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(54) SQUARE ROTARY JOINT

(57) The present invention provides a square rotary joint, which mainly comprises a square body and a pivoting body, wherein the square body is internally disposed with a channel, and each of the two sides of the square body is disposed with a first connecting portion and a second connecting portion respectively. The first connecting portion and the second connecting portion are connected to the channel, the square body is disposed with a pivoting portion on one side thereof, and the pivoting portion is in communication with the channel. The pivoting body is mutually pivoted with the pivoting portion and is in communication with the channel, one end of the pivoting body is configured to introduce a gas into the channel, so that the gas can be introduced to the first connecting portion and the second connecting portion. Therefore, the present invention provides a rotary joint which is easy to install and is able to reduce occupied space, thereby reducing the number of the operation in process and the space occupied by the paper-pulp molding platform.

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Description

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

[0001] The present invention relates to a shunt joint, and more particularly to a square rotary joint which is pivotally connected to a pivot body through a square body to provide easy installation and is able to reduce occupied space.

DESCRIPTION OF THE PRIOR ART

[0002] In daily life, paper products are one of the most used disposable products. To effectively manufacture paper cups, paper bowls or other paper products, manufacturers usually use a paper pulp molding machine to produce these related products.

[0003] When manufacturing paper related products, a plurality of forming molds forming molds are usually disposed on a molding platform, and when the molding platform is lowered and submerged into a pulp body, a blowing/suction device is provided suction to adsorb the pulp onto the forming mold and form a wet product conforming to the shape of the forming mold, and when the forming mold is intended to deliver the wet product to the upper platform, the blowing/suction device provides a blowing force to deliver the wet product to each of the mold bases of the upper platform for subsequent hot pressing, drying, etc., so that the water vapor of the wet product is separated to form a paper product.

[0004] However, when the blowing/suction device provides a gas (through suction or blowing), it is usually connected to an air guiding body via an external pivoting body provided on the molding platform (or the upper platform), wherein the air guiding body is connected to one of the connecting portions of a three-way pipe then to the external pivoting body, and the other two connecting portions are connected with a connecting pipe body to divert the gas to the other parts of the molding platform.

[0005] Since the three-way pipe itself is a circular pipe member, and each of the connecting pipe bodies is formed to extend outwardly from the center, when each connecting pipe body is connected with the external pivoting body or other connecting pipe body, it will greatly increase the area occupied by the gas dividing system.

[0006] In addition, since the three-way pipe is a circular pipe, when the three-way pipe is mounted on the molding platform, the fitting surface between the three-way pipe and the molding platform is only a bonding line, which cannot firmly mount the three-way pipe to the molding platform; and there is no reference surface or a stable surface between the three-way pipe and the molding platform. Therefore, when installing the three-way pipe, it is necessary to adjust the angle of the three-way pipe to the right angle to effectively install the three-way pipe.

[0007] Therefore, in order to improve the above-mentioned deficiencies, it is necessary to provide a shunt joint that is easy to install and can reduce the occupied space, thereby improving the problems such that the prior art flow dividing system occupies too much space and the three-way pipe cannot be easily mounted on the molding platform.

SUMMARY OF THE INVENTION

[0008] In order to solve the problems described above, it is an object of the present invention to provide a square rotary joint, which mainly uses a concave connecting portion formed by a square body to be connected with a pivoting body, a gas guiding pipe, and shunt pipe, and wherein the fitting surface of the square body is attached to the molding platform, thereby providing easy installation and reducing occupied space.

[0009] In order the achieve the above object, the present invention provides a square rotary joint, comprising: a square body internally disposed with a channel, and wherein each of the two sides of the square body is disposed with a first connecting portion and a second connecting portion respectively, the first connecting portion and the second connecting portion are connected to the channel, so the first connecting portion is in communication with the second connecting portion, the square body is disposed with a pivoting portion on one side thereof, and the pivoting portion is in communication with the channel; and a pivoting body, wherein the pivoting body is mutually pivoted with the pivoting portion and is in communication with the channel, one end of the pivoting body is configured to introduce a gas into the channel, so that the gas can be introduced to the first connecting portion and the second connecting portion.

[0010] Preferably, the square body is further disposed with a venting portion connected to the channel on one side so that the gas is introduced into the venting portion.

[0011] Preferably, the venting portion is in communication with an air chamber in a molding platform so that the gas is introduced into the air chamber via the venting portion.

[0012] Preferably, the molding platform is further disposed with a mold plate on another side for enclosing the air chamber, the mold plate is disposed with at least one forming mold being in communication with the air chamber, so that the gas in the air chamber is introduced into the forming mold.

