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(54) **SANDER MACHINE**

SCHLEIFMASCHINE

PONCEUSE

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(56) References cited:

CN-A- 104 117 891 ES-A1- 2 200 653
FR-A1- 3 043 929 US-A- 2 384 777
US-A- 4 137 673 US-A- 4 384 433

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Description

[0001] The present invention relates to a sander machine.

[0002] More in detail, the invention relates to a sander machine for machining panels or similar pieces, in which a substantially flat surface and an opposite shaped surface, i.e. having a curvilinear profile, are defined.

[0003] Specifically, the sander machine at issue is intended for finishing, by sanding, the substantially flat surface of the panel or similar piece, in order to achieve a higher degree of planarity thereof.

[0004] The piece obtained by machining through means of the aforementioned sander machine can be used individually for subsequent machining, or coupled to another piece, also worked by the same sander machine, by overlapping and joining together the respective flat surfaces.

[0005] The pieces obtained by machining with the aforementioned sander machine can be used, for example, for making skis.

[0006] Documents US 4 384 433 A (on which the preamble of claim 1 is based), CN 104117891, ES 2200653, FR 3043929, US 2384777 and US 4137673 are representative of the available art.

[0007] The object of the present invention is to provide a sander machine which is capable of effectively and precisely finishing the flat surface of a panel or similar piece in which a shaped surface opposite to said flat surface is defined.

[0008] Another object of the invention is to provide a sander machine that operates in such a way as to eliminate, or in any case reduce to a minimum, the risk of obtaining machined parts that do not conform to the desired characteristics.

[0009] A further object of the present invention is to provide a sander machine which is safe during its operation.

[0010] The present invention provides a sander machine in accordance with claim 1. Advantageous features are provided in the dependent claims.

[0011] The present invention will be now described, for illustrative but not limitative purposes, according to its preferred embodiments, with particular reference to the figures of the enclosed drawings, wherein:

figure 1 is an axonometric view of a sander machine according to the present invention;

figure 2 is an axonometric view of the sander machine shown in figure 1, in which an external covering element has been omitted to make visible the internal part of the machine;

figure 3 is a longitudinal sectional view of the machine tool illustrated in figures 1 and 2; and

figure 4 is a detail view taken from figure 3.

[0012] In the various figures the similar parts will be indicated with the same numerical references.

[0013] With reference to the attached figures, 1 indicates as a whole a sander machine according to the present invention, for finishing, by sanding, a substantially flat surface of a panel P or other workpiece, in which a shaped surface is also defined (i.e., a surface with curvilinear profile) on the side opposite to said substantially flat surface.

[0014] Said sander machine 1 comprises a frame 2 and a cabin 3, or a casing, mounted on said frame 2.

[0015] An inlet 4 for the panels to be treated and an outlet 5 for the machined panels are defined in the cabin 3.

[0016] Inside the cabin 3 there is an operating unit 6 for carrying out the required sanding operations on the panels.

[0017] In the sander machine 1 a first conveyor belt 7 is also provided for transporting the panel P to be treated from the inlet 4 to the operating unit 6, along a direction of advancement A.

[0018] Above the first conveyor belt 7, a first plurality of accompanying rollers 8 is provided, idle, to keep the panel P adhering to the same first conveyor belt 7 during its transport and accompany its movement from the inlet 4 to the operating unit 6.

[0019] During the transportation by means of the first conveyor belt 7, the panel P is arranged with its substantially flat lower surface L facing the underlying first conveyor belt 7, and with its abutment upper surface U, shaped, facing the overlying first plurality of accompanying rollers 8.

[0020] More specifically, each accompanying roller 8 is mounted on a respective pneumatic piston 9 oriented in such a way as to push the relative acceleration roller support 8 against the shaped upper surface U of the panel P, thus ensuring that the same panel P remains constantly adherent to the underlying first conveyor belt 7 during its way towards the operating unit 6.

[0021] The aforementioned operating unit 6, arranged downstream of the first conveyor belt 7, comprises instead a sanding roller 10, with a horizontal axis, orthogonal to the advancing direction A, in which the upper end of the sanding roller 10 is substantially flush with, or coplanar with, the upper surface of the first conveyor belt 7.

[0022] An abrasive surface is provided on the external surface of the sanding roller 10 to abrade or smooth the lower surface L of the panel P when the latter is passed over the sanding roller 10 itself.

[0023] In the sander machine 1 there are also motor means for setting the sanding roller 10 in rotation about its axis, for the execution of the planned sanding machining on the panel P.

