26B; 26A*, 26B*; 26A**, 26B**; 260A, 260B) are made of metal, or of an alloy, possibly coated, at least partially, with a plastic material.

10. Panel cutting machine (10*), according to any one of the preceding claims, **characterized in that** in said aligning device (100) said aligning elements (26A, 26B; 26A*, 26B*; 26A**, 26B**; 260A, 260B) are made entirely of resilient plastic material.

Patentansprüche

1. Plattensägemaschine (10*), umfassend eine Ausrichteinheit (100) für einen Stapel (P) von Platten, wobei die besagte Ausrichteinheit (100) an einen Sägenträger (20, 200) angeschlossen ist und mit einem Ausrichtelement ausgerüstet ist, welches durch einen Sägespalt (18, 180) von Sägeblättern (16, 17) hindurchgehend derart befestigt ist, dass es von einer Ruheposition (PPR) unterhalb eines Maschinentisches (15, 150) in eine Arbeitsposition (PPL) oberhalb des besagten Tisches (15, 150) bewegt werden kann, und wobei die besagte Plattensägemaschine (10*) **dadurch** h **gekennzeichnet** ist, dass die Ausrichteinheit (100) mit wenigstens einem Ausrichtelement (26A, 268; 26A*, 26B*; 26A**, 26B**, 260A, 260B) ausgerüstet, und dass in der Arbeitsposition (PPL) eine Kontaktfläche (SP1, SP2) des besagten wenigstens einen Ausrichtelementes (26A, 26B; 26A*, 26B*; 26A**, 26B**, 260A, 260B) mit dem Stapel (P) sich automatisch an wenigstens einer Seite einer Schneidsektion (SAL) ausrichtet.

2. Plattensägemaschine (10*) nach Anspruch 1, **dadurch gekennzeichnet, dass** wenigstens ein Ausrichtelement (26A, 26B; 26A*, 26B*; 26A**, 26B**) ein elastisches Ausrichtelement (26A, 26B; 26A*, 26B*; 26A**, 26B**) ist.

3. Plattensägemaschine (10*) nach Anspruch 2, **dadurch gekennzeichnet, dass** das wenigstens eine elastische Ausrichtelement (26A, 26B; 26A*, 26B*; 26A**, 26B**) sich automatisch an wenigstens einer Seite der Schneidsektion (SAL) nach Unterziehen einer elastischen Deformation ausrichtet.

4. Plattensägemaschine (10*) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** in der besagten Ausrichteinheit (100) wenigstens zwei elastische Ausrichtelemente (26A, 26B; 26A**, 26B**) miteinander verbunden sind.

5. Plattensägemaschine (10*) nach Anspruch 4, **dadurch gekennzeichnet, dass** in der betreffenden Ausrichteinheit (100) die Ausrichtelemente (26A**, 26B**) miteinander verbunden sind, und zwar in Bezug zu einer längs erstreckten vertikalen Seite (31) gegenüberliegend der Berührflächen (SP1, SP2).

6. Plattensägemaschine (10*) nach Anspruch 1, **dadurch gekennzeichnet, dass** in der betreffenden Ausrichteinheit (100) die Ausrichtelemente (260A, 260B) in öffnendem und schließendem Sinne durch ein mechanisches System (261A, 262A; 263A, 264A, 261B, 262B, 263B, 264B) durch Antriebsmittel (230B, 265A, 265B) betätigt werden.

7. Plattensägemaschine (10*) nach Anspruch 6, **da-**

durch gekennzeichnet, dass das betreffende mechanische System (261A, 262A; 263A, 264A, 261B, 262B, 263B, 264B) aus einem Nocken-Verbindungsstangenmechanismus besteht, enthaltend einen Actuator (230), welcher auf Verbindungsstangen (265A, 265B) arbeitet und Nockenstöße (263A, 264A, 263B, 264B), und zwar derart, dass die Nokkenstöße (263A, 264A, 263B, 264B) korrespondierenden Paaren von nockenartigen Führungen (261A, 262A; 261B, 262B) folgen und die Ausrichtelemente (260A, 260B) zum Öffnen und Schließen bewegen.

8. Plattensägemaschine (10*) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** in der betreffenden Ausrichteinheit (100) die wenigsten zwei Ausrichtelemente (26A*, 26B*, 260A, 2608) voneinander losgelöst sind, wobei jedes einzelne mit einem zugehörigen unabhängigen Actuator (23*, 23**) ausgerüstet ist und darüber hinaus jedes Ausrichtelement (26A*, 26B*; 260A, 260B*) eine entsprechende unabhängige Führung (261A, 262A, 261B, 262B) beinhaltet, die an die Sägeblattaufnahme 20, 200) angeschlossen ist.

9. Plattensägemaschine (10*) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** in der genannten Ausrichteinheit (100) die Ausrichtelemente (26A, 26B, 26A*, 26B*; 26A**, 26B**; 260A, 260B) aus Metall oder einer Legierung möglicherweise beschichtet, und zwar wenigstens teilweise mit einem Kunststoffmaterial hergestellt sind.

10. Plattensägemaschine (10*) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** in der betreffenden Ausrichteinheit (100) die Ausrichtelemente (26A, 26B; 26A*, 26B*; 26A**, 26B**; 260A, 260B) vollständig aus elastischem Kunststoffmaterial gefertigt sind.