[0013] Preferably, the square body has a lubricating portion disposed around the square body, and the lubricating portion is in communication with a pivot where the pivoting body is mutually pivoted with the pivoting portion, the lubricating portion introduces a lubricating fluid from the outside to the pivot.

[0014] Preferably, the venting portion is recessed to the inside of the square body.

[0015] Preferably, the square body has a fitting surface fitted with a molding platform.

[0016] Preferably, the first connecting portion is re-

cessed to the inside of the square body, the second connecting portion is recessed to the inside of the square body.

[0017] Preferably, the pivoting body has one end connected with an air guiding body and is in communication with the air guiding body internally, the air guiding body receives the gas from a gas supplying device and introduces the gas into the pivoting body.

[0018] Preferably, a connecting element is disposed between the pivoting body and the air guiding body, and the connecting element is disposed at a position where one end of the pivoting body is connected with the air guiding body and is used for fixing the position of the pivoting body connected with the air guiding body.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019]

Fig.1 illustrates a 3D perspective view from the left side of a square rotary joint of the present invention;

Fig.2 illustrates a 3D perspective view from the right side of the square rotary joint of the present invention;

Fig.3 illustrates a 3D perspective view from the top of the square rotary joint of the present invention;

Fig.4 illustrates a 3D perspective view from the bottom of the square rotary joint of the present invention;

Fig.5 illustrates a schematic view showing the installation of the square body of the present invention to a molding platform; and

Fig.6 illustrates a schematic view of the molding platform and a forming mold of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0020] In order to make the structure and characteristics as well as the effectiveness of the present invention to be further understood and recognized, the detailed description of the present invention is provided as follows along with embodiments and accompanying figures. It is noted that the specific embodiments described herein are merely illustrative of the invention and are not intended to limit the invention. Hereinafter, the present invention will be further described with reference to the drawings:

[0021] Please refer to Fig.1 to Fig.6, which are 3D perspective views from a left side view, a right side, a top side, and a bottom side of the present invention, and a schematic view showing the installation of the square body of the present invention to a molding platform, and a schematic view of the molding platform and a forming mold of the present invention, respectively. As shown in figures, a square rotary joint of the present invention mainly comprises a square body 10 and a pivoting body 20, wherein the square body 10 has a channel disposed inside. The channel is an open space mainly for receiving a gas, and the gas is introduced to each part in communication with the channel. The square body 10 has a first connecting portion 11 and a second connecting portion 12 on the two sides of the square body 10 respectively, the first connecting portion 11 and the second connecting portion 12 are connected to the channel, so that the first connecting portion 11 is in communication with the second connecting portion 12, and the first connecting portion 11 and the second connecting portion 12 are both substantially recessed inwardly from the circumference of the square body 10, so when a shunt pipe body 70 is connected to the first connecting portion 1 or the second connecting portion 12 is connected, it can be directly connected to the inside of the square body 10, thereby reducing the occupied space, and the shunt pipe body 70 can be extended from the square body 10 body itself to provide a more secure connection method (since one end of the shunt pipe body 70 is inserted into the square body 10, a connection between the shunt pipe body 70 and the first connection portion 11 or the second connecting portion 12 through the square body 10 can be secured).

[0022] The square body 10 is disposed with a pivoting portion 13 on one side thereof, wherein the pivoting portion 13 is in communication with the channel. The pivoting portion 13 can be a connecting portion having a bearing, and the bearing can be embedded in the square body 10, or simply used for connection with an element having the bearing or other pivoting function.

[0023] The square body 10 is further disposed with a venting portion 14 around the square body 10. In this embodiment, the venting portion 14 is disposed on a fitting surface 15 of the square body 10 in a manner of being recessed into the square body 10, and the venting portion 14 is connected to the channel so as to let the gas be introduced into the venting portion 14, wherein the venting portion 14 is in communication with an air chamber 31 of the molding platform 30 so that the gas is introduced into the air chamber 31 via the venting portion 14 , and a mold plate 32 is generally disposed on the other surface of the molding platform 30 to enclose the air chamber 31. The mold plate 32 is disposed with at least one forming mold 40, the forming mold 40 is in communication with the air chamber 31 so that the gas inside the air chamber 31 is introduced into the forming mold 40.

[0024] The fitting surface 15 is attached to the molding platform 30, therefore, through the arrangement of the fitting surface, when the square body 10 is installed by a user, the fitting surface 15 can be used as a reference surface of the square body 10 to place the square body 10 onto the molding platform 30, and then consequent installation procedures are performed, thereby facilitating the user to install the square body 10, and since the

fitting surface 15 is a flat surface, after the installation, the square body 10 can be stably attached to the molding platform 30.