[0024] The operating unit 6 also includes a abutment roller 11 arranged above the sanding roller 10 and idly rotatable around a respective axis of rotation, parallel to the axis of rotation of the sanding roller 10 itself.

[0025] Specifically, the respective axes of rotation of the abutment roller 11 and of the sanding roller 10 lie on a plane substantially orthogonal to the advancing direc-

tion A.

[0026] The abutment roller 11 is movable along a Z-axis, which is substantially orthogonal to the plane on which the panel P is made advance.

[0027] The sander machine 1 also comprises a control unit, capable of receiving and storing data and information relating to the shape, in particular the profile, of each panel P to be sanded.

[0028] For the movement of the abutment roller 11 along the Z-axis, on the other hand, movement means are provided, which are operatively connected to this control unit in such a way as to move the abutment roller 11 along said Z-axis according to the profile of the panel P, existing at any instant between the contact area between the sanding roller 10 and the panel P and the contact area between the latter and the abutment roller 11, during the advancement of the panel P along the advancing direction A.

[0029] Therefore, the control unit commands, by means of the aforementioned moving means, the movement of the abutment roller 11 along the Z-axis as a function of the data stored therein, inherent to the shape or rather to the profile of the panel P being machined, and to the advancement speed of this panel P along the advancing direction A and/or to the position of the panel P along the advancing direction A.

[0030] The data relating to the advancement speed and the position of the panel P along the advancing direction A depend on the machining program to be carried out and can be directly stored in the control unit or detected by using suitable sensors configured to transmit the detected data to the control unit itself.

[0031] Between the first conveyor belt 7 and the sanding roller 10 there is a first lower support 12 adjustable in height and having a flat top surface which, during the operation of the sander machine 1, is arranged at a slightly lower level than the top level of the sanding roller 10 and of the first conveyor belt 7, to make it possible to remove material from the lower surface L of the panel P by the same sanding roller 10.

[0032] Above the first lower support 12 there is a first pair of idle rollers 13, individually movable along the Z-axis and associated, each, with a respective pneumatic system capable of keeping them constantly thrust towards the upper surface U of the panel P, so that the portion of the panel passing under said first pair of rollers 13 is kept pressed by the latter against the underlying first lower support 12 during the advancement of the panel P along the advancing direction A.

[0033] Downstream of the sanding roller 10 there is a second conveyor belt 14 to transport the machined panel P from the operating unit 6 to the outlet 5; the top surfaces of the first conveyor belt 7 and of the second conveyor belt 14 being substantially at the same height according to said Z-axis.

[0034] Above the second conveyor belt 14 there is a second plurality of accompanying rollers 15, idle, to keep the panel P adhering to the same second conveyor belt

14 during its transport and accompany its movement from the operating unit 6 towards the outlet 5.

[0035] During the transport by means of the second conveyor belt 14, the panel P is arranged with its lower surface L, machined, facing the underlying second conveyor belt 14, and with the relative upper surface U facing the overlying second plurality of accompanying rollers 15.

[0036] Furthermore, similarly to what has been described above, each roller of the second plurality of accompanying rollers 15 is mounted on a respective pneumatic piston 16, oriented in such a way as to push the relative roller d the accompaniment 15 against the shaped upper surface U of the panel P, ensuring that the same panel P remains constantly adhering to the underlying second conveyor belt 14 during its journey towards the outlet 5.

[0037] Between the sanding roller 10 and the second conveyor belt 14 there is a second lower support 17, adjustable in height and having a flat top surface, which during the operation of the sander machine 1 is arranged at a slightly higher level than the top level of the first lower support 12, to make it possible to remove material from the lower surface L of the panel P by the sanding roller 10.

[0038] Above the second lower support 17 there is a second pair of idle rollers 18, individually movable along the Z axis and associated each with a respective pneumatic system capable of maintaining them constantly pushing downwards, that is towards the upper surface U of the panel P at the outlet from the operating unit 6, so that the portion of the panel passing under said second pair of rollers 18 is kept pressed by the latter against the underlying second lower support 17 during the advancement of the panel P along the advancing direction A.

[0039] When a panel P with a substantially flat lower surface L facing downwards and a shaped upper surface U facing upwards is inserted in the entrance 4 of the cabin 3, the same panel P is transported towards the operating unit 6 from the first conveyor belt 7 with the aid of the first plurality of accompanying rollers 8.

[0040] As the panel P advances in the advancing direction A passing through the operating unit 6 in the space between the sanding roller 10 and the abutment 11, the latter is controlled by the aforementioned control unit to continuously raise and lower along the Z-axis according to the profile of the panel P present at any moment in the aforementioned space.

