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(54) **Machine to process wood panels or the like**

Maschine zur Verarbeitung von Holzplatten oder dergleichen

Machine pour procédé de panneaux de bois ou analogue

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## Description

**[0001]** The present invention relates to a machine to process wood panels or the like, according to the preamble of claim 1. Such a machine to process wood panels is known from DE202009016509U1. It is known in the field of processing wood panels to provide a machine of the type comprising an elongated base provided with two guide members, which are parallel to a first substantially horizontal direction; a plurality of crosspieces mounted between the guide members, which are parallel to a second substantially horizontal direction and transverse to the first direction; at least one support block mounted on each crosspiece to lock at least one panel; and an overhead crane, which is mobile along the base in the first direction and extends above the base in the second direction.

**[0002]** The overhead crane supports an operating head suited to carry out a chipping machining of the panel, and an edgbanding assembly suited to edgband a lateral edge of the panel with a finishing band.

**[0003]** Generally, the edgbanding assembly mounted on the overhead crane comprises a tank to contain glue, a glueing roller to apply glue onto the lateral edge and/or onto the finishing band, and a pressing roller to press the finishing band against the lateral edge itself.

**[0004]** The above-described type of known machines to process wood panels or the like have certain drawbacks, mainly due to the fact that the edgbanding of the panels is to be carried out by necessarily using glue and therefore, is not suited to be used with special types of finishing bands which, in order to be connected to the lateral edge of the panel, do not provide using glue and only require being heated and partially melted.

**[0005]** It is the object of the present invention to provide a machine to process wood panels or the like, which is exempt from the above-described drawbacks and is simple and cost-effective to implement.

**[0006]** According to the present invention, there is provided a machine to process wood panels or the like, as claimed in the appended claims.

**[0007]** The present invention will now be described with reference to the accompanying drawings, which illustrate a non-limiting embodiment thereof, in which:

figure 1 is a perspective diagrammatic view, with enlarged parts and with parts removed for clarity, of a preferred embodiment of the machine of the present invention; and

figure 2 is a diagrammatic plan view with parts removed for clarity, of a detail of the machine in figure 1 shown in two different operating positions.

**[0008]** With reference to figure 1, numeral 1 indicates, as a whole, a machine to process substantially flat wood panels 2 or the like, each of which is limited by two larger faces 3, which are parallel to each other, and by an annular lateral edge 4 which is substantially perpendicular

to the faces 3 themselves.

**[0009]** Machine 1 comprises an elongated base 5, which extends in a horizontal direction 6, is substantially U-shaped, and has two lateral guide members 7 which are parallel to direction 6 itself.

**[0010]** Base 5 supports a plurality of crosspieces 8, which hereinafter are indicated with the term "work surfaces", and extend between the members 7 in a horizontal direction 9, which is transverse to direction 6, and are slidably coupled to the members 7 to be moved, manually or by means of respective known operating devices (not shown), along the members 7 themselves in direction 6.

**[0011]** The work surfaces 8 support a plurality of support blocks 10, the arrangement of which on the relative work surfaces 8 substantially depending on the size of the panels 2 to be processed and on the processing to be carried out on the panels 2 themselves.

**[0012]** Each block 10 is mobile along the relative work surface 8 in direction 9, is coplanar to the other blocks 10 to define a support surface P for at least one panel 2, and is connected, in the case in point, with a pneumatic suction device suited to lock panel 2 on surface P itself.

**[0013]** Base 5 also supports an overhead crane 11 comprising a vertical upright 12, which is coupled in a known manner to base 5 to carry out, along base 5 itself and under the thrust of a known operating device (not shown), straight movements in direction 6, and carries, connected to a free end thereof, a crosspiece 13 which extends above base 5 in direction 9.

**[0014]** The overhead crane 11 supports a known operating head 14, which is suited to carry out processing to remove chipping of panel 2.

**[0015]** Head 14 is mounted on a first lateral face 13a of crosspiece 13, and is coupled in a known manner to crosspiece 13 to carry out, with respect to crosspiece 13 itself, straight movements in direction 9 and in a vertical direction 15, which is orthogonal to the directions 6 and 9 and to surface P.

**[0016]** The overhead crane 11 also supports an edgbanding assembly 16 suited to edgband the lateral edge 4 of the panels 2 with a finishing band 17.

