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(54) **END TRIMMER ASSEMBLY FOR EDGEBANDING MACHINES TO EDGEBAND PANELS MADE OF WOOD OR THE LIKE**

(57) An end trimmer assembly for edgbanding machines to edgband panels (2) made of wood or the like provided with: at least one cutting device (12) to cut at least part of an end portion (7) of a finishing edge (6) projecting from a side face (5) of a panel (2); a copy attachment (13) designed to be arranged in contact, in use, with the side face (5); and an electric motor (21) for mov-

ing the copy attachment (13) between an operating position, wherein the copy attachment (13) is arranged inside a feeding path (P) of the panels (2) and in contact with the first side face (5), and a rest position, wherein the copy attachment (13) disengages the first side face (5) and is arranged outside the feeding path (P) of the panels (2).

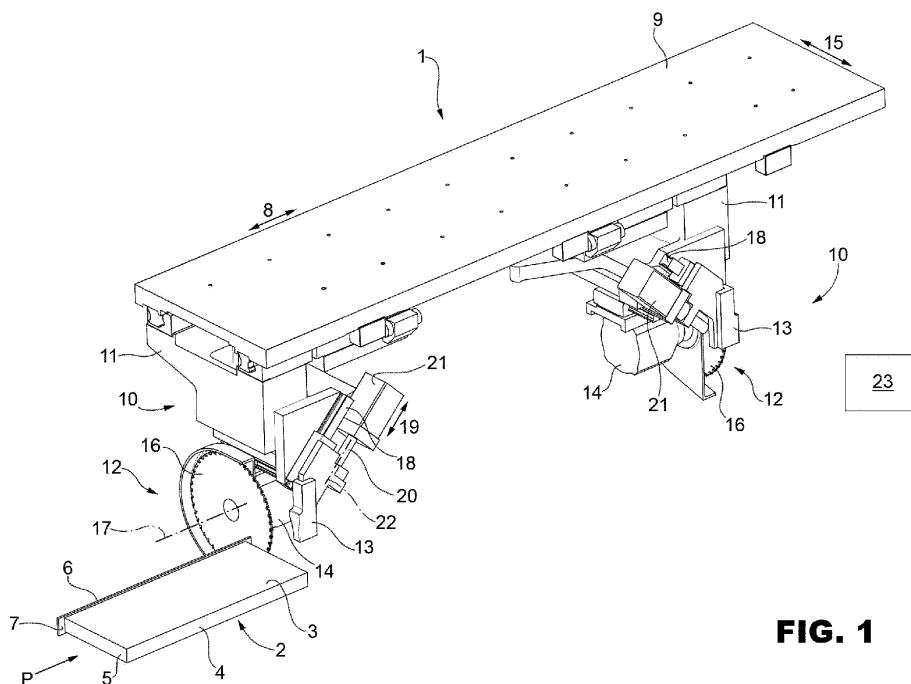


FIG. 1

Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This patent application claims priority from Italian patent application no. 102019000014130 filed on 06/08/2019.

TECHNICAL FIELD

[0002] This invention relates to an end trimmer assembly for edgebanding machines to edgeband panels made of wood or the like.

BACKGROUND ART

[0003] Each panel has two larger side faces parallel to each other, two first smaller side faces parallel to each other and perpendicular to the larger side faces, and two second smaller side faces parallel to each other and perpendicular to the first smaller side faces.

[0004] At least one of the second smaller side faces is provided with a finishing edge that normally has two opposite end portions, each of which projects from a relative first smaller side face in a first direction, which is orthogonal to the first smaller side face.

[0005] The end trimmer assembly comprises a support frame and, for each end portion of the finishing edge, a corresponding end trimming unit.

[0006] Each end trimming unit comprises a slide coupled in a sliding manner to the support frame to move straight along the support frame in the first direction; a copy attachment mounted on the slide and designed to be arranged in contact, in use, with the first smaller side face; and a cutting device mounted on the slide to move in a second direction transverse to the first direction and parallel to its first smaller side face and to cut at least part of the end portion of the finishing edge.