[0025] The forming mold 40 described above generally comprises a mold chamber 41, a heating body 42 and a mold base 43, wherein the mold chamber 41 is disposed on the mold plate 43 and is in communication with the air chamber 31 to receive the gas introduced from the air chamber 31; the heating body 42 is disposed on one side of the mold chamber 41, so that the mold chamber 41 is sandwiched between the air chamber 31 and the heating body 42; the mold base 43 is connected with the heating body 42 to receive the thermal energy conducted by the heating body 42; wherein the mold chamber air chamber 41, the heating body 42 and the mold base 43 are in communication with each other internally, so that the gas received by the mold chamber 41 is introduced into the mold base 43.

[0026] In addition, the gas may also be introduced into a gas distribution area 33 via the shunt pipe body 70 connected with the first connecting portion 11 or the second connecting portion 12, after a hose 80 is connected to any outlet 331 of the gas distribution area 33, the gas is introduced into the mold chamber 41 through the hose 80, so the hose can facilitate effective introduction of the gas into the forming mold 40 to perform relevant molding processes.

[0027] the square body 10 is further disposed with a lubricating portion 16 around the square body, and the lubricating portion 16 is in communication with a pivot where the pivoting body 20 is mutually pivoted with the pivoting portion 13, the lubricating portion 16 introduces a lubricating fluid from the outside to the pivot so that a user can inject a lubricating fluid from the lubricating portion 16, thereby lubricating the bearing of the pivoting portion 13, or any pivoting member pivotally connected to the pivoting portion 13.

[0028] The pivoting body 20 (which can be an element that can be pivotally connected to the bearing in the pivoting portion 13 or an element having a pivoting function) is pivotally connected to the pivoting portion 13 and is in communication with the channel, one end of the pivoting body 20 is connected to an air guiding body, and is in communication with the air guiding body internally to receive the gas from a gas supplying device via the air guiding body, and to introduce the gas from the one end of the pivoting body 20 into the channel, so that the gas can be introduced to the first connecting portion 11, the second connecting portion 12, and the venting portion 14.

[0029] Additionally, in this embodiment, the pivoting body 20 is connected with the air guiding body via a connecting element 60, the connecting element 60 is disposed at a position where one end of the pivoting body 20 is connected with the air guiding body and is used for fixing the position of the pivoting body connected with the air guiding body.

[0030] Therefore, the present invention can achieve the effect of providing easy installation and reducing occupied space by using the square body, thereby improving the problems of the prior art.

[0031] In the description of the present invention, it is to be understood that the terms "center", "lateral", "upper", "lower", "left", "right", "top", "bottom", "inside", "outside" or the like are based on the orientation or positional relationship shown in the drawings, and is merely for the convenience of the description of the invention and the simplified description, and does not indicate or imply that the device or component referred to has a specific orientation, construction and operation in a particular orientation, which are not to be construed as limiting the invention.

[0032] The present invention has been described with preferred embodiment of the present invention; however, this embodiment is not intended to limit the scope of the patent of the present invention. Many changes and modifications in the above described embodiment of the invention can, of course, be carried out without departing from the scope thereof. Moreover, the present invention is not only innovative in terms of technical idea, but also has many of the above-mentioned functions that are not in the prior art techniques. It has fully complied with the patent requirements of novelty and progressiveness. Therefore, the application is submitted in accordance with the law in hope for permission to reward the invention.

[Reference Numerals]

[0033]

10	square body
11	first connecting portion
12	second connecting portion
13	pivoting portion
14	venting portion
15	fitting surface
16	lubricating portion
20	pivoting body
30	molding platform
31	air chamber
32	mold plate
33	gas distribution area
331	outlet
40	forming mold
41	mold chamber
42	heating body
43	mold base
60	connecting element
70	shunt pipe body
80	hose

Claims

1. A square rotary joint, comprising:

a square body internally disposed with a channel, wherein each of the two sides of the square body is disposed with a first connecting portion and a second connecting portion respectively, the first connecting portion and the second connecting portion are connected to the channel, so the first connecting portion is in communication with the second connecting portion, the square body is disposed with a pivoting portion on one side thereof, and the pivoting portion is in communication with the channel; and
a pivoting body, wherein the pivoting body is mutually pivoted with the pivoting portion and is in communication with the channel, one end of the pivoting body is configured to introduce a gas into the channel, so that the gas can be introduced to the first connecting portion and the second connecting portion.

2. The square rotary joint as claimed in Claim 1, wherein the square body is further disposed with a venting portion connected to the channel on one side so that the gas is introduced into the venting portion.

3. The square rotary joint as claimed in Claim 2, wherein the venting portion is in communication with an air chamber in a molding platform so that the gas is introduced into the air chamber via the venting portion.

