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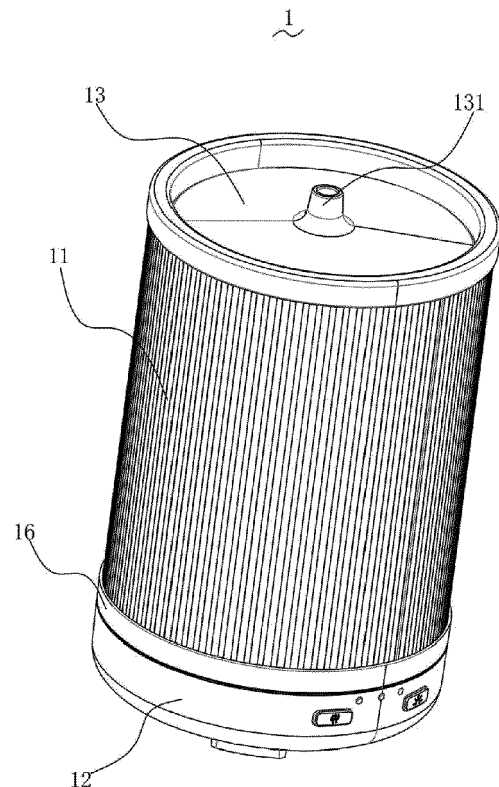
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(54) **A ROTARY DANCING AROMATHERAPY HUMIDIFIER**

(57) The present disclosure provides a rotary dancing aromatherapy humidifier, which includes a main machine body of the humidifier, a control circuit board arranged inside the main machine body of the humidifier, an atomizing plate sub-assembly and a rotary driving mechanism. The main machine body of the humidifier includes a water tank body, a rotating pattern ring with a grid pattern is located on the outside of the water tank body, a grid tube on the outside of the rotating pattern ring, and also includes a rotating seat for installing the rotating pattern ring; the rotating driving mechanism drives the rotating seat and the rotating pattern ring to rotate axially, and the atomizing plate sub-assembly and the rotating driving mechanism are electrically connected with the control circuit board.



**FIG.1**

**Figure 1**

## Description

### Technology Field

[0001] The present disclosure relates to the technical field of aromatherapy humidifier products, especially to a rotary dancing aromatherapy humidifier with reasonable structural design and outstanding application effect.

### Background

[0002] Humidifier is a kind of household appliance to increase the humidity of the room. The humidifier can humidify the designated room or connect with the boiler or central air conditioning system to humidify the whole building.

[0003] The development of the humidifier industry in China has a history of nearly 20 years. After years of popularization of the concept of air quality, product research and development and market cultivation, the functions of the humidifier, a relatively unfamiliar small household appliance, have been gradually accepted.

[0004] The current humidifier products generally adopt the intermittent opening and closing of the movable cover to squeeze the fog in the atomizing chamber to spray out from the opening of the movable cover to form a fog ring. The specific technical effect brought by such structural features is to spray a fog ring shape, and the function of the product is relatively single. There are no other functions that can improve the experience and humanization when using the product, which is not conducive to the better promotion and application of the product.

[0005] Based on this, the technicians in this field have changed and improved the specific structure of humidifier products, and achieved good results.

### Summary of the invention

[0006] In order to overcome the problems existing in the current technologies, the present disclosure provides a rotary dancing aromatherapy humidifier with a reasonable structural design and outstanding application effect.

[0007] The solution to the technical problem of the present disclosure is to provide a rotary dancing aromatherapy humidifier, which includes a main machine body of the humidifier, a control circuit board arranged inside the main machine body of the humidifier, an atomizing plate sub-assembly and a rotary driving mechanism;

[0008] The main machine body of the humidifier includes a water tank body, a rotating pattern ring with a grid pattern is located on the outside of the water tank body, a grid tube on the outside of the rotating pattern ring;

[0009] And also includes a rotating seat for installing the rotating pattern ring; the rotating driving mechanism drives the rotating seat and the rotating pattern ring to rotate axially;

[0010] And the atomizing plate sub-assembly and the

rotating driving mechanism are electrically connected with the control circuit board.