Revendications

1. Machine de découpe de panneaux (10*) comprenant un dispositif d'alignement (100) pour une pile (P) de panneaux; ledit dispositif d'alignement (100) étant monté sur un chariot de sciage (20, 200) et pourvu d'un élément d'alignement qui, en passant par une fente de sciage (18, 180) pour lames de scie (16, 17), est monté de manière à être déplacée verticalement d'une position de repos (PPR) sous une table de machine (15, 150) à une position de travail (PPL) au-dessus de ladite table de machine (15, 150); ladite machine de découpe de panneaux (10*) étant **caractérisée en ce que** le dispositif d'alignement (100) est pourvu d'au moins un élément d'alignement (26A, 26B; 26A*, 26B*; 26A**, 26B**, 260A, 260B) ; et **en ce que**, en position de travail (PPL), la face de contact ((SP1), (SP2)) avec la pile (P) dudit au moins un élément d'alignement (26A, 26B; 26A*, 26B*; 26A**, 26B**; 260A, 260B) se positionne automatiquement par rapport à au moins l'un des côtés d'une section de coupe (SAL).

2. Machine de découpe de panneaux (10*) selon la revendication 1, **caractérisée en ce que** ledit au moins un élément d'alignement (26A, 268; 26A*, 26B*; 26A**, 26B**) est un élément élastique d'alignement (26A, 26B; 26A*, 26B*; 26A**, 26B**).

3. Machine de découpe de panneaux (10*) selon la revendication 2, **caractérisée en ce que** ledit au moins un élément élastique d'alignement (26A, 26B; 26A*, 26B*; 26A**, 26B**) se positionne automatiquement par rapport à au moins l'un des côtés d'une section de coupe (SAL) après avoir subi une déformation élastique.

4. Machine de découpe de panneaux (10*) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** dans ledit dispositif d'alignement (100) au moins deux éléments élastiques d'alignement (26A, 26B; 26A**, 26B**) sont reliés entre eux.

5. Machine de découpe de panneaux (10*) selon la revendication 4, **caractérisée en ce que** dans ledit dispositif d'alignement (100) les éléments d'alignement (26A**, 26B**) sont reliés entre eux en correspondance avec un côté longitudinal vertical (31) opposé aux surfaces de contact ((SP1), (SP2)).

6. Machine de découpe de panneaux (10*), selon la revendication 1, **caractérisée en ce que** dans ledit dispositif d'alignement (100) les éléments d'alignement (260A, 260B) sont actionnés pour ouvrir et fermer par un système mécanique (261A, 262A; 263A, 264A; 261B, 262B; 263B, 264B) par l'intermédiaire de moyens d'actionnement (230B, 265A, 265B).

7. Machine de découpe de panneaux (10*), selon la revendication 6, **caractérisée en ce que** ledit système mécanique (261A, 262A; 263A, 264A; 261B, 262B; 263B, 264B) consiste en un mécanisme à cames et biellettes articulées, comprenant un actionneur (230) qui agit sur les biellettes articulées (265A, 265B) et les suiveurs de cames (263A, 264A, 263B, 264B), de telle sorte que lesdits suiveurs de came (263A, 264A, 263B, 264B) en suivant les paires respectives de guides de type came (261A, 262A; 261B, 262B) provoquent l'ouverture et la fermeture desdits éléments d'alignement (260A, 260B).

8. Machine de découpe de panneaux (10*) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** dans ledit dispositif d'alignement (100) lesdits au moins deux éléments d'alignement

(26A*, 26B*; 260A, 260B) sont détachés les uns des autres, chacun d'entre eux étant pourvu d'un actionneur respectif indépendant (23*, 23**), et **en ce qu'**en outre chaque élément d'alignement (26A*, 26B*; 260A, 260B*) comprend un guide respectif indépendant (261A, 262A, 261 B, 262B) monté sur le chariot de sciage (20, 200).

9. Machine de découpe de panneaux (10*) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** dans ledit dispositif d'alignement (100) lesdits éléments d'alignement (26A, 26B; 26A*, 26B*; 26A**, 26B**; 260A, 260B) sont faits de métal, ou d'un alliage, éventuellement revêtu au moins partiellement, avec une matière plastique.

10. Machine de découpe de panneaux (10*) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** dans ledit dispositif d'alignement (100) lesdits éléments d'alignement (26A, 26B; 26A*, 26B*; 26A**, 268 **; 260A, 260B) sont faits entièrement d'un matériau plastique élastique.