4. The square rotary joint as claimed in Claim 3, wherein the molding platform is further disposed with a mold plate on another side for enclosing the air chamber, the mold plate is disposed with at least one forming mold being in communication with the air chamber, so that the gas in the air chamber is introduced into the forming mold.

5. The square rotary joint as claimed in Claim 2 or Claim 3, wherein the venting portion is recessed to the inside of the square body.

6. The square rotary joint as claimed in one of the preceding Claims, wherein the square body has a fitting surface fitted with a molding platform.

7. The square rotary joint as claimed in one of the preceding Claims, wherein the square body has a lubricating portion disposed around the square body, and the lubricating portion is in communication with a pivot where the pivoting body is mutually pivoted with the pivoting portion, the lubricating portion introduces a lubricating fluid from the outside to the pivot.

8. The square rotary joint as claimed in one of the preceding Claims, wherein the first connecting portion is recessed to the inside of the square body and the second connecting portion is recessed to the inside of the square body.

9. The square rotary joint as claimed in one of the preceding Claims, wherein the pivoting body has one end connected with an air guiding body and is in communication with the air guiding body internally, the air guiding body receives the gas from a gas supplying device and introduces the gas into the pivoting body.

10. The square rotary joint as claimed in one of the preceding Claims, wherein a connecting element is disposed between the pivoting body and the air guiding body, and the connecting element is disposed at a position where one end of the pivoting body is connected with the air guiding body and is used for fixing the position of the pivoting body connected with the air guiding body.