**[0017]** Band 17 is separated from a strip (not shown), which is housed in a magazine 18 mounted on upright 12 of the overhead crane 11, and is fed to assembly 16 by means of a plurality of unwinding rollers 19.

**[0018]** Assembly 16 is mounted on a second lateral face 13b of crosspiece 13, opposite to face 13a, and comprises a horizontal slide 20, which is coupled in a known manner to crosspiece 13 to carry out straight movements along crosspiece 13 itself in direction 9.

**[0019]** Assembly 16 also comprises a vertical slide 21, which is mounted on slide 20, and is coupled in a known manner to slide 20 to carry out, with respect to slide 20 itself and under the thrust of a known operating device (not shown), straight movements in direction 15.

**[0020]** As shown in figures 1 and 2, slide 21 supports a glueing roller 22, which is mounted to rotate around a

longitudinal axis 23 thereof, which is parallel to direction 15, and is suited to transfer onto edge 4, the glue picked from a containment tank 24, which is also secured to slide 21.

[0021] Roller 22 and tank 24 are also mounted to rotate, with respect to slide 21 and under the thrust of a first operating device (not shown), around a rotation axis 25, which is parallel to, and distinct from, the mentioned axis 23 so as to allow roller 22 to always remain in contact with edge 4.

[0022] Slide 21 also supports a pressing roller 26, which is mounted to rotate around a longitudinal axis 27 thereof, which is parallel to direction 15, and is mounted at the rear of roller 22 to press band 17 against edge 4.

[0023] Roller 26 is coupled to slide 21 by means of the interposition of a pneumatic damper (not shown), and is also rotatably coupled to slide 21 to rotate, with respect to slide 21 itself, around axis 25.

[0024] By combining the rotation of roller 26 around axis 25 with the action of the mentioned pneumatic damper (not shown), roller 26 is always kept in contact with edge 4 with the interposition of band 17.

[0025] Roller 26 is moved around axis 25 under the thrust of a second operating device (not shown), which is independent from the operating device (not shown) of roller 22. Accordingly, the glueing roller 22 and the pressing roller 26 are mounted to rotate around axis 25 with respective laws of motion that are independent from one another so as to be kept in proper contact with edge 4. According to the invention, slide 21 supports a feeding device 28 configured to feed a hot gas onto edge 4, hot air in the case in point, preferably but not necessarily hot air under pressure.

[0026] Device 28 comprises a manifold 29, which extends in direction 15, is fitted to slide 21, and is provided with an outlet duct 30, which is fitted to manifold 29, is made of flexible material, and has an end portion 31, which is substantially parallel to direction 15 itself.

[0027] Portion 31 is arranged between roller 22 and roller 26, has a longitudinal axis 32, which is parallel to, and distinct from, mentioned axis 25, and is mobile, with respect to slide 21, around axis 25.

[0028] In the case in point, portion 31 is mobile around axis 25 under the thrust of the operating device of roller 22 around axis 25 itself.

[0029] Machine 1 further comprises an electronic control unit 33, which is configured to selectively control the operation of the glueing roller 22 and of the feeding device 28 so that the action of the glueing roller 22 is alternative or auxiliary to the action of the feeding device 28.

[0030] By combining the movements, in use, of the overhead crane 11 in direction 6 with the movements of the edgebanding assembly 16 in the directions 9 and 15 and with the movements of the glueing roller 22, the pressing roller 26, and the outlet duct 30 around axis 25, assembly 16 allows the finishing band 17 to be properly applied both at portions of edge 4 arranged according to a 90° angle from each other, and at shaped portions of

edge 4 itself.

[0031] Machine 1 has certain advantages, mainly originating from the fact that the edgebanding assembly 16 is provided both with the glueing roller 22 and the containment tank 24, and with the feeding device 28 and therefore allows edgebanding with glue and/or hot air to be selectively carried out.

[0032] According to a further variant not shown, machine 1 is shaped to feed the panels 2 in one of the directions 6, 9 and the operating head 14 and the edgebanding assembly 16 in the other direction 6, 9. In this case the glueing roller 22, the pressing roller 26 and the outlet duct 30 are mounted to rotate around axis 25.