[0007] The copy attachment is coupled to the slide in a sliding manner to move in a third direction inclined in relation to the first direction between an operating position, wherein the copy attachment is arranged inside a feeding path of the panels in the first direction and in contact with the first smaller side face, and a rest position, wherein the copy attachment disengages the first smaller side face and is arranged outside the feeding path of the panels.

[0008] The copy attachment is moved between its operating position and its rest position by a pneumatic actuator mounted on the slide and provided with an output rod connected to the copy attachment.

[0009] The known end trimmer assemblies of the type described above have some drawbacks mainly due to the fact that the pneumatic actuators used to move the copy attachments between their operating positions and their rest positions involve relatively long times for moving the copy attachments, are unable to selectively control the operating position of the copy attachments and,

therefore, the part of each end portion that is separated from the finishing edge, and have, therefore, relatively reduced flexibility and versatility.

5 DISCLOSURE OF INVENTION

[0010] The object of this invention is to provide an end trimmer assembly for edgebanding machines to edgeband panels made of wood or the like, which is free from the drawbacks described above and simple and inexpensive to manufacture.

[0011] According to this invention, an end trimmer assembly for edgebanding machines to edgeband panels made of wood or the like is provided as claimed in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] This invention will now be described with reference to the appended drawings, which illustrate a non-limiting embodiment, wherein:

Figure 1 is a schematic perspective view, with parts removed for the sake of clarity, of a preferred embodiment of the end trimmer assembly according to this invention;

Figure 2 is a schematic plan view, with parts removed for the sake of clarity, of a detail of the end trimmer assembly in Figure 1; and

Figure 3 is a schematic side view, on an enlarged scale and with parts removed for the sake of clarity, of the detail in Figure 2.

BEST MODE FOR CARRYING OUT THE INVENTION

[0013] With reference to Figure 1, the reference numeral 1 indicates, as a whole, an end trimmer assembly for finishing substantially flat panels 2 made of wood or the like.

[0014] In this case, each panel 2 has a substantially parallelepiped shape, and is delimited by two larger side faces 3 parallel to each other, by two smaller side faces 4 parallel to each other and perpendicular to the faces 3, and by two smaller side faces 5 parallel to each other and perpendicular to the faces 3 and 4.

[0015] At least one of the faces 4 is provided with a finishing edge 6 that has, in its initial configuration, two opposite end portions 7, each of which projects from a corresponding face 5 in a horizontal direction 8 that is perpendicular to the faces 5.

[0016] The end trimmer assembly 1 comprises an elongated frame 9, which extends in the direction 8, and supports two end trimming units 10, each of which is associated with a corresponding portion 7.

[0017] Each unit 10 comprises a horizontal slide 11, which is coupled in a sliding manner to the frame 9 to make, in relation to the frame 9 and under the thrust of an electric motor not shown, straight movements in the

first direction 8, and supports a cutting device 12 and a front copy attachment 13.

[0018] The device 12 comprises an electrospindle 14, which extends in the direction 8, and is coupled in a sliding manner to the slide 11 to make, in relation to the slide 11 and under the thrust of an electric motor not illustrated, straight movements in a direction 15 transverse to the direction 8 and parallel to the faces 5.

[0019] The electrospindle 14 is equipped with an output shaft (not illustrated), which has a fitted cutting blade 16 mounted so as to rotate around a rotation axis 17 that is substantially parallel to the direction 8.

[0020] The copy attachment 13 is coupled in a sliding manner to a guide 18, which is formed on the slide 11, and extends in a direction 19 that is inclined according to an angle ranging between 0° and 90° in relation to the direction 8.

[0021] The copy attachment 13 is coupled, in addition, by means of a screw-nut coupling, to an output shaft 20 of an electric motor 21 mounted to rotate about a rotation axis 22 parallel to the direction 19.

[0022] The copy attachment 13 is moved by the motor 21 in the direction 19 between a lowered operating position (illustrated in dashed lines in Figure 3), wherein the copy attachment 13 projects inside a feeding path P for the panels 2 in the direction 8 and is arranged in contact with the corresponding face 5, and a raised rest position (Figures 1 and 2), wherein the copy attachment 13 disengages the corresponding face 5 and is arranged outside the path P.