[0041] In this way it is obtained that the rotating sanding roller 10 can operate on the lower surface L of the panel P by removing from this only the protruding portions of material, thus allowing to obtain a surface with a higher degree of flatness.

[0042] The panel P, after being subjected to sanding in the operating unit 6, passes over the second conveyor belt 14, which carries it to the outlet 5 with the aid of the second plurality of accompanying rollers 15.

[0043] The use of a spring or a fixed weight in place of the abutment roller 11, and the relative movement system managed by the aforementioned control unit, would not

have allowed the desired technical result to be obtained.

[0044] In fact, if a spring or a fixed weight were applied to the abutment roller 11 in such a way as to push it downwards, the latter would act by imparting to the panel P a force having an intensity proportional to the height of the profile of the panel P present at each instant in the space between the sanding roller 10 and the abutment roller 11.

[0045] In this way, when between the sanding roller 10 and the abutment roller 11 there is a portion of panel P with a significant profile, the corresponding roller 11 should exert an excessive thrust force on the underlying panel P, which would produce, as an undesirable effect, an excessive removal of material by the sanding roller 10 with the consequent formation of depressions on the lower surface L of the panel P.

[0046] As can be seen from the above description, the sander machine according to the present invention allows to efficiently work a panel having a substantially larger surface and an opposite surface shaped in such a way as to be able to achieve a greater degree of planarity of this substantially flat surface and also the absence of defects in the same machined surface.

[0047] The present invention has been described for illustrative but not limitative purposes, according to its preferred embodiments, but it is to be understood that modifications and/or changes can be introduced by those skilled in the art without departing from the relevant scope as defined in the enclosed claims.

Claims

1. Sander machine (1) for machining at least one panel (P) or workpiece, said panel (P) or workpiece comprising a first surface (L) which is substantially flat and a second surface (U), which is shaped, opposite said first surface (L), said sander machine (1) comprising:

first moving means (7) for moving, in use, said at least one panel (P) or workpiece to an operative zone according to an advancing direction (A);

sanding means (10) placed at said operative zone and configured to sand, in use, said first surface (L) of said at least one panel (P) or workpiece;

an abutment member (11) which is movable according to an axis (Z) being transversal to said advancing direction (A) and placed above said sanding means (10) such that when said at least one panel (P) or workpiece advance according to said advancing direction (A), said at least one panel (P) or workpiece pass through the space comprised between said sanding means (10) and said abutment member (11) with said first surface (L) facing said sanding means (10) and

with said second surface (U) facing said abutment member (11); and

actuating means for moving said abutment member (11) along said axis (Z);

wherein the sander machine (1) is **characterized in that** it comprises:

a control unit which is configured to know advancing speed and/or position of said at least one panel (P) or workpiece along said advancing direction (A) and the profile of said at least one panel (P) or workpiece according to said axis (Z), which at any moments is between said sanding means (10) and said abutment member (11) when said at least one panel (P) or workpiece advance along said advancing direction (A); said control unit being operatively connected with said actuating means such that said control unit controls, by said actuating means, the movement of said abutment member (11) along said axis (Z) based on the advancing speed and/or the position of said at least one panel (P) or workpiece along said advancing direction (A), the value of said profile, such as to allow said sanding means (10) to sand, in use, said first surface (L) in such a way as to achieve a higher planarity level of the first surface (L).

2. Sander machine (1) according to claim 1, **characterized in that** said sanding means comprise a rotative sander member (10) which is rotatable about a first rotation axis.
3. Sander machine (1) according to claim 1 or 2, **characterized in that** said abutment member comprises a roller (11) which is rotatable about a second rotation axis.
4. Sander machine (1) according to claims 2 and 3, **characterized in that** said first rotation axis is substantially parallel to said second rotation axis.
5. Sander machine (1) according to any one of preceding claims, **characterized in that** said axis (Z) is orthogonal to said advancing direction (A).
6. Sander machine (1) according to any one of preceding claims, **characterized in that** it comprises first pushing means (8, 9) capable of keeping, in use, said at least one panel (P) or other workpiece adhering to said first moving means (7).
7. Sander machine (1) according to any one of preceding claims, **characterized in that** it comprises:

a first support (12) which is placed between said first moving means (7) and said sanding means (10) such that, in use, said at least one panel (P) or other workpiece leans against said first

support (12) before arriving at said operative zone, said first support (12) being adjustable in height according to said axis (Z); and a second support (17) which is placed downstream of said sanding means (10) such that, in use, said at least one panel (P) or workpiece leans against said second support (17) after having passed through said operative zone, said second support (17) being adjustable in height according to said axis (Z).