[0011] Preferably, the atomizing plate sub-assembly is located at the bottom of the water tank body;

[0012] It also includes a fan body arranged at the bottom of the main machine body of the humidifier; a vent hole is arranged at the bottom of the main machine body of the humidifier;

[0013] The upper part of the main machine body of the humidifier is also provided with a fog outlet nozzle for spraying fog ring or fog mist;

[0014] The fan body is electrically connected with the control circuit board.

[0015] Preferably, the rotating seat is at the bottom of the main machine body of the humidifier;

[0016] The outer circumference of the rotating seat is provided with a groove body, and the bottom ring of the rotating pattern ring is embedded in the groove body.

[0017] Preferably, the rotary driving mechanism includes a gear motor and a transmission gear connected with the output shaft of the gear motor;

[0018] The inner ring of the rotating seat is provided with some meshing grooves meshing with the transmission gear;

[0019] The gear motor is connected with the meshing groove through the transmission gear to drive the rotating seat to rotate axially.

[0020] Preferably, the grid tube includes some reflection gratings and transmission gratings arranged around in turn.

[0021] Preferably, the main machine body of the humidifier also includes a rotating mounting seat for setting the rotating seat and a humidifier base at the bottom of the rotating mounting seat;

[0022] The upper part of the water tank body is also provided with a spray cover which is matched and connected with the upper opening of the water tank body.

[0023] Preferably, the atomizing plate sub-assembly includes an atomizing plate and an atomizing plate pressing plate for fixing the atomizing plate;

[0024] The outside of the main machine body of the humidifier is also provided with a power access port and several control buttons.

[0025] Preferably, some luminous LED light beads are also pasted and arranged on the control circuit board.

[0026] Preferably, the rotary mounting seat includes a mounting seat base plate and a mounting seat diaphragm on the upper part of the mounting seat base plate;

[0027] The mounting seat diaphragm is provided with a notch at the transmission gear; and the transmission gear partly exposes the notch;

[0028] The rotating seat includes a rotating seat base plate and a rotating seat diaphragm on the upper part of the rotating seat base plate;

[0029] The meshing groove is arranged around the lower part of the rotating seat diaphragm.

[0030] Preferably, some columns for installing the control circuit board are also integrally formed on the inside

of the rotary mounting seat.

**[0031]** Compared with the current technologies, the rotary dancing aromatherapy humidifier of the present disclosure is provided with a main machine body of the humidifier, a control circuit board 18 arranged inside the main machine body of the humidifier, an atomizing plate sub-assembly and a rotary driving mechanism at the same time. The main machine body of the humidifier includes a water tank body 14, a rotating pattern ring 15 with a grid pattern 15 is located on the outside of the water tank body 14, a grid tube 11 on the outside of the rotating pattern ring 15, and also includes a rotating seat 17 for installing the rotating pattern ring 15; the rotating driving mechanism drives the rotating seat 17 and the rotating pattern ring 15 to rotate axially, and the atomizing plate sub-assembly and the rotating driving mechanism are electrically connected with the control circuit board 18. In the process of practical application, since the device is provided with a rotating pattern ring and grid tube 11, the rotating seat 17 and the rotating pattern ring 15 are driven to rotate axially through the rotating driving mechanism, to realize an animation with a continuous playing effect and get a pleasing viewing effect. The structural design of the application is reasonable and has a good application effect.

#### Brief description of the drawings

##### [0032]

Figure 1 is a three-dimensional structural diagram of the rotary dancing aromatherapy humidifier of the present disclosure.

Figure 2 and Figure 3 are the structural exploded diagram of the rotary dancing aromatherapy humidifier of the present disclosure.

#### Detailed description of the embodiments

**[0033]** In order to make the purpose, technical scheme and advantages of the present disclosure more clear, the present disclosure is further described in detail according to the attached drawings and embodiments.

**[0034]** It should be understood that the specific embodiments described herein are only used to explain the present disclosure and are not used to limit the present disclosure.

**[0035]** Based on the embodiments of the present disclosure, all other embodiments obtained by ordinary technicians in this field without creative work belong to the protection scope of the present disclosure.