## Claims

1. A machine to process wood panels (2) or the like comprising a base (5); a locking device (10) to hold at least one panel (2) on the base (5); an edgebanding assembly (16) to edgeband a lateral edge (4) of the panel (2) with a finishing band (17), the edgebanding assembly (16) comprising, in turn, a glueing roller (22) to apply glue onto the lateral edge (4), a pressing roller (26) to press the finishing band (17) against the lateral edge (4) itself, and a heating device (28) to heat the finishing band (17) and allow it to be connected to the lateral edge (4); actuating means (11) to move the locking device (10) and the edgebanding assembly (16) relative to one another in two directions (6, 9), which are substantially horizontal and transverse to one another; a first operating device to move the glueing roller (22) around a first rotation axis (25), which is perpendicular to a support surface (P) supporting the panel (2), and is parallel to and distinct from a longitudinal axis (23) of the glueing roller (22) itself; wherein the heating device (28) is configured so as to feed a hot gas, in particular a hot gas under pressure, onto the finishing band (17) and comprises a hot gas outlet duct (31), which faces the finishing band (17) and is mobile around the first rotation axis, which is parallel to and distinct from a longitudinal axis (32) of the outlet duct (31) itself; and **characterized in that** the machine further comprises a second operating device to move the pressing roller (26) around a second rotation axis, which is perpendicular to a support surface (P) supporting the panel (2), and is parallel to and distinct from a longitudinal axis (27) of the pressing roller (26) itself.
2. A machine according to claim 1, wherein said first (25) and second rotation axes (25) coincide with one another.
3. A machine according to claim 1, wherein said first and second operating devices are configured so as to move said glueing and pressing rollers (22, 26)

around the relative first and second rotation axis with respective laws of motion that are independent from one another.

4. A machine according to any of the previous claims, wherein the outlet duct (31) is mobile around the first rotation axis (25) under the thrust of the first operating device.
5. A machine according to any of the previous claims, wherein the base (5) is an elongated base extending in a first said direction (6); the machine comprising, furthermore, an overhead crane (11), which is mobile along the base (5) in the first direction (6), extends above the base (5) in a second said direction (9), and supports an operating head (14), which is suited to carry out a chipping machining of the panel (2).
6. A machine according to claim 5, wherein the operating head (14) and the edgebanding assembly (16) are mobile along the overhead crane (11) in the second direction (9).

#### Patentansprüche

1. Eine Maschine zum Bearbeiten von Holzplatten (2) oder dergleichen, umfassend eine Basis (5); eine Verriegelungsvorrichtung (10) zum Halten wenigstens einer Platte (2) an der Basis (5); eine Kantenleimvorrichtung (16), um eine Seitenkante (4) der Platte (2) mit einem Abschlussband (17) zu verleimen, wobei die Kantenleimvorrichtung (16) wiederum eine Leimwalze (22) umfasst, um Leim auf die Seitenkante (4) aufzutragen, ferner eine Presswalze (26), um das Abschlussband (17) gegen die Seitenkante (4) selbst zu drücken, und eine Heizvorrichtung (28), um das Abschlussband (17) aufzuheizen und zu ermöglichen, dass es mit der Seitenkante (4) verbunden wird; Betätigungsmittel (11) zum Bewegen der Verriegelungsvorrichtung (10) und der Kantenleimvorrichtung (16) relativ zueinander in zwei Richtungen (6, 9), die im Wesentlichen horizontal und quer zueinander verlaufen; eine erste Betätigungseinrichtung zum Bewegen der Leimwalze (22) um eine erste Drehachse (25), die senkrecht zu einer Stützfläche (P), welche die Platte (2) trägt, ist, und welche parallel und verschieden zu einer Längsachse (23) der Leimwalze (22) selbst ist; wobei die Heizvorrichtung (28) eingerichtet ist, heißes Gas, insbesondere unter Druck stehendes heißes Gas, auf das Abschlussband (17) zu führen, und einen Heißgasauslasskanal (31) umfasst, der dem Abschlussband (17) gegenübersteht und beweglich um die erste Drehachse ist, die parallel und verschieden von einer Längsachse (32) des Auslasskanals (31) selbst ist; und **dadurch gekennzeichnet, dass** die Maschine ferner eine zweite Betätigungseinrichtung

umfasst, um die Presswalze (26) um eine zweite Drehachse zu bewegen, die senkrecht zu einer Stützfläche (P), welche die Platte (2) trägt, und parallel zu einer Längsachse (27) der Presswalze (26) selbst ist und sich von dieser unterscheidet.