8. Sander machine (1) according to any one of preceding claims, **characterized in that** it comprises second moving means (14) for moving, in use, said at least one panel (P) or workpiece from said operative zone to an exit zone for collecting said at least one panel (P) or other workpiece machined by said sanding means (10).
9. Sander machine (1) according to claim 8, **characterized in that** it comprises second pushing means (15, 16) capable of keeping, in use, said at least one panel (P) or workpiece adhering to said second moving means (14).

Patentansprüche

1. Schleifmaschine (1) zur Bearbeitung mindestens einer Platte (P) oder eines Werkstücks, wobei die Platte (P) oder das Werkstück umfasst eine erste Oberfläche (L), die im Wesentlichen flach ist, und eine zweite Oberfläche (U), die geformt ist, gegenüber der ersten Oberfläche (L), wobei die Schleifmaschine (1) umfasst:

erste Bewegungsmittel (7), um im Betrieb die mindestens eine Platte (P) oder das Werkstück in eine Arbeitszone gemäß einer Vorschubrichtung (A) zu bewegen; eine Schleifeinrichtung (10), die in der Betriebszone angeordnet und so konfiguriert ist, dass sie im Betrieb die erste Oberfläche (L) der mindestens eine Platte (P) oder des Werkstücks schleift; ein Anschlagelement (11), das gemäß einer Achse (Z) beweglich ist, die quer zu der Vorschubrichtung (A) verläuft, und das oberhalb der Schleifmittel (10) angeordnet ist, so dass, wenn sich die mindestens eine Platte (P) oder das Werkstück gemäß der Vorschubrichtung (A) vorwärts bewegt die mindestens eine Platte (P) oder das Werkstück durch den Raum zwischen dem Schleifmittel (10) und dem Anschlagelement (11) hindurchgeht, wobei die erste Fläche (L) dem Schleifmittel (10) und die zweite Fläche (U) dem Anschlagelement (11) zugewandt ist; und Betätigungsmittel zum Bewegen des Widerlagerelements (11) entlang der Achse (Z);

und wobei die Schleifmaschine (1) **dadurch gekennzeichnet ist, dass** sie umfasst:

eine Steuereinheit, die so konfiguriert ist, dass sie die Vorschubgeschwindigkeit und/oder die Position der mindestens einen Platte (P) oder des Werkstücks entlang der Vorschubrichtung (A) und das Profil der mindestens einen Platte (P) oder des Werkstücks gemäß der Achse (Z) kennt, die sich zu jedem Zeitpunkt zwischen der Schleifeinrichtung (10) und dem Anschlagelement (11) befindet, wenn sich die mindestens eine Platte (P) oder das Werkstück entlang der Vorschubrichtung (A) vorwärts bewegt; wobei die Steuereinheit betriebsmäßig mit der Betätigungseinrichtung verbunden ist, so dass die Steuereinheit durch die Betätigungseinrichtung die Bewegung des Anschlagelements (11) entlang der Achse (Z) auf der Grundlage der Vorschubgeschwindigkeit und/oder der Position der mindestens einen Platte (P) oder des Werkstücks entlang der Vorschubrichtung (A), des Werts des Profils steuert, um es der Schleifeinrichtung (10) zu ermöglichen, im Gebrauch die erste Oberfläche (L) auf eine solche Weise zu schleifen, dass ein höheres Ebenheitsniveau der ersten Oberfläche (L) erreicht wird.

2. Schleifmaschine (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Schleifmittel ein rotierendes Schleifelement (10) umfassen, das um eine erste Rotationsachse drehbar ist.
3. Schleifmaschine (1) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** das Anschlagelement eine Rolle (11) umfasst, die um eine zweite Drehachse drehbar ist.
4. Schleifmaschine (1) nach einem der Ansprüche 2 und 3, **dadurch gekennzeichnet, dass** die erste Drehachse im Wesentlichen parallel zur zweiten Drehachse verläuft.
5. Schleifmaschine (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Achse (Z) senkrecht zur Vorschubrichtung (A) verläuft.
6. Schleifmaschine (1) nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** sie erste Schubmittel (8, 9) umfasst, die in der Lage sind, im Betrieb die mindestens eine Platte (P) oder ein anderes Werkstück an den ersten Vorschubmitteln (7) haften zu lassen.
7. Schleifmaschine (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sie umfasst:

eine erste Stütze (12), die zwischen den ersten Bewegungsmitteln (7) und den Schleifmitteln (10) angeordnet ist, so dass sich das mindestens eine Paneel (P) oder ein anderes Werkstück im Betrieb gegen die erste Stütze (12) lehnt, bevor es in den Arbeitsbereich gelangt, wobei die erste Stütze (12) in der Höhe gemäß der Achse (Z) verstellbar ist; und
eine zweite Stütze (17), die stromabwärts der Schleifeinrichtung (10) angeordnet ist, so dass sich die mindestens eine Platte (P) oder das Werkstück im Gebrauch gegen die zweite Stütze (17) lehnt, nachdem sie/es die Arbeitszone durchlaufen hat, wobei die zweite Stütze (17) in der Höhe entsprechend der Achse (Z) einstellbar ist.