**[0036]** It should be noted that when a component is called "fixed to" another component, it can be directly fixed to another component or there can be a centered component. When a component is considered to "connect" to another component, it can be directly connected to another component or there may exist centered com-

ponents at the same time.

**[0037]** Unless otherwise defines, all technical and scientific terms used in this paper have the same meaning as those commonly understood by those technicians in the technical field of the present disclosure.

**[0038]** The terms used in the specification of the present disclosure in this paper are only to describe specific embodiments, and are not intended to limit the present disclosure. As used in this paper, the term "and/or" includes any combinations of one or more related listed items.

**[0039]** Some embodiments of the present disclosure are described in detail below according to the attached drawings. Without conflict, the following embodiments and features in the embodiments can be combined with each other.

**[0040]** Please refer to figures 1 to 3, the present disclosure relates to a rotary dancing aromatherapy humidifier 1, which includes a main machine body of the humidifier, a control circuit board 18 arranged inside the main machine body of the humidifier, an atomizing plate sub-assembly and a rotary driving mechanism;

**[0041]** The main machine body of the humidifier includes a water tank body 14, a rotating pattern ring 15 with a grid pattern located on the outside of the water tank body 14, and a grid tube 11 on the outside of the rotating pattern ring 15;

and also includes a rotating seat 17 for installing the rotating pattern ring 15; the rotating driving mechanism drives the rotating seat 17 and the rotating pattern ring 15 to rotate axially;

and the atomizing plate sub-assembly and the rotating driving mechanism are electrically connected with the control circuit board 18.

**[0042]** This application through provides a main machine body of the humidifier, a control circuit board 18 arranged inside the main machine body of the humidifier, an atomizing plate sub-assembly and a rotary driving mechanism at the same time. The main machine body of the humidifier includes a water tank body 14, a rotating pattern ring 15 with a grid pattern is located on the outside of the water tank body 14, a grid tube 11 on the outside of the rotating pattern ring 15, and also includes a rotating seat 17 for installing the rotating pattern ring 15; the rotating driving mechanism drives the rotating seat 17 and the rotating pattern ring 15 to rotate axially, and the atomizing plate sub-assembly and the rotating driving mechanism are electrically connected with the control circuit board 18. In the process of practical application, since the device is provided with a rotating pattern ring and grid tube 11, the rotating seat 17 and the rotating pattern ring 15 are driven to rotate axially through the rotating driving mechanism, to realize an animation with a continuous playing effect and get a pleasing viewing effect. The structural design of the application is reason-

able and has a good application effect.

**[0043]** Evenly spaced transmission gratings and reflection gratings are drawn on the grid tube 11, so that the grid tube 11 forms slits that can transmit and block light, and multiple groups of grid patterns are drawn on the rotating pattern ring. When the rotating pattern ring 15 rotates at a constant angular speed, the transmission and reflection gratings drawn on the grid tube 11 interfere with the grid pattern on the rotating pattern ring at a certain frequency. When the human eyes cannot distinguish the grid pattern on the grid tube 11 and the rotating pattern ring, they can only see the interfering pattern, to form the moire fringes. The rotating pattern ring 15 continues to rotate through the grid tube 11 to expose the next pattern and block the front pattern. If the rotating pattern ring continues to rotate, the patterns on the rotating pattern ring are displayed in turn. Using the principle of visual persistence, an animation with a continuous playback effect is obtained to achieve a pleasing effect.

**[0044]** This application does not involve the improvement of circuit or software, and each functional component is a conventional technical component, which is well known to those technicians in this field.

**[0045]** In a preferred embodiment, the atomizing plate sub-assembly is located at the bottom of the water tank body 14;

**[0046]** It also includes a fan body 121 arranged at the bottom of the main machine body of the humidifier; a vent hole is arranged at the bottom of the main machine body of the humidifier; the fan body 121 can be installed close to the vent hole.

**[0047]** The upper part of the main machine body of the humidifier is also provided with a fog outlet nozzle 131 for spraying fog ring or fog mist;

**[0048]** The fan body 121 is electrically connected with the control circuit board 18.

**[0049]** In a preferred embodiment, the rotating seat 17 is located at the bottom of the main machine body of the humidifier;

**[0050]** The outer circumference of the rotating seat 17 is provided with a groove body 1711, and the bottom ring of the rotating pattern ring 15 is embedded in the groove body 1711.