2. Eine Maschine gemäß Anspruch 1, wobei die genannte erste (25) und zweite Drehachse (25) zusammenfallen.
3. Eine Maschine gemäß Anspruch 1, wobei die genannte erste und zweite Betätigungseinrichtung derart ausgeführt sind, dass sie die genannten Leim- und Presswalzen (22, 26) um die relative erste und zweite Drehachse bewegen, mit jeweiligen Bewegungsgesetzen, die unabhängig voneinander sind.
4. Eine Maschine gemäß einem der vorhergehenden Ansprüche, wobei der Auslasskanal (31) beweglich um die erste Drehachse (25) unter dem Schub der ersten Betätigungseinrichtung ist.
5. Eine Maschine gemäß einem der vorhergehenden Ansprüche, wobei die Basis (5) eine lang ausgestreckte Basis ist, die sich in einer ersten der genannten Richtungen (6) erstreckt, wobei die Maschine ferner einen Laufkran (11) umfasst, der beweglich entlang der Basis (5) in der ersten Richtung (6) ist, sich über die Basis (5) in einer zweiten der genannten Richtungen (9) erstreckt und einen Bearbeitungskopf (14) trägt, der geeignet ist, eine Spanbearbeitung an der Platte (2) auszuführen.
6. Eine Maschine gemäß Anspruch 5, wobei der Bearbeitungskopf (14) und die Kantenleimvorrichtung (16) beweglich entlang des Laufkranes (11) in der zweiten Richtung (9) sind.

#### Revendications

1. Machine de traitement de panneaux de bois (2) ou similaire comprenant une base (5) ; un dispositif de verrouillage (10) pour maintenir au moins un panneau (2) sur la base (5) ; un ensemble de placage de chants (16) pour plaquer les chants d'une arête latérale (4) du panneau (2) avec une bande de finition (17), l'ensemble de placage de chants (16) comprenant, à son tour, un rouleau de collage (22) pour appliquer de la colle sur l'arête latérale (4), un rouleau de pressage (26) pour presser la bande de finition (17) contre l'arête latérale (4) elle-même, et un dispositif de chauffage (28) pour chauffer la bande de finition (17) et lui permettre d'être reliée à l'arête latérale (4) ; des moyens d'actionnement (11) pour déplacer le dispositif de verrouillage (10) et l'ensemble de placage de chants (16) l'un par rapport à l'autre dans deux directions (6, 9) qui sont sensible-

ment horizontales et transversales l'une à l'autre ;  
 un premier dispositif opérationnel pour déplacer le  
 rouleau de collage (22) autour d'un premier axe de  
 rotation (25) qui est perpendiculaire à une surface  
 de support (P) supportant le panneau (2), et est pa- 5  
 rallèle et distinct d'un axe longitudinal (23) du rouleau  
 de collage (22) lui-même ; dans laquelle le dispositif  
 de chauffage (28) est configuré de sorte à fournir un  
 gaz chaud, en particulier un gaz chaud sous pres- 10  
 sion, sur la bande de finition (17) et comprend un  
 conduit de sortie de gaz chaud (31) qui fait face à la  
 bande de finition (17) et est mobile autour du premier  
 axe de rotation qui est parallèle et distinct d'un axe  
 longitudinal (32) du conduit de sortie (31) lui-même ;  
 et **caractérisée en ce que** la machine comprend en 15  
 outre un deuxième dispositif opérationnel pour dé-  
 placer le rouleau de pressage (26) autour d'un  
 deuxième axe de rotation, qui est perpendiculaire à  
 une surface de support (P) supportant le panneau  
 (2), et est parallèle et distinct d'un axe longitudinal 20  
 (27) du rouleau de pressage (26) lui-même.