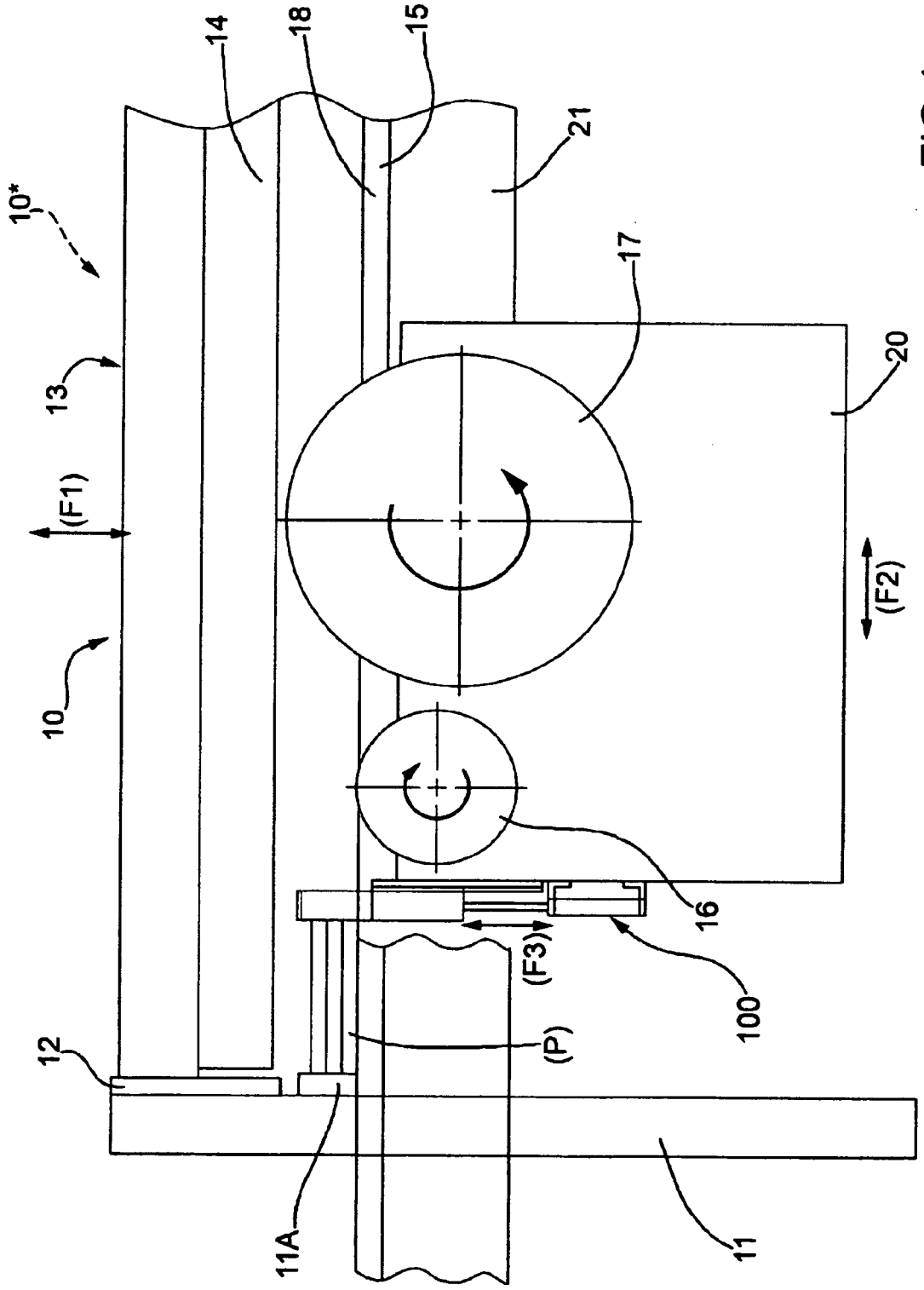

FIG.1

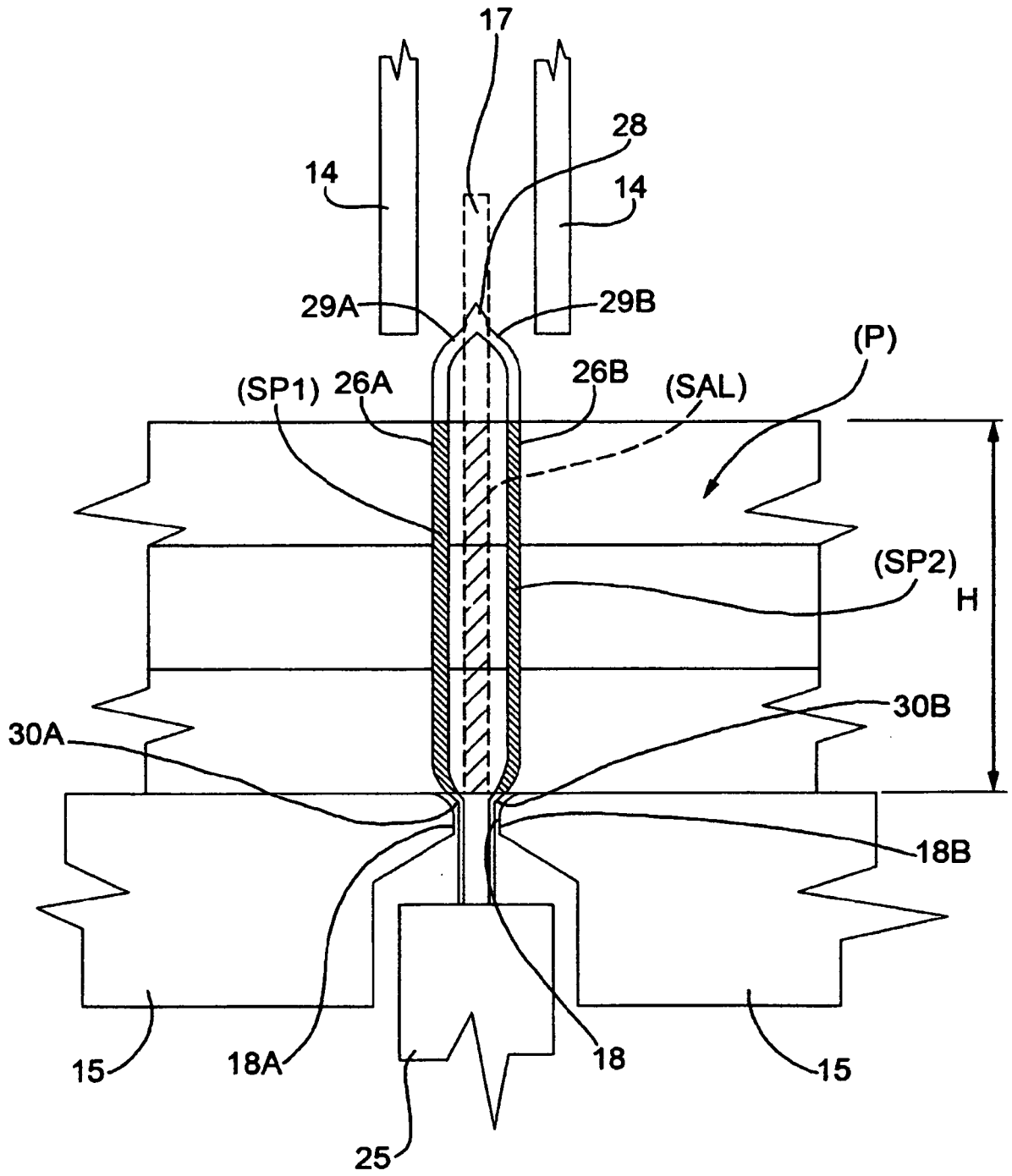
17
28
14
14
29A
29B
(P)
(SP1)
26A
26B
(SAL)
(SP2)
H
30B
30A
18B
15
18A
18
15
25