[0023] The electric motor (not illustrated) of the slide 11, the electric motor (not illustrated) of the electrospindle 14, and the electric motor 21 of the copy attachment 13 are each connected to a corresponding control member (not illustrated), in particular an encoder, for controlling an angular position of the corresponding output shaft.

[0024] The above-mentioned encoders (not illustrated) are connected to an electronic control unit 23 configured to control the operation of each electric motor as a function of a signal coming from the corresponding encoder (not illustrated).

[0025] In particular, the motor 21 is driven by the control unit 23 so as to selectively control the operating position of the copy attachment 13, that is to say the position of the copy attachment 13 in relation to the blade 16 in the direction 8 and, thus, the quantity of end portion 7 separated from the finishing edge 6.

[0026] In use the panels 2 are moved forward in the direction 8 to allow each end trimming unit 10, combining the movements of the corresponding slide 11 in the direction 8, the movements of the corresponding electrospindle 14 in the direction 15, and the movements of the corresponding copy attachment 13 in the direction 19, to separate at least part of the corresponding end portion 7 from the finishing edge 6.

[0027] The end trimmer assembly 1 has some advantages mainly deriving from the fact that the electric motors 21 make it possible to move the copy attachments 13

between their operating positions and their rest positions with relatively reduced moving times, to enable the selective control of the operating position of the copy attachments 13 and, therefore, the part of each portion 7 separated from the edge 6, and to have, therefore, relatively high flexibility and versatility.

Claims

1. An end trimmer assembly for edgbanding machines to edgband panels (2) made of wood or the like, each panel (2) being delimited by a first side face (5) and by a second side face (4), which is orthogonal to the first side face (5) and is provided with a finishing edge (6) having at least one end portion (7) projecting from the first side face (5) in a first direction (8), which is orthogonal to the first side face (5); the end trimmer assembly comprising at least one cutting device (12) to cut at least part of the end portion (7); a copy attachment (13) designed to be arranged, in use, in contact with the first side face (5); and an operating device to move the copy attachment (13) between an operating position, in which the copy attachment (13) is arranged inside a feeding path (P) of the panels (2) and in contact with the first side face (5), and a rest position, in which the copy attachment (13) disengages the first side surface (5) and is arranged on the outside of the feeding path (P) of the panels (2); and being **characterized in that** the operating device comprises a first electric motor (21) to move the copy attachment (13) between said operating and rest positions.
2. The end trimmer assembly according to claim 1, wherein the copy attachment (13) is movable with a straight motion between said operating and rest positions.
3. The end trimmer assembly according to claim 1 or 2, wherein the copy attachment (13) is coupled to an output shaft (20) of the first electric motor (21) by means of a screw-nut coupling.
4. The end trimmer assembly according to any one of the preceding claims, wherein the operating device comprises a control member, in particular an encoder, to control an angular position of an output shaft (20) of the first electric motor (21); the control member being connected to an electronic control unit (23), which is configured to control the operation of the first electric motor (21) based on a signal coming from the control member.
5. The end trimmer assembly according to any one of the preceding claims and further comprising a slide (11), which is movable in the first direction (8); the cutting device (12) and the copy attachment (13) be-

ing mounted on the slide (11).

6. The end trimmer assembly according to claim 5 and further comprising a second electric motor to move the slide (11) in the first direction (8). 5
7. The end trimmer assembly according to any one of the preceding claims and further comprising a third electric motor to move the cutting device (12) in a second direction (15), which is transverse to the first direction (8) and parallel to the first side face (5). 10