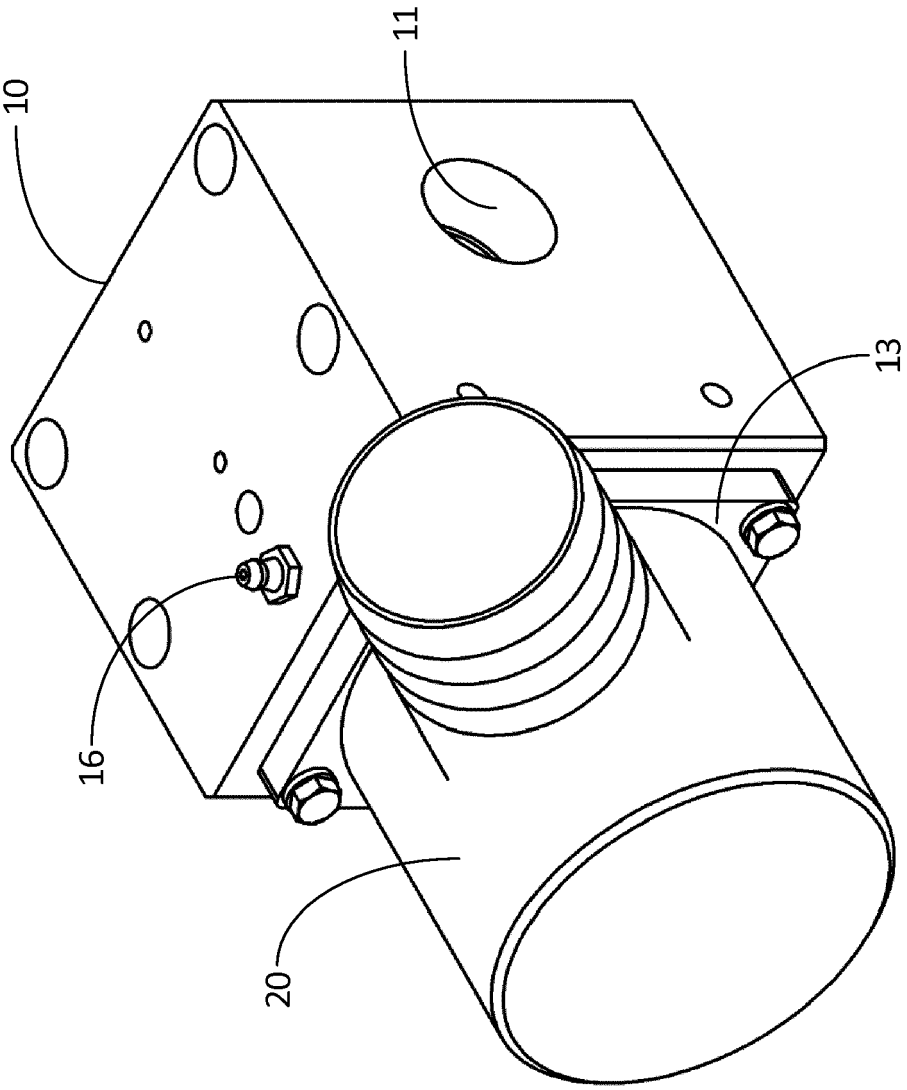

FIG. 1

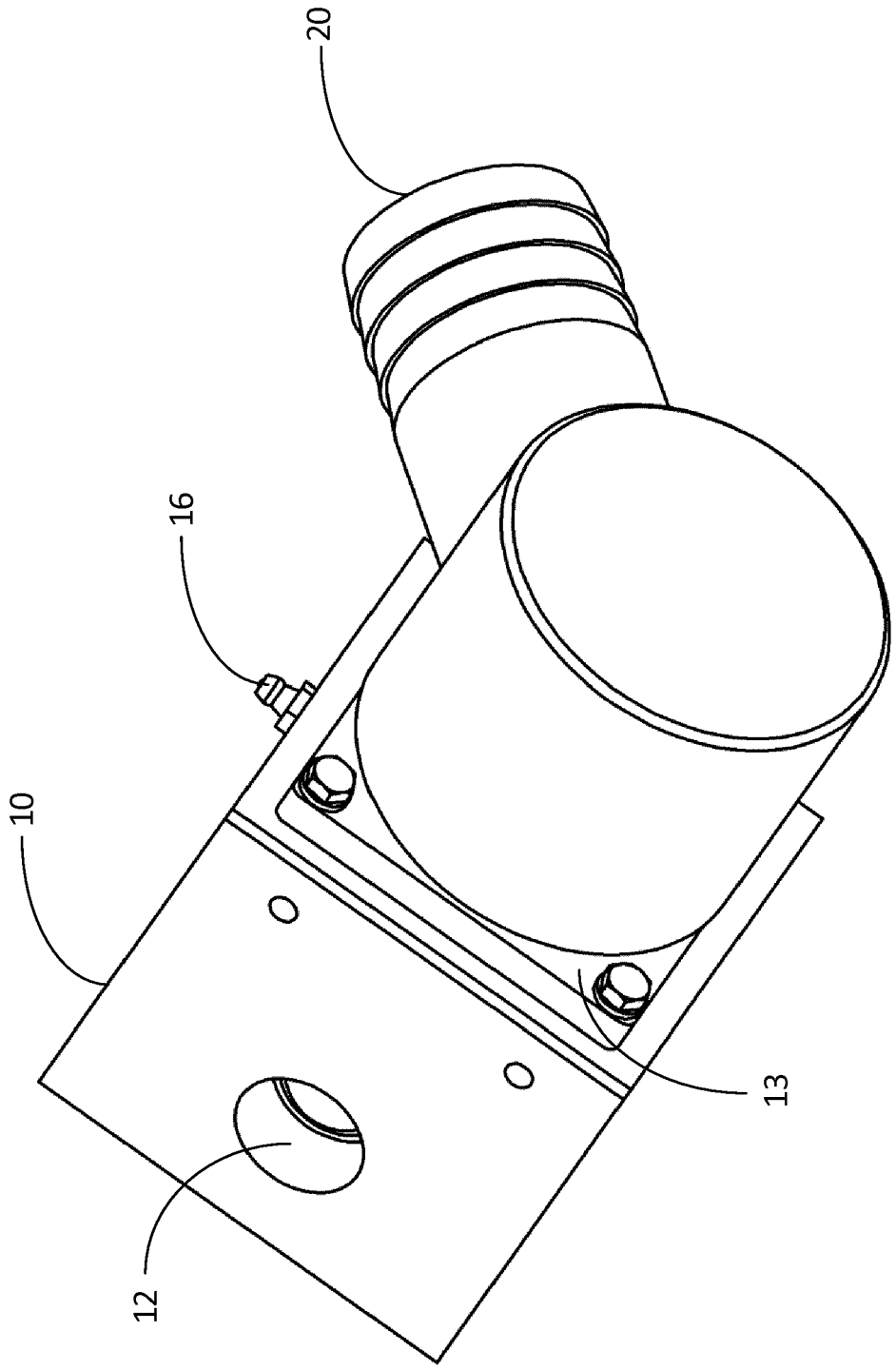

FIG. 2

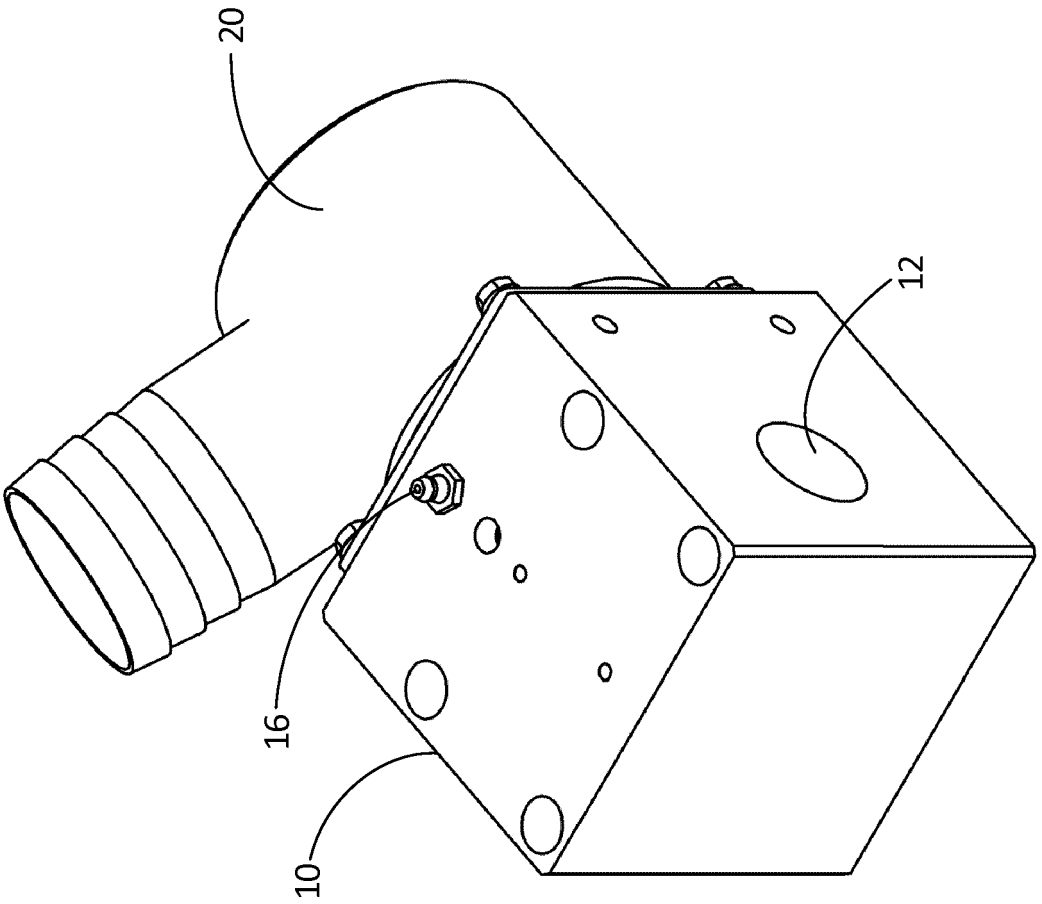

FIG. 3

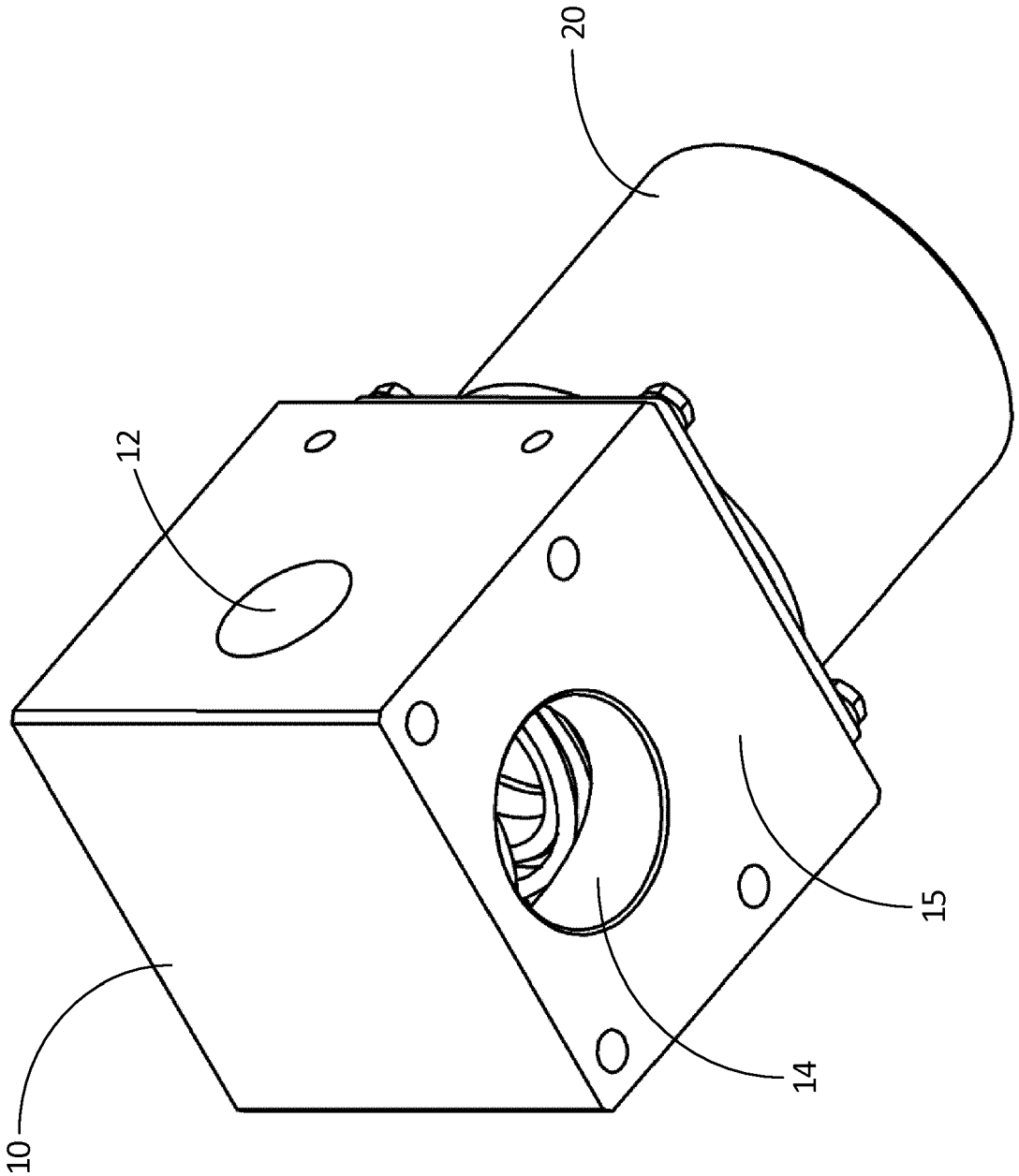