FIG.2

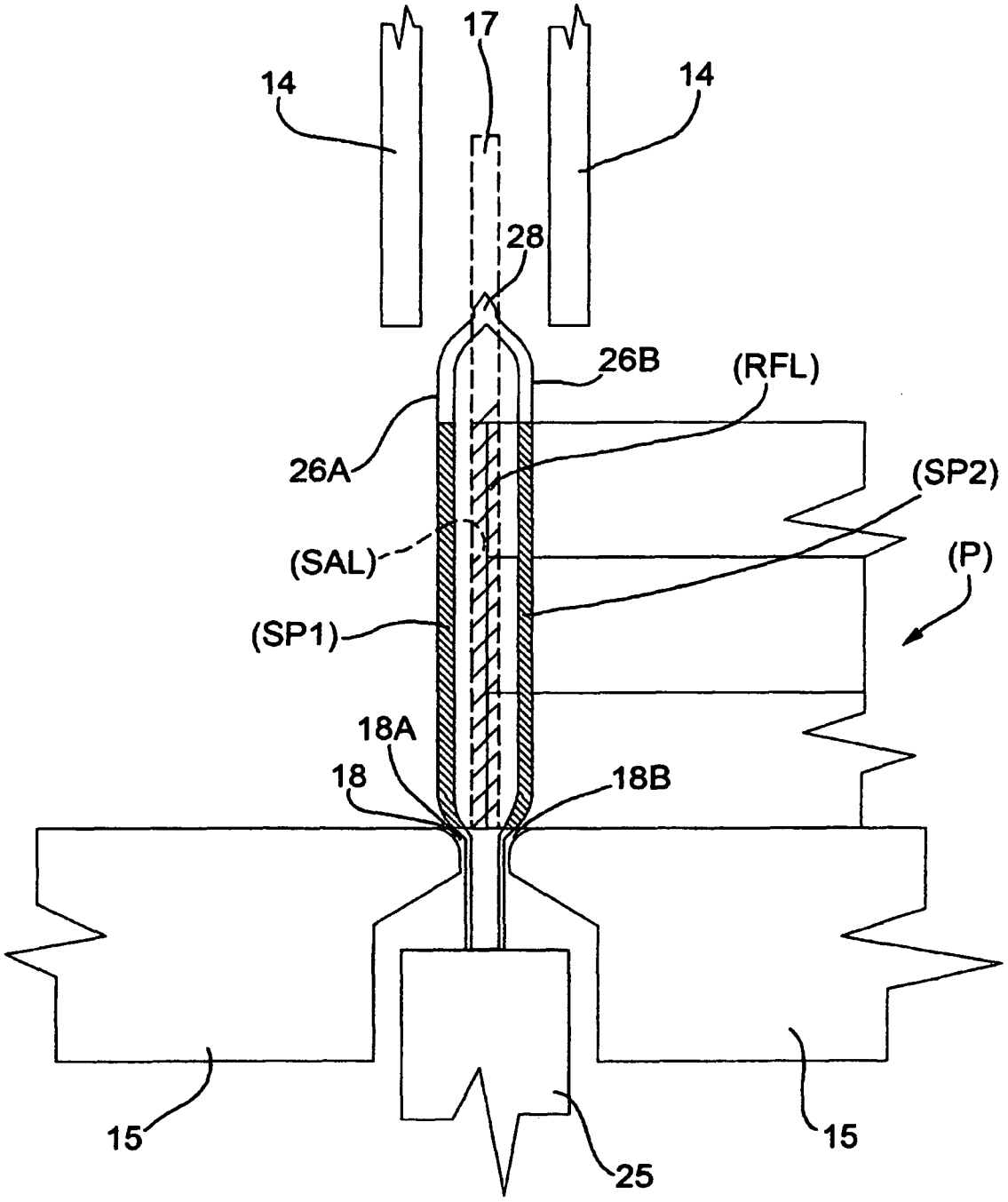

FIG.3

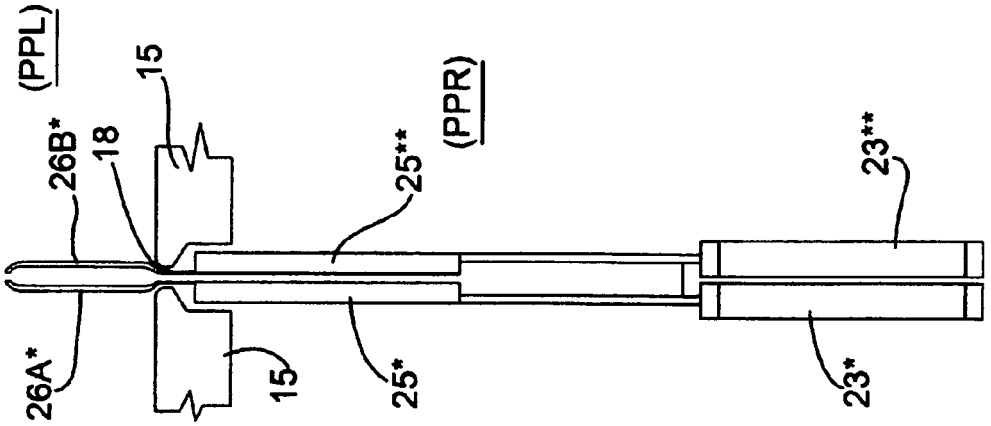

FIG.7

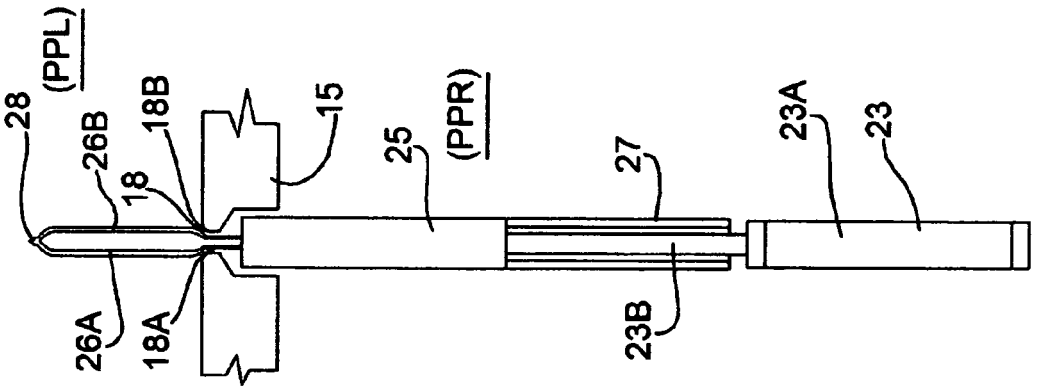

FIG.6