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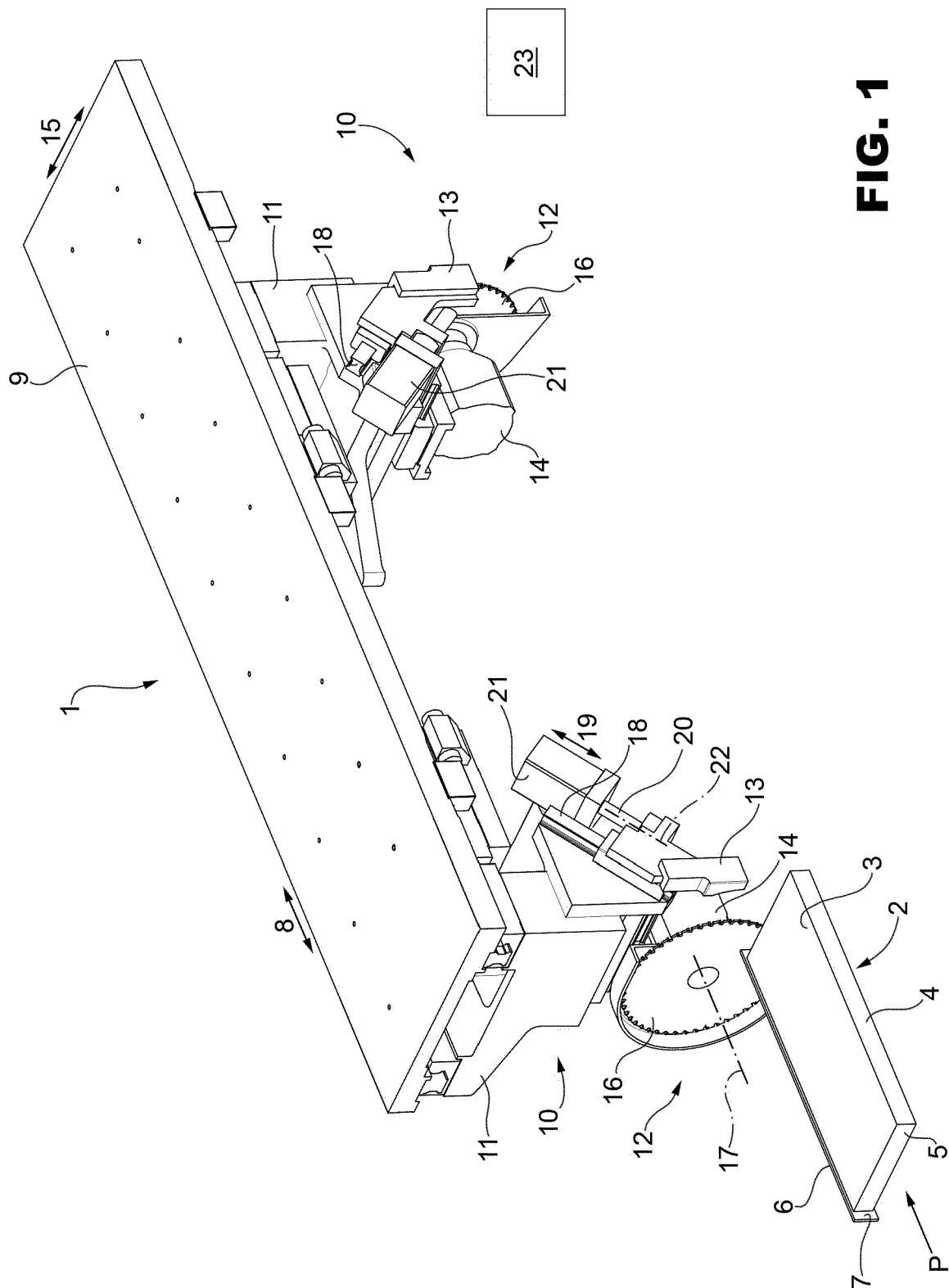
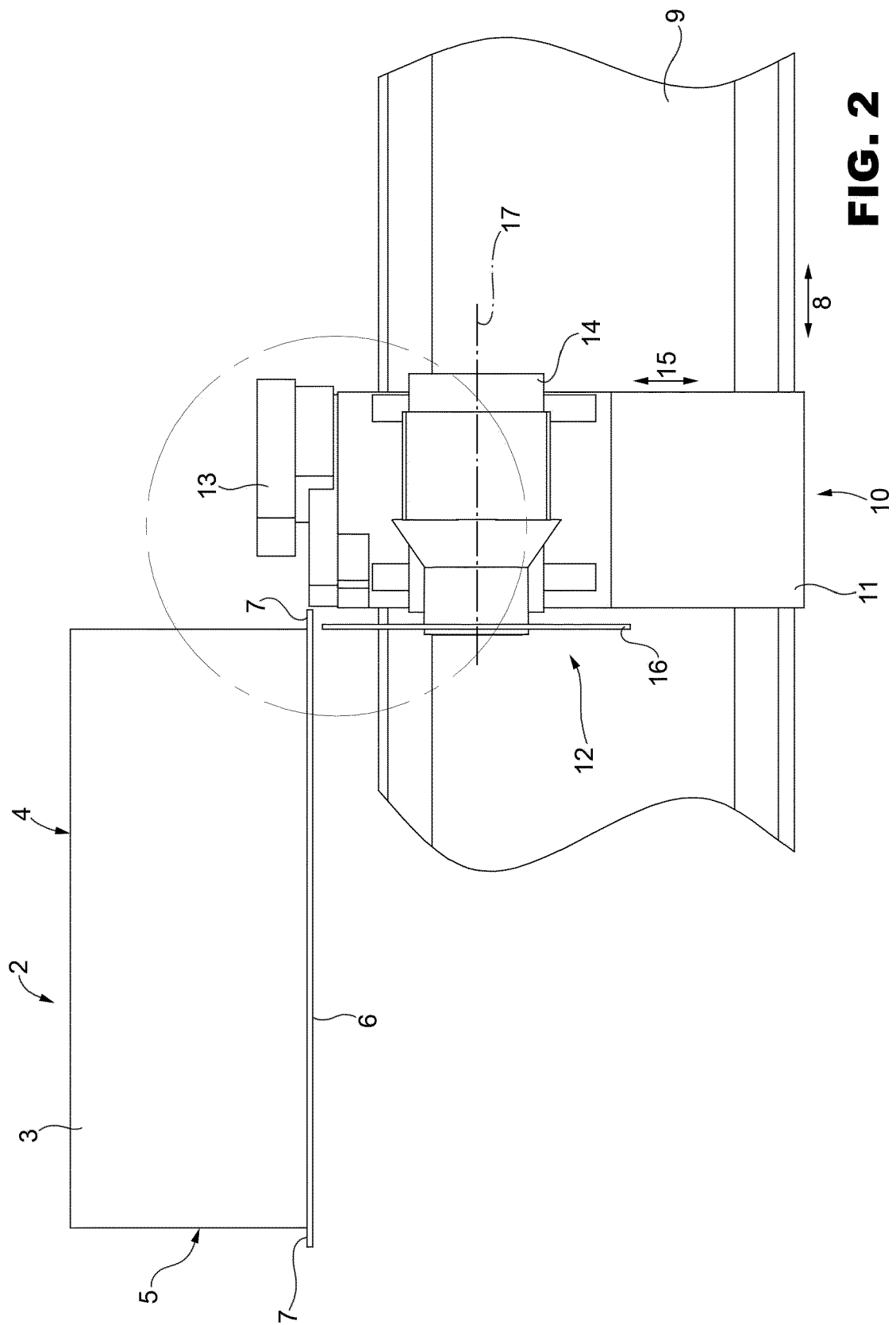