FIG. 4

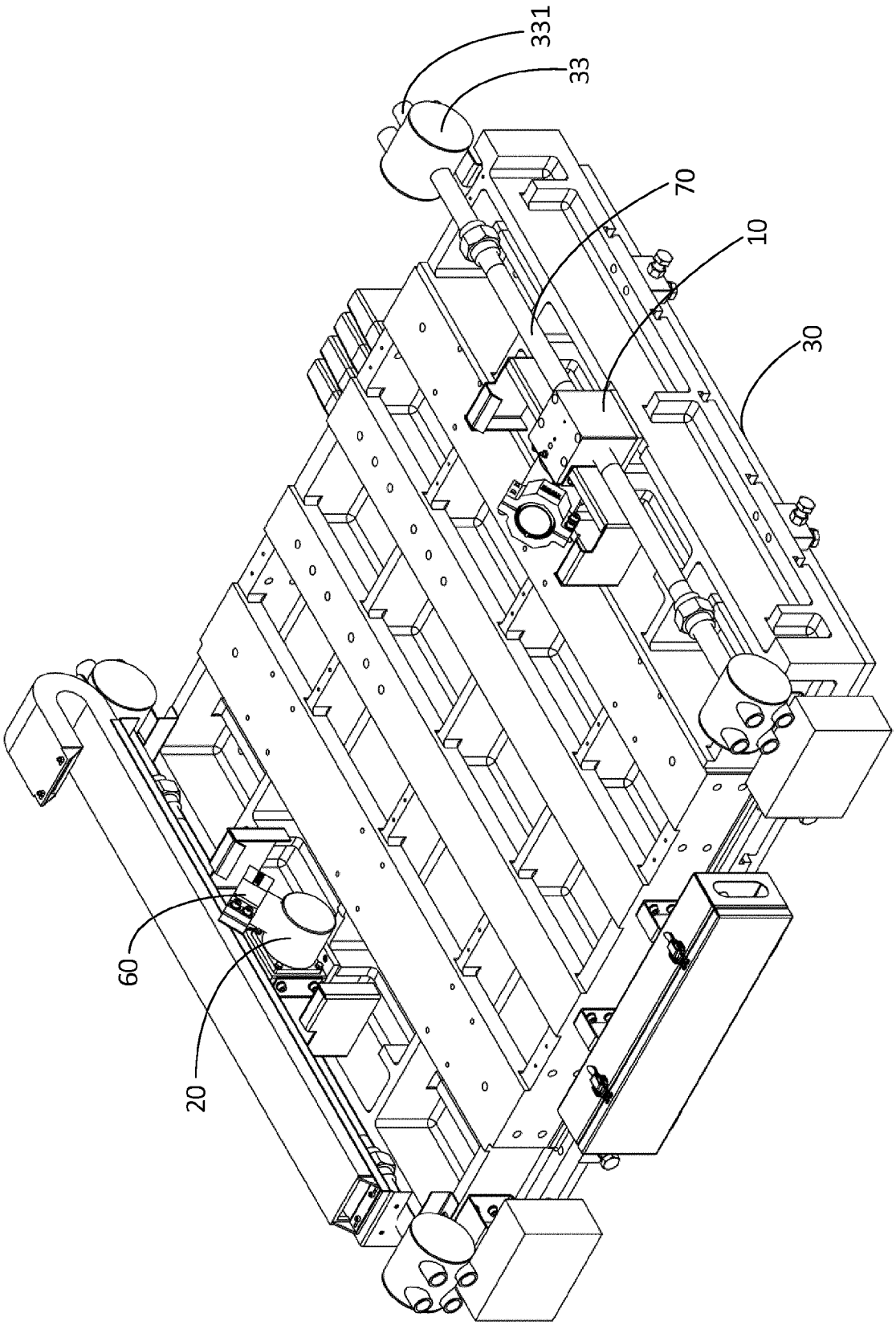

FIG. 5

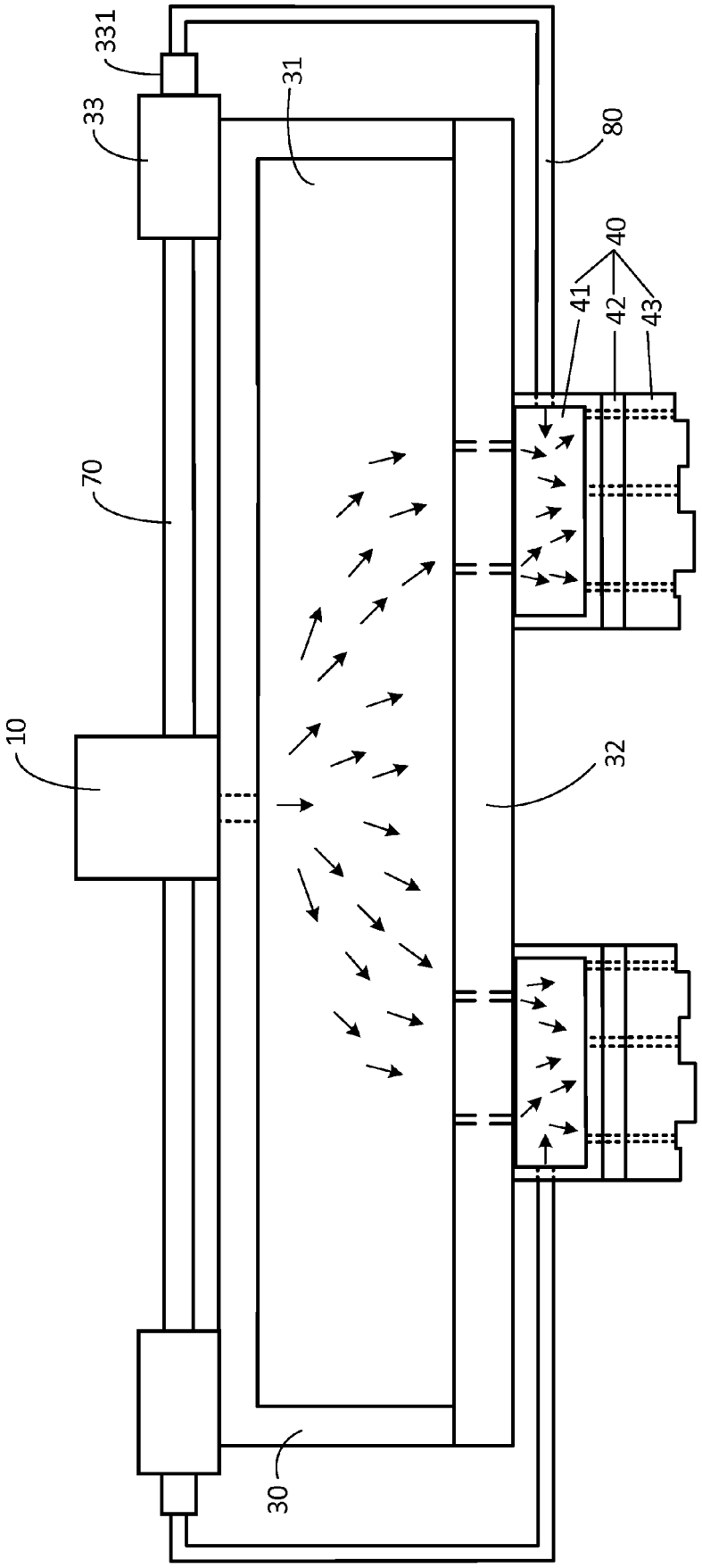

FIG. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 19 21 3550

DOCUMENTS CONSIDERED TO BE RELEVANT

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A	* paragraphs [0021] - [0025]; figures 3-5 *	3-10	

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	11 May 2020	Pregetter, Mario

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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