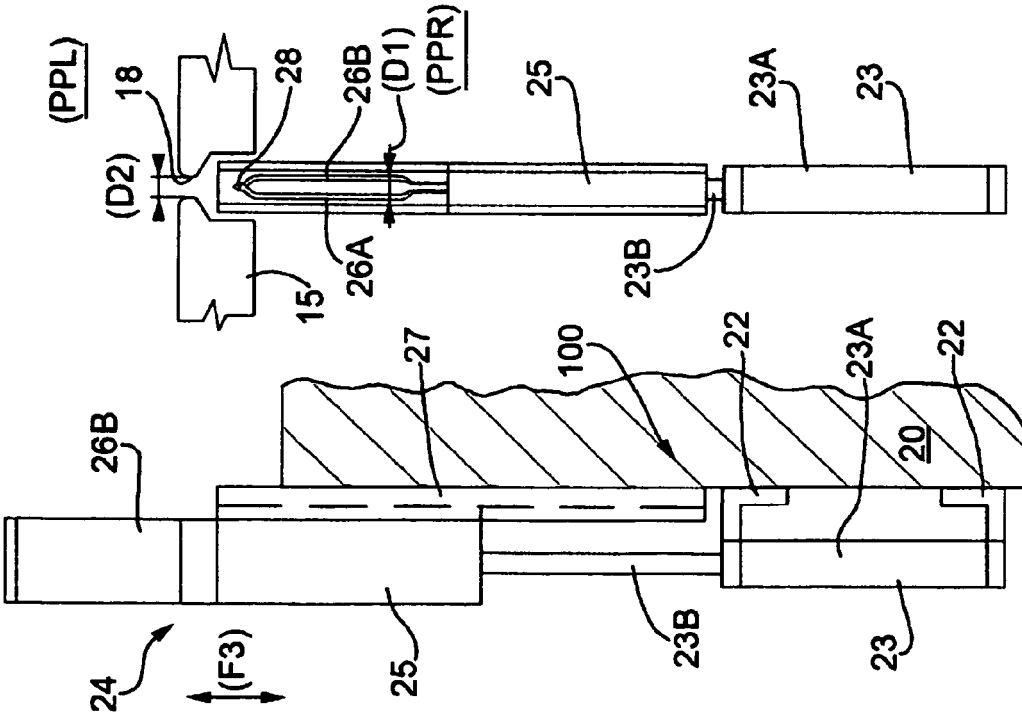

FIG.5

FIG.4

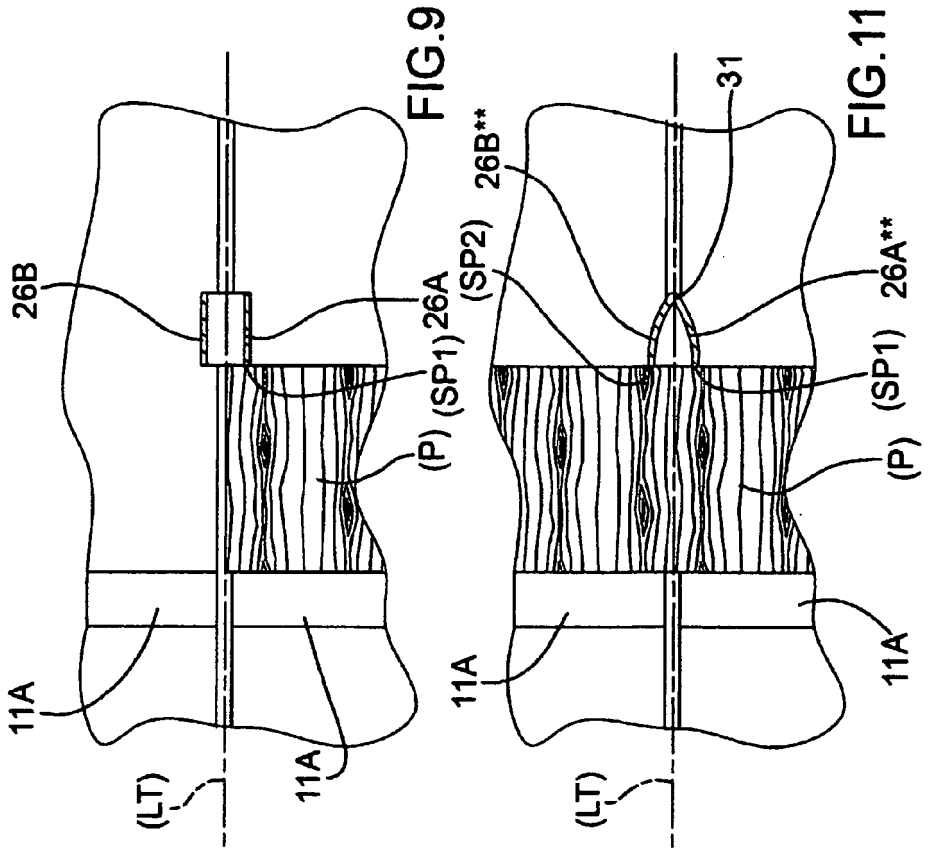

FIG.9

FIG.11

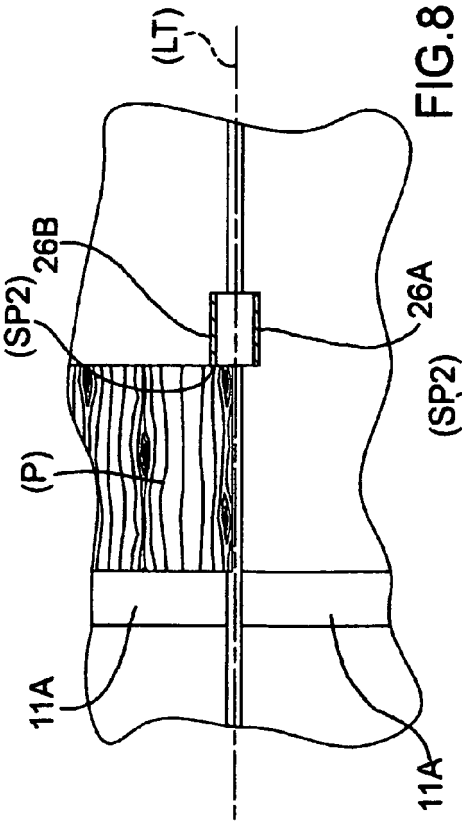

FIG.8