**[0051]** In a preferred embodiment, the rotary driving mechanism includes a gear motor and a transmission gear 163 meshed with the output shaft of the gear motor;

**[0052]** In the actual design, other similar driving mechanisms can also be used, as long as the effect of driving the rotating seat 17 to rotate can be achieved.

**[0053]** The inner ring of the rotating seat 17 is provided with some meshing grooves 173 meshing with the transmission gear 163;

**[0054]** The gear motor is connected with the meshing groove 173 through the transmission gear 163 to drive the rotating seat 17 to rotate axially.

**[0055]** In a preferred embodiment, the grid tube 11 includes some reflection gratings and transmission gratings arranged around in turn.

**[0056]** In a preferred embodiment, the main machine body of the humidifier also includes a rotating mounting seat 16 for setting the rotating seat 17 and a humidifier base 12 at the bottom of the rotating mounting seat 16;

**[0057]** The upper part of the water tank body 14 is also provided with a spray cover 13 which is matched and connected with the upper opening of the water tank body 14.

**[0058]** In a preferred embodiment, the atomizing plate sub-assembly includes an atomizing plate and an atomizing plate pressing plate for fixing the atomizing plate;

**[0059]** The outside of the main machine body of the humidifier is also provided with a power access port and several control buttons.

**[0060]** In a preferred embodiment, some luminous LED light beads are also pasted and arranged on the control circuit board 18.

**[0061]** In a preferred embodiment, the rotary mounting seat 16 includes a mounting seat base plate 161 and a mounting seat diaphragm 162 on the upper part of the mounting seat base plate 161;

**[0062]** The mounting seat diaphragm 162 is provided with a notch at the transmission gear 163; and the transmission gear 163 partly exposes the notch;

**[0063]** The rotating seat 17 includes a rotating seat base plate 171 and a rotating seat diaphragm 172 on the upper part of the rotating seat base plate 171;

**[0064]** The meshing groove 173 is arranged around the lower part of the rotating seat diaphragm 172.

**[0065]** In a preferred embodiment, some columns 164 for installing the control circuit board 18 are also integrally formed on the inside of the rotary mounting seat 16.

**[0066]** Compared with the current technologies, the rotary dancing aromatherapy humidifier 1 of the present disclosure is provided with a main machine body of the humidifier, a control circuit board 18 arranged inside the main machine body of the humidifier, an atomizing plate sub-assembly and a rotary driving mechanism at the same time. The main machine body of the humidifier includes a water tank body 14, a rotating pattern ring 15 with a grid pattern 15 is located on the outside of the water tank body 14, a grid tube 11 on the outside of the rotating pattern ring 15, and also includes a rotating seat 17 for installing the rotating pattern ring 15; the rotating driving mechanism drives the rotating seat 17 and the rotating pattern ring 15 to rotate axially, and the atomizing plate sub-assembly and the rotating driving mechanism are electrically connected with the control circuit board 18. In the process of practical application, since the device is provided with a rotating pattern ring and grid tube 11, the rotating seat 17 and the rotating pattern ring 15 are driven to rotate axially through the rotating driving mechanism, to realize an animation with a continuous playing effect and get a pleasing viewing effect. The structural design of the application is reasonable and has a good application effect.

**[0067]** The above embodiments of the present disclosure do not constitute a limitation on the protection scope

of the present disclosure. Any modification, equivalent replacement and improvement made within the spirit and principles of the present disclosure shall be included in the protection scope of the claims of the present disclosure.

## Claims

1. A rotary dancing aromatherapy humidifier, comprising a main machine body of the humidifier, a control circuit board arranged inside the main machine body of the humidifier, an atomizing plate sub-assembly and a rotary driving mechanism;

wherein the main machine body of the humidifier comprises a water tank body, a rotating pattern ring with a grid pattern is located on the outside of the water tank body, and a grid tube on the outside of the rotating pattern ring, and a rotating seat for installing the rotating pattern ring; the rotating driving mechanism drives the rotating seat and the rotating pattern ring to rotate axially; and  
the atomizing plate sub-assembly and the rotating driving mechanism are electrically connected with the control circuit board.