8. Schleifmaschine (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sie eine zweite Bewegungseinrichtung (14) umfasst, um im Gebrauch die mindestens eine Platte (P) oder das Werkstück von der Arbeitszone zu einer Ausgangszone zu bewegen, um die mindestens eine Platte (P) oder ein anderes Werkstück, das durch die Schleifeinrichtung (10) bearbeitet wurde, zu sammeln.
9. Schleifmaschine (1) nach Anspruch 8, **dadurch gekennzeichnet, dass** sie zweite Schubmittel (15, 16) umfasst, die in der Lage sind, im Gebrauch die mindestens eine Platte (P) oder das Werkstück an den zweiten Bewegungsmitteln (14) haften zu lassen.

Revendications

1. Ponceuse (1) pour l'usinage d'au moins un panneau (P) ou d'une pièce, ledit panneau (P) ou ladite pièce comprenant une première surface (L) sensiblement plane et une seconde surface (U) façonnée, opposée à ladite première surface (L), ladite ponceuse (1) comprenant:

des premiers moyens de déplacement (7) pour déplacer, en utilisation, ledit au moins un panneau (P) ou pièce vers une zone opérationnelle selon une direction d'avancement (A);
des moyens de ponçage (10) placés dans ladite zone opérationnelle et configurés pour poncer, en cours d'utilisation, ladite première surface (L) dudit au moins un panneau (P) ou pièce;
un élément de butée (11) qui est mobile selon un axe (Z) transversal à ladite direction d'avancement (A) et placé au-dessus desdits moyens de ponçage (10) de telle sorte que lorsque ledit au moins un panneau (P) ou autre pièce avance selon dans ladite direction d'avancement (A), ledit au moins un panneau (P) ou autre pièce à

usiner passe à travers l'espace compris entre ledit moyen de ponçage (10) et ledit élément de butée (11), ladite première surface (L) faisant face audit moyen de ponçage (10) et avec ladite seconde surface (U) faisant face audit élément de butée (11); et
des moyens d'actionnement pour déplacer ledit élément de butée (11) le long dudit axe (Z); et
dans laquelle la ponceuse (1) est **caractérisée en ce qu'elle** comprend:

une unité de commande configurée pour connaître la vitesse d'avancement et/ou la position dudit au moins un panneau (P) ou pièce le long de ladite direction d'avancement (A) et le profil dudit au moins un panneau (P) ou pièce selon ledit axe (Z), qui se trouve à tout moment entre ledit moyen de ponçage (10) et ledit élément de butée (11) lorsque ledit au moins un panneau (P) ou pièce avance le long de ladite direction d'avancement (A);

ladite unité de commande étant reliée de manière opérationnelle auxdits moyens d'actionnement de sorte que ladite unité de commande contrôle, par lesdits moyens d'actionnement, le mouvement dudit élément de butée (11) le long dudit axe (Z) en fonction de la vitesse d'avancement et/ou de la position dudit au moins un panneau (P) ou pièce le long de ladite direction d'avancement (A), de la valeur dudit profil, de manière à permettre auxdits moyens de ponçage (10) de poncer, lors de l'utilisation, ladite première surface (L) de manière à atteindre un niveau de planéité plus élevé de la première surface (L).

2. Ponceuse (1) selon la revendication 1, **caractérisée en ce que** lesdits moyens de ponçage comprennent un organe de ponçage rotatif (10) qui est rotatif autour d'un premier axe de rotation.
3. Ponceuse (1) selon la revendication 1 ou 2, **caractérisée en ce que** ledit élément de butée comprend un rouleau (11) rotatif autour d'un deuxième axe de rotation.
4. Ponceuse (1) selon les revendications 2 et 3, **caractérisée en ce que** ledit premier axe de rotation est sensiblement parallèle audit second axe de rotation.
5. Ponceuse (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** ledit axe (Z) est orthogonal à ladite direction d'avancement (A).
6. Ponceuse (1) selon l'une quelconque des revendi-

cations précédentes, **caractérisée en ce qu'elle** comprend des premiers moyens de poussée (8, 9) aptes à maintenir, en cours d'utilisation, ledit au moins un panneau (P) ou autre pièce adhérent auxdits premiers moyens de déplacement (7).