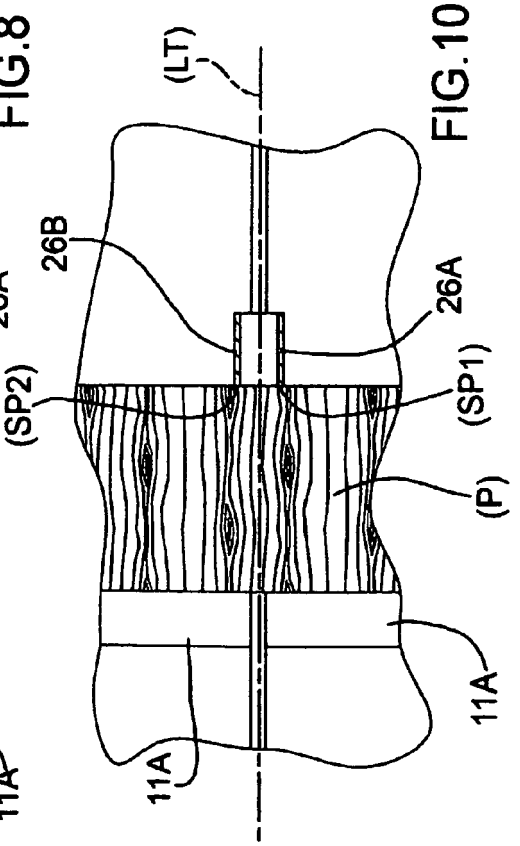

FIG.10

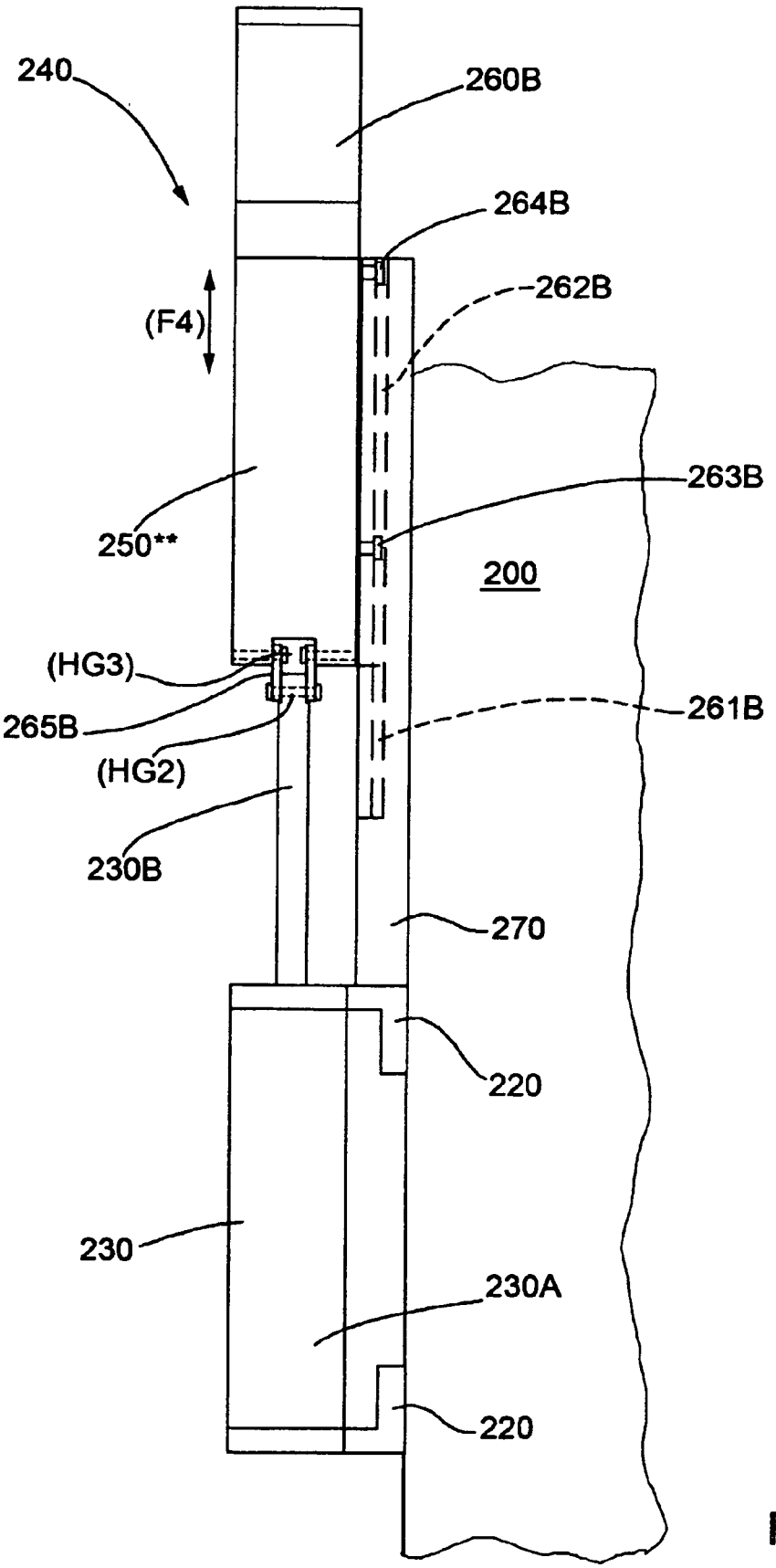
240
260B
264B
(F4)
262B
263B
250**
200
(HG3)
265B
261B
(HG2)
230B
270
220
230
230A
220

FIG.12