FIG. 1



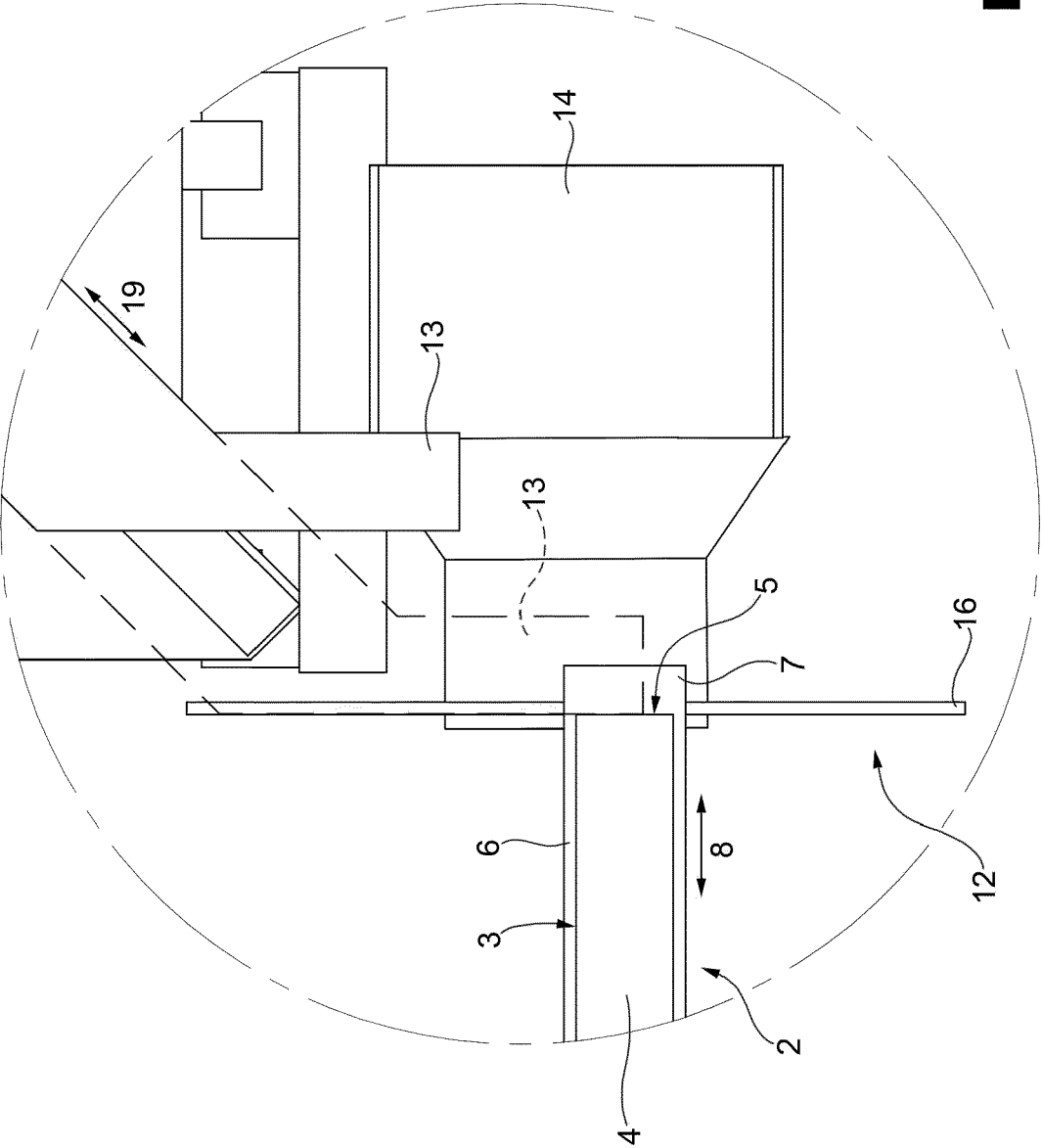


FIG. 3



EUROPEAN SEARCH REPORT

 Application Number
 EP 20 18 9437

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	IT PN20 080 070 A1 (BORTOLINI ENGINEERING S N C) 1 April 2010 (2010-04-01) * paragraph [0004] * * page 16, line 7 - line 13 * * figures 7, 8, 11-14 *	1-7	INV. B27D5/00
X	DE 26 10 711 A1 (STEGHERR LUDOLF) 15 September 1977 (1977-09-15) * claim 1 * * page 5, line 11 - line 15 * * figures *	1-7	
			TECHNICAL FIELDS SEARCHED (IPC)
			B27D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 7 December 2020	Examiner Hamel, Pascal
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 EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 20 18 9437

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The members are as contained in the European Patent Office EDP file on
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
IT PN20080070 A1	01-04-2010	NONE	
DE 2610711 A1	15-09-1977	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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