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7. Ponceuse (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce qu'elle** comprend:

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un premier support (12) qui est placé entre lesdits premiers moyens de déplacement (7) et lesdits moyens de ponçage (10) de sorte que, en utilisation, ledit au moins un panneau (P) ou autre pièce s'appuie contre ledit premier support (12) avant d'arriver dans ladite zone opérationnelle, ledit premier support (12) étant réglable en hauteur selon ledit axe (Z); et un second support (17) qui est placé en aval dudit moyen de ponçage (10) de telle sorte que, en utilisation, ledit au moins un panneau (P) ou pièce s'appuie contre ledit second support (17) après avoir traversé ladite zone opérationnelle, ledit second support (17) étant réglable en hauteur selon ledit axe (Z).

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8. Ponceuse (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce qu'elle** comprend des seconds moyens de déplacement (14) pour déplacer, en utilisation, ledit au moins un panneau (P) ou pièce depuis ladite zone opérationnelle vers une zone de sortie pour recueillir ledit au moins un panneau (P) ou autre pièce usinée par lesdits moyens de ponçage (10).

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9. Ponceuse (1) selon la revendication 8, **caractérisée en ce qu'elle** comprend des seconds moyens de poussée (15, 16) aptes à maintenir, en cours d'utilisation, ledit au moins un panneau (P) ou pièce adhérent auxdits seconds moyens de déplacement (14).

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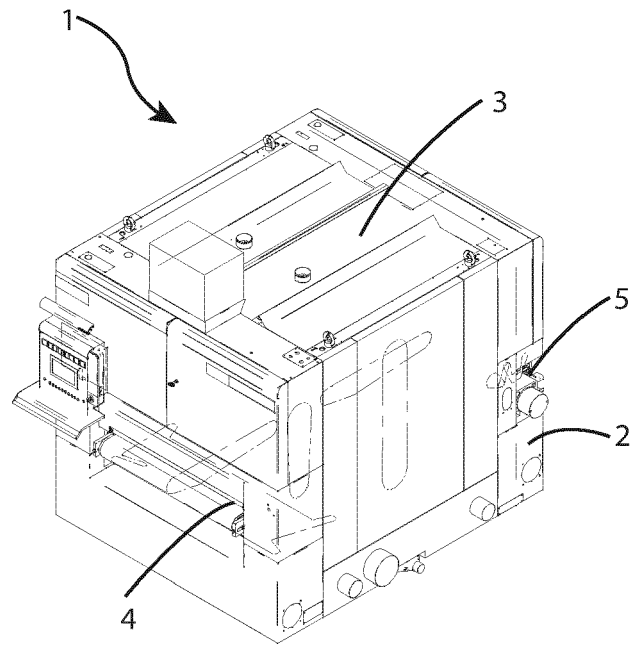