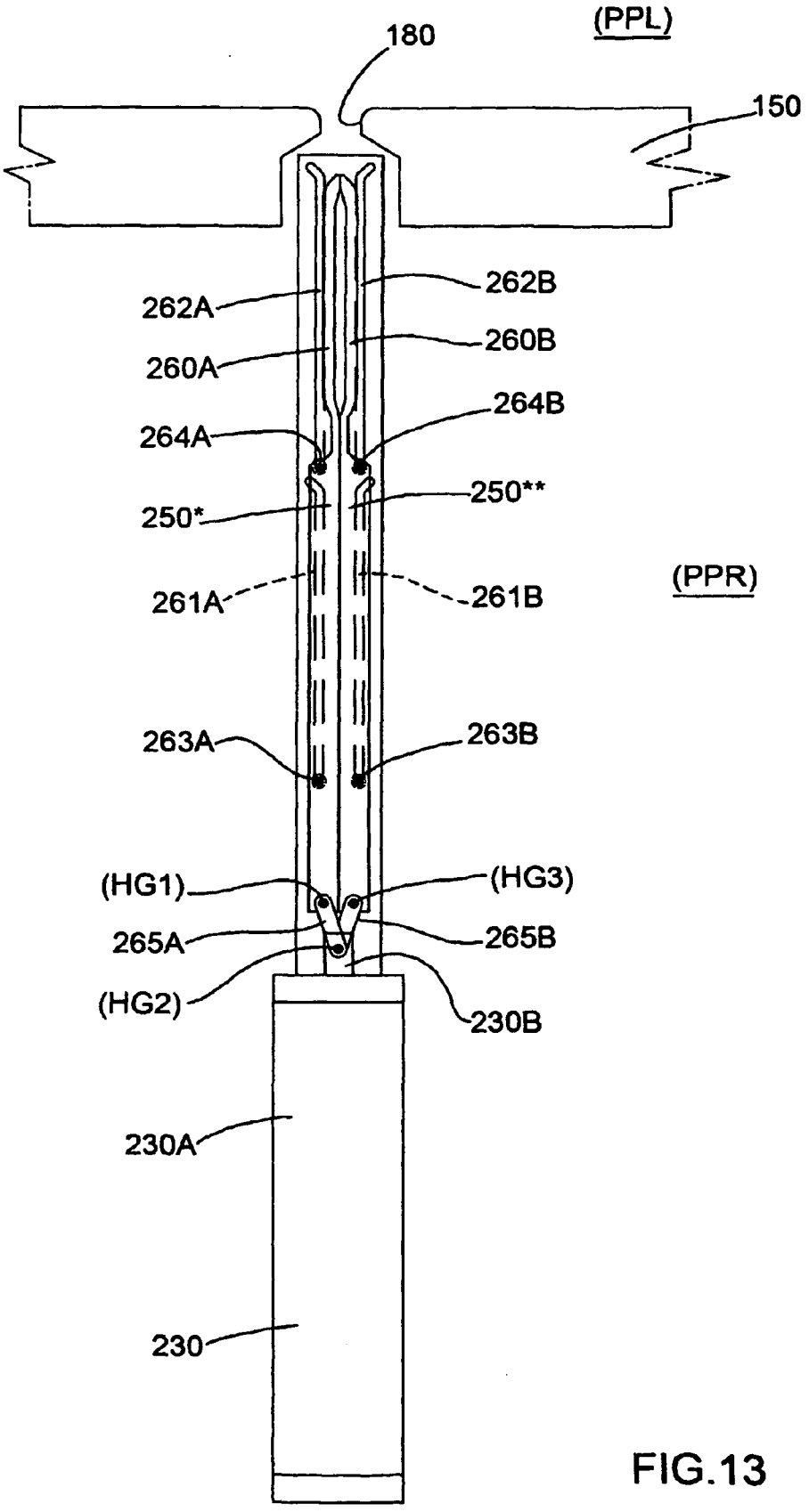
(PPL)
180
150
262A
262B
260A
260B
264A
264B
250*
250**
261A
261B
(PPR)
263A
263B
(HG1)
(HG3)
265A
265B
(HG2)
230B
230A
230