2. The rotary dancing aromatherapy humidifier according to the claim 1, wherein the atomizing plate sub-assembly is set at the bottom of the water tank body;

wherein the atomizing plate sub-assembly comprises a fan body arranged at the bottom of the main machine body of the humidifier;  
wherein a vent hole is arranged at the bottom of the main machine body of the humidifier;  
the upper part of the main machine body of the humidifier is provided with a fog outlet nozzle for spraying fog ring or fog mist; and  
the fan body is electrically connected with the control circuit board.

3. The rotary dancing aromatherapy humidifier according to the claim 1, wherein the rotating seat is set at the bottom of the main machine body of the humidifier;  
the outer circumference of the rotating seat is provided with a groove body, and the bottom ring of the rotating pattern ring is embedded in the groove body.

4. The rotary dancing aromatherapy humidifier according to the claim 1, wherein the rotary driving mechanism comprises a gear motor and a transmission gear connected with the output shaft of the gear motor;

the inner ring of the rotating seat is provided with

some meshing grooves meshing with the transmission gear;  
the gear motor is connected with the meshing groove through the transmission gear to drive the rotating seat to rotate axially.

5. The rotary dancing aromatherapy humidifier according to claim 1, wherein the grid tube comprises some reflection gratings and transmission gratings arranged around in turn.

6. The rotary dancing aromatherapy humidifier according to the claim 4, wherein the main machine body of the humidifier comprises a rotating mounting seat for setting the rotating seat and a humidifier base at the bottom of the rotating mounting seat;  
the upper part of the water tank body is provided with a spray cover which is matched and connected with the upper opening of the water tank body.

7. The rotary dancing aromatherapy humidifier according to the claim 1, wherein the atomizing plate sub-assembly includes an atomizing plate and an atomizing plate pressing plate for fixing the atomizing plate;  
the outside of the main machine body of the humidifier is provided with a power access port and several control buttons.

8. The rotary dancing aromatherapy humidifier according to the claim 1, wherein some luminous LED light beads are pasted and arranged on the control circuit board.

9. The rotary dancing aromatherapy humidifier according to the claim 6, wherein the rotary mounting seat comprises a mounting seat base plate and a mounting seat diaphragm on the upper part of the mounting seat base plate;

the mounting seat diaphragm is provided with a notch at the part of the transmission gear; and  
the transmission gear partly exposes the notch;  
the rotating seat includes a rotating seat base plate and a rotating seat diaphragm on the upper part of the rotating seat base plate; and  
the meshing groove is arranged around the lower part of the rotating seat diaphragm.

10. The rotary dancing aromatherapy humidifier according to the claim 6, wherein some columns for installing the control circuit board are integrally formed on the inside of the rotary mounting base.