Fig. 1

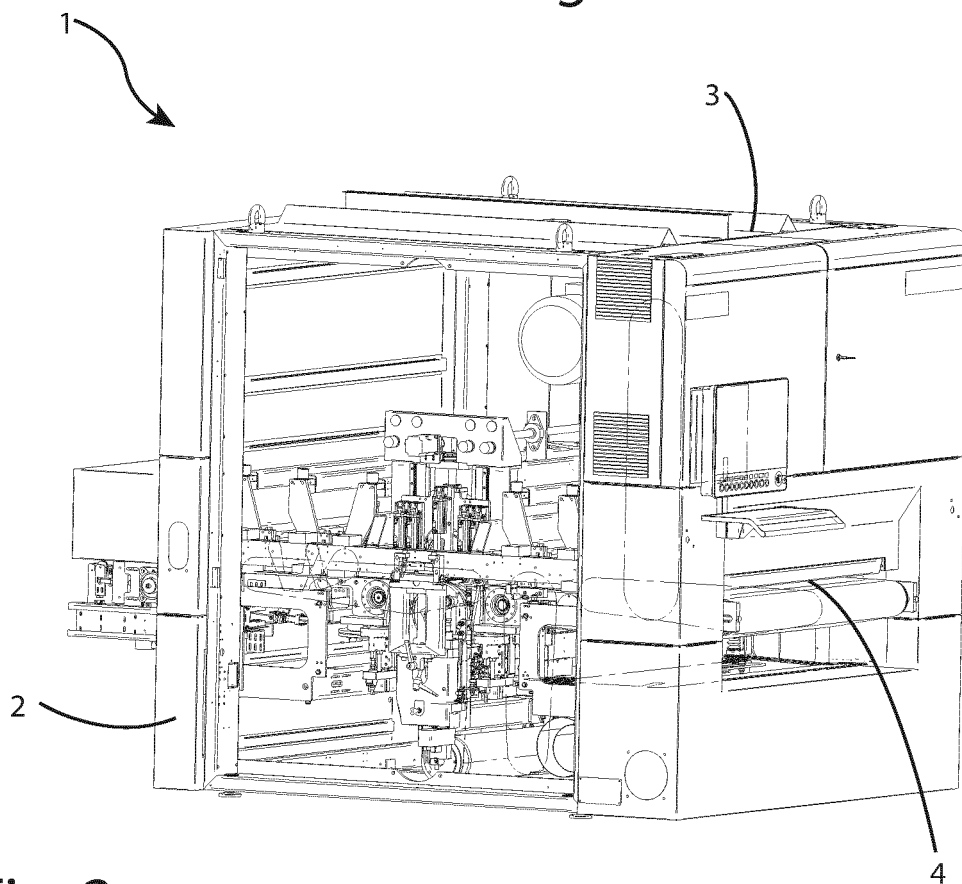


Fig. 2

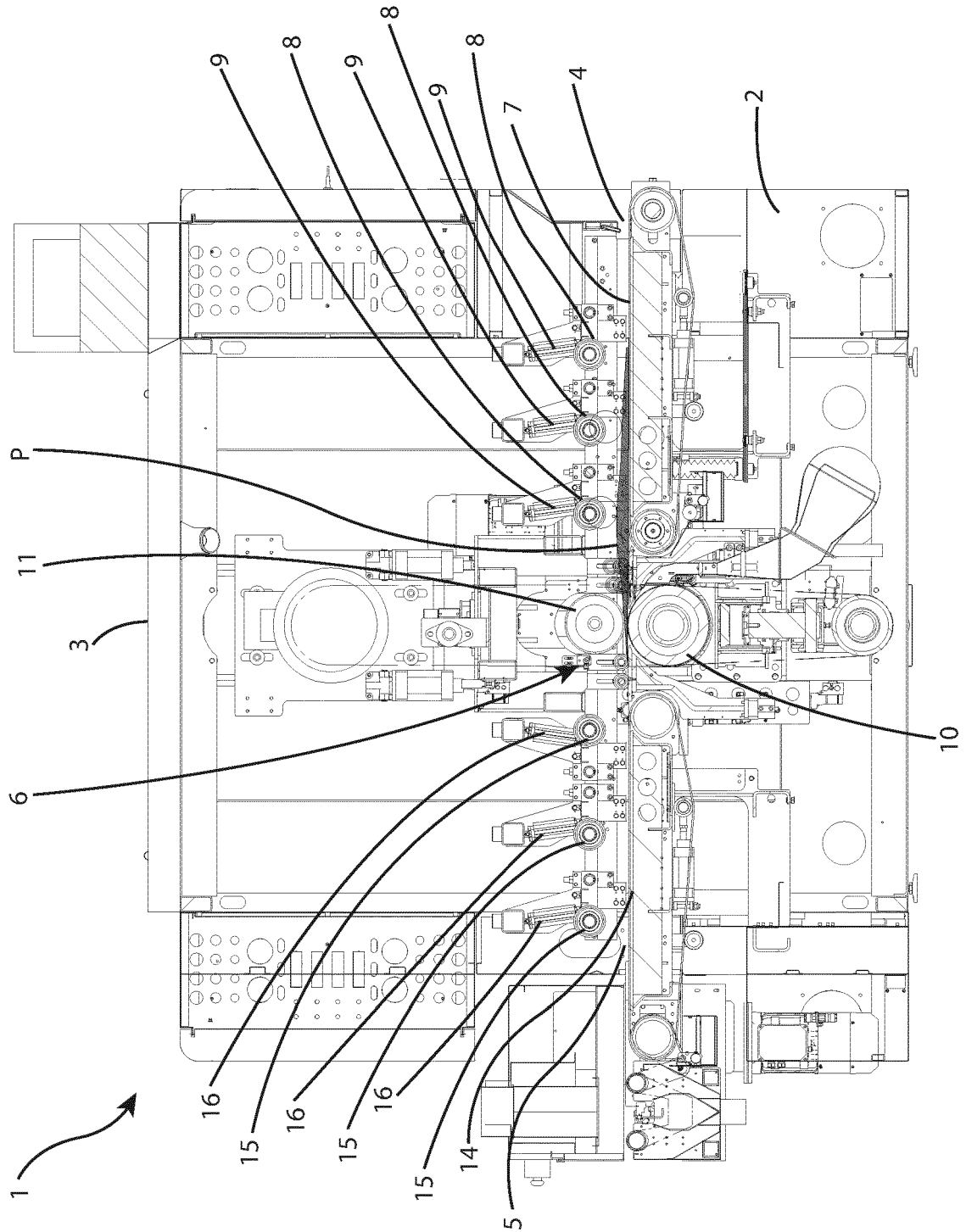


Fig. 3

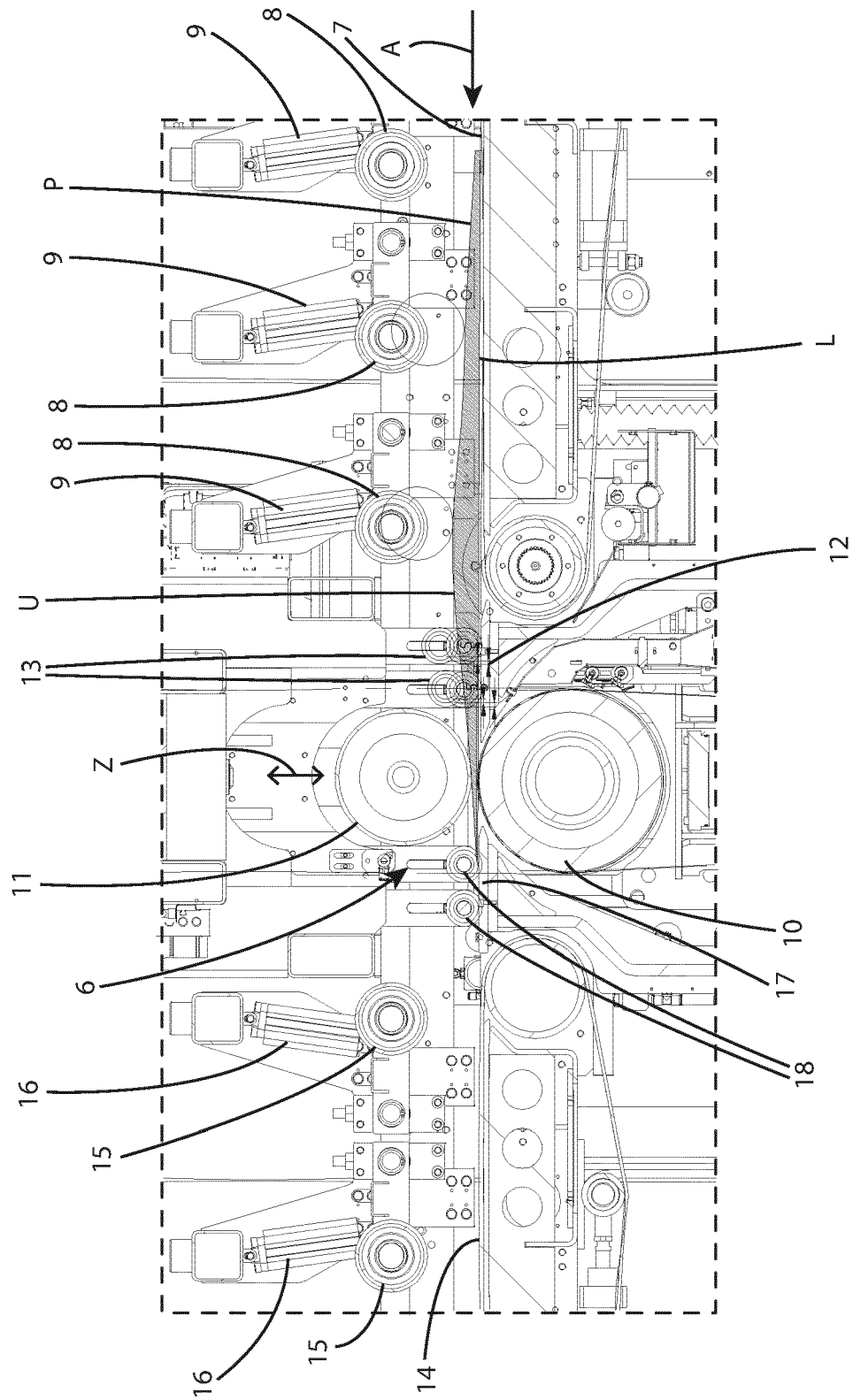


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 4384433 A [0006]
- CN 104117891 [0006]
- ES 2200653 [0006]
- FR 3043929 [0006]
- US 2384777 A [0006]
- US 4137673 A [0006]