FIG.13

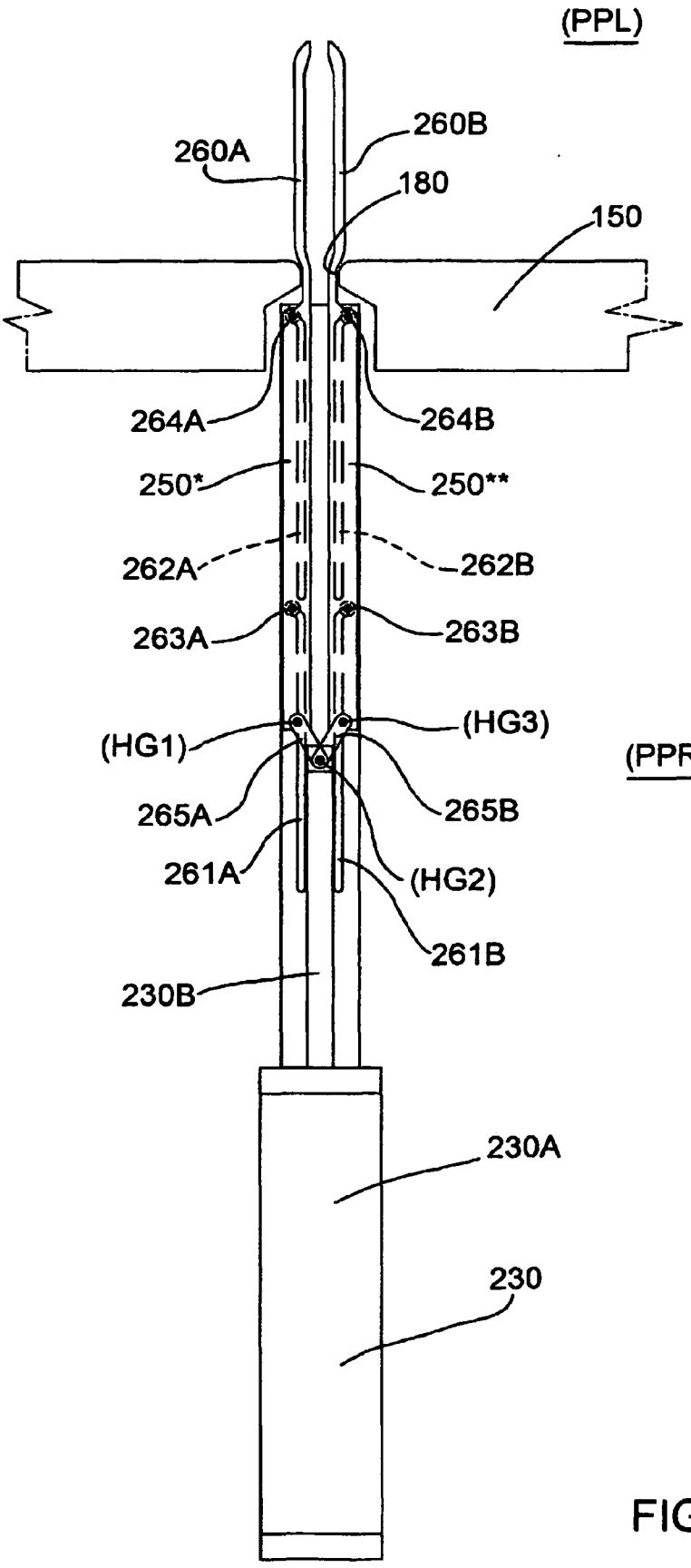
(PPL)
260A
260B
180
150
264A
264B
250*
250**
262A
262B
263A
263B
(HG1)
(HG3)
(PPR)
265A
265B
261A
(HG2)
261B
230B
230A
230

FIG.14

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1321252 A **[0001]**
- EP 1321252 B1 **[0004]**
- EP 1312252 B1 **[0043]**