2. Machine selon la revendication 1, dans laquelle les-  
 dits premier (25) et deuxième axes de rotation (25)  
 coïncident l'un avec l'autre. 25
3. Machine selon la revendication 1, dans laquelle les-  
 dits premier et deuxième dispositifs opérationnels  
 sont configurés de sorte à déplacer lesdits rouleaux  
 de collage et de pressage (22, 26) autour des pre- 30  
 mier et deuxième axes de rotation relatifs avec des  
 lois de mouvement respectives qui sont indépen-  
 dantes les unes des autres.
4. Machine selon l'une quelconque des revendications 35  
 précédentes, dans laquelle le conduit de sortie (31)  
 est mobile autour du premier axe de rotation (25)  
 sous la poussée du premier dispositif opérationnel.
5. Machine selon l'une quelconque des revendications 40  
 précédentes, dans laquelle la base (5) est une base  
 allongée s'étendant dans une première dite direction  
 (6) ; la machine comprenant, de plus, un pont roulant  
 suspendu (11) qui est mobile le long de la base (5)  
 dans la première direction (6), s'étend au-dessus de 45  
 la base (5) dans une deuxième dite direction (9), et  
 supporte une tête opérationnelle (14) qui est adaptée  
 pour réaliser un usinage par enlèvement de copeaux  
 du panneau (2). 50
6. Machine selon la revendication 5, dans laquelle la  
 tête opérationnelle (14) et l'ensemble de placage de  
 chants (16) sont mobiles le long du pont roulant sus-  
 pendu (11) dans la deuxième direction (9). 55