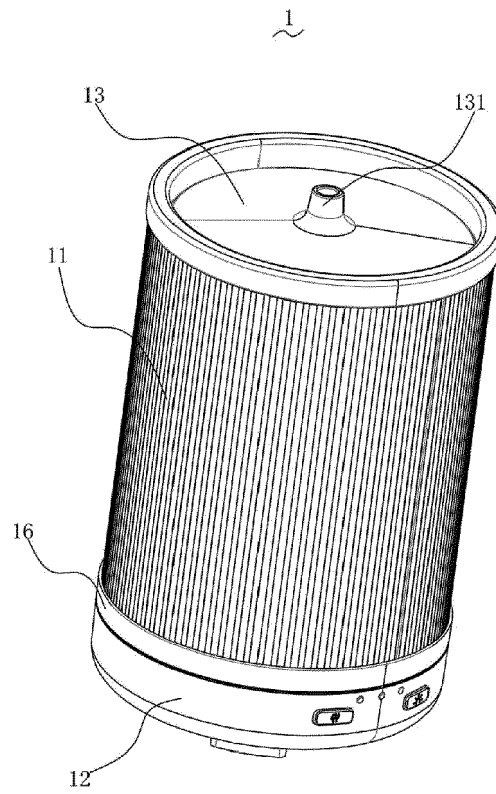


FIG.1

Figure 1

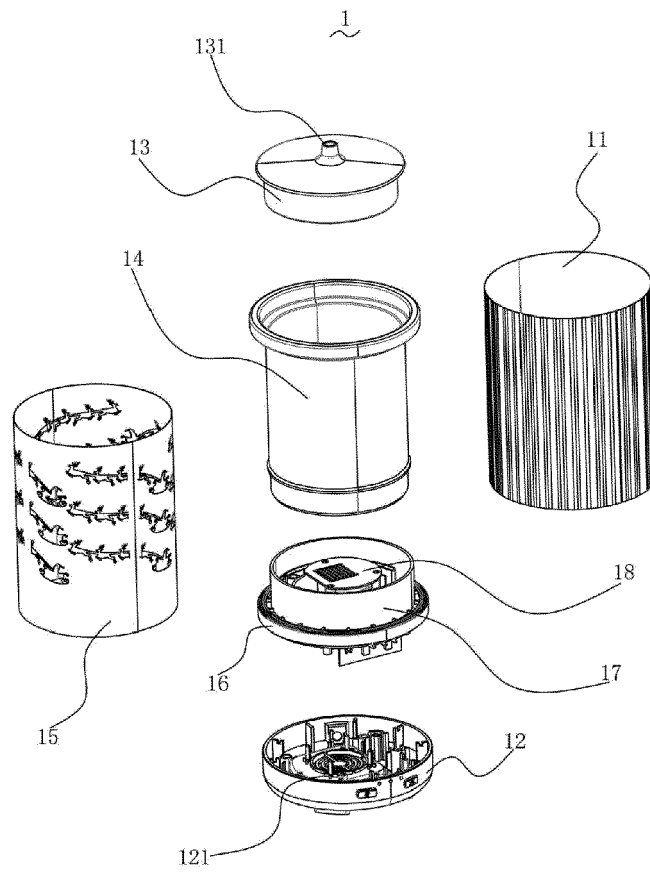


FIG.2

Figure 2

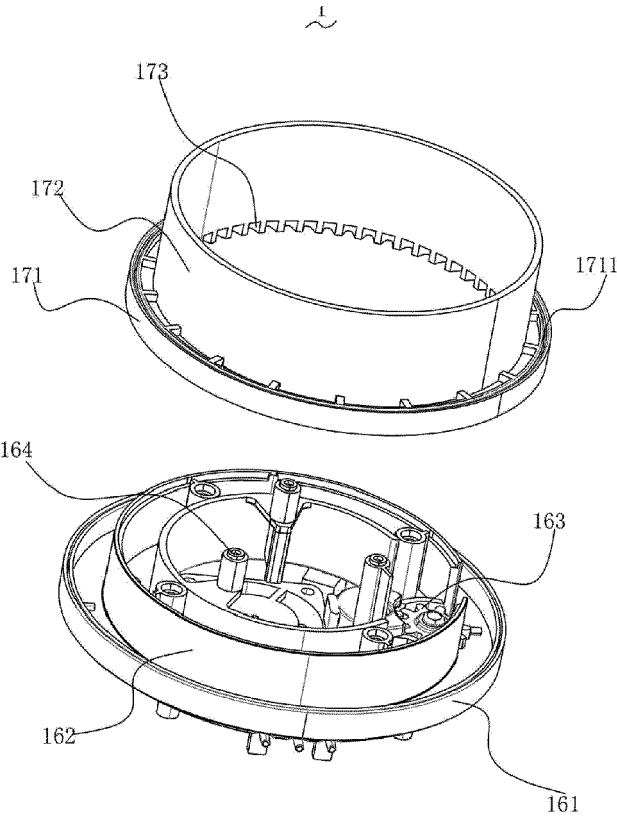


FIG.3

Figure 3





## EUROPEAN SEARCH REPORT

Application Number

EP 22 17 4048

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EPO FORM 1503 03.82 (P04C01)

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A	* paragraph [0035] - paragraph [0040]; figure 1 *	4, 6, 9, 10	F24F6/16 F24F13/20
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			F24F
Place of search		Date of completion of the search	Examiner
Munich		22 September 2022	Anconetani, Mirco
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
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