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(71) Applicant: **Zong Jing Investment, Inc.**
114 Taipei City (TW)

(72) Inventors:
- **Wong, Charlene Hsueh-Ling**
  114 Taipei City (TW)
- **Wu, Chih-Ming**
  114 Taipei City (TW)

(74) Representative: **Syrtsova, Ekaterina**
Murgitroyd & Company
Scotland House
165-169 Scotland Street
Glasgow, Strathclyde G5 8PL (GB)

(54) Material discharging device and makeup material box thereof

(57) A material discharging