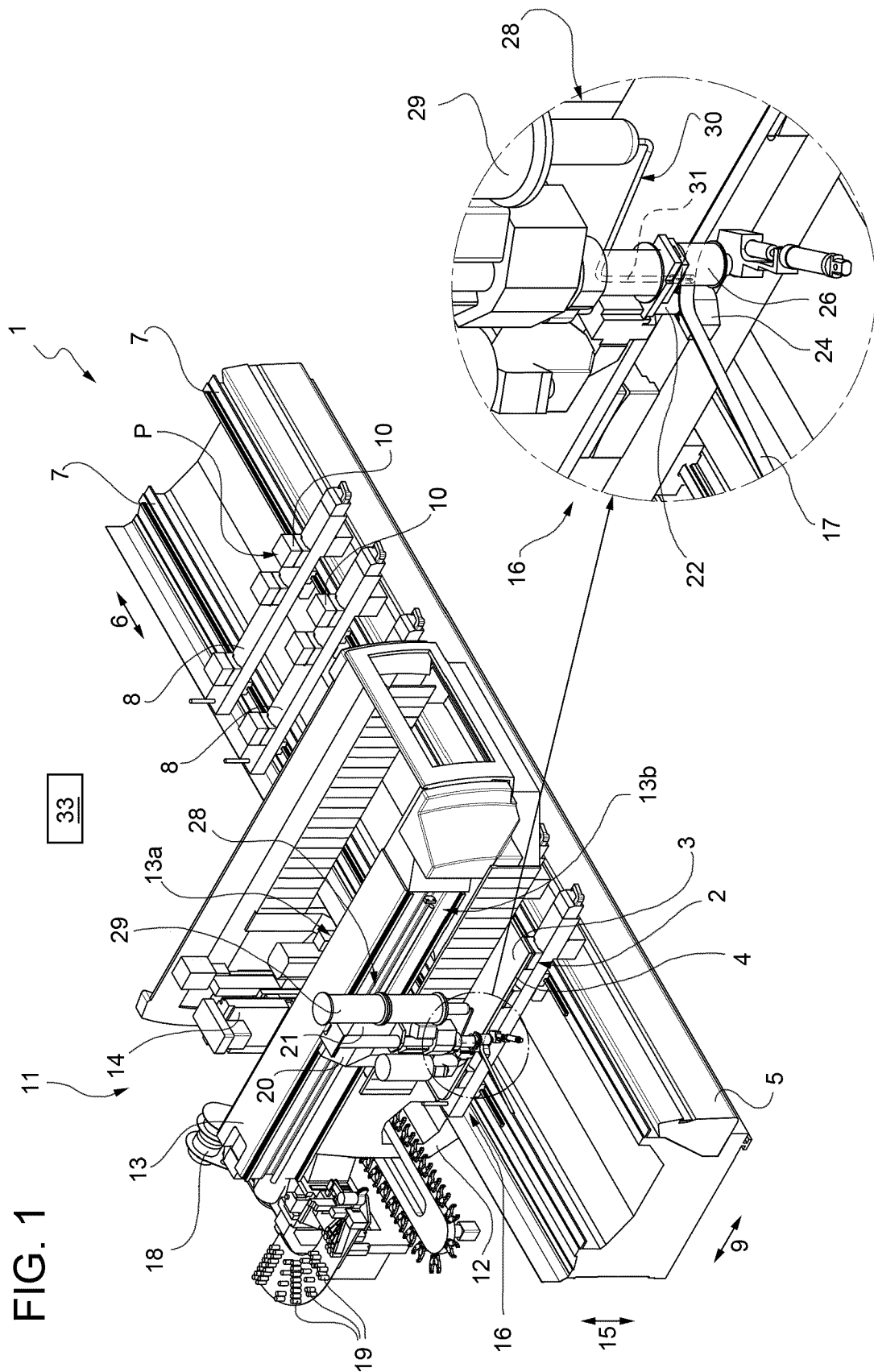
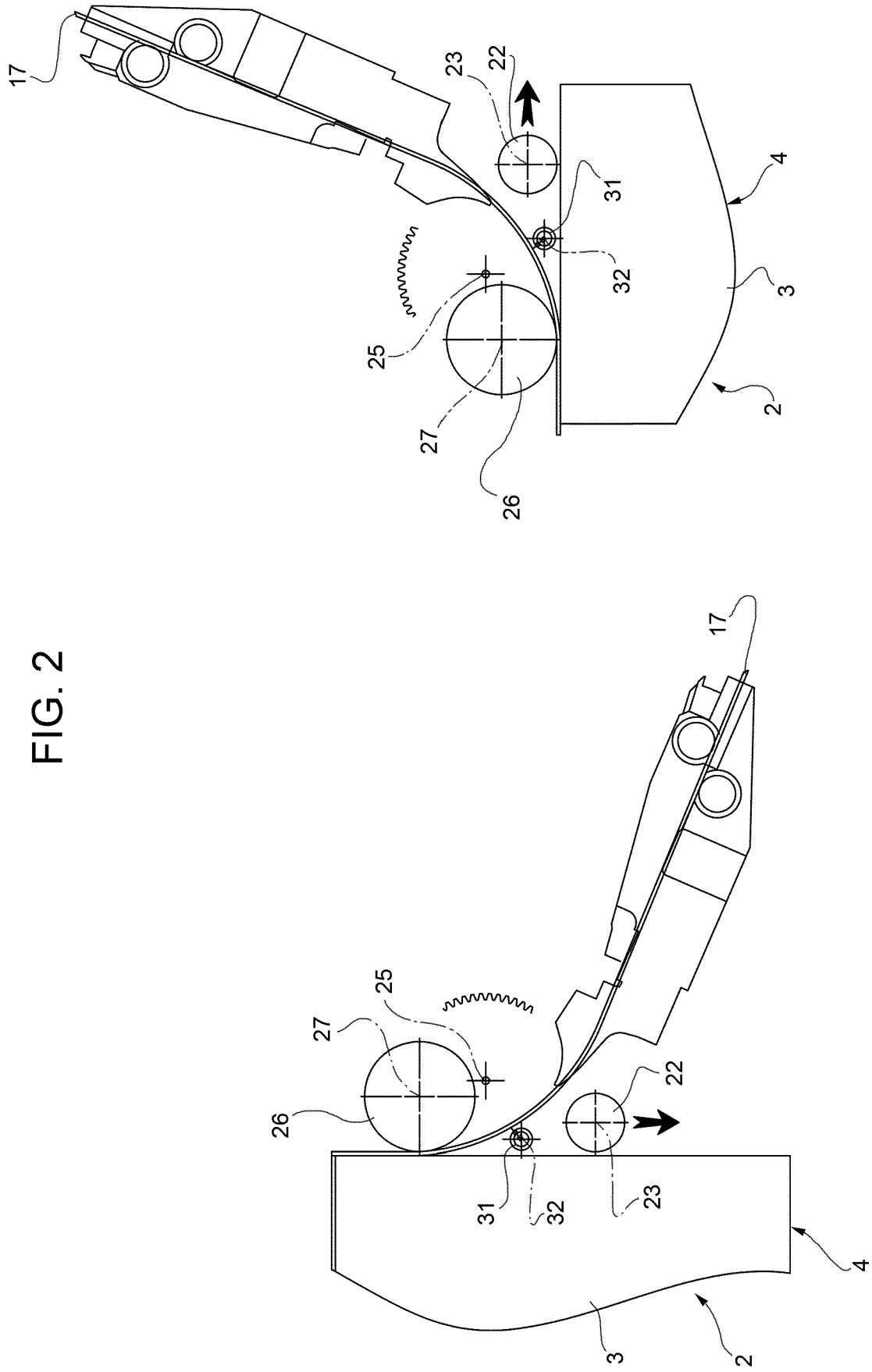


FIG. 1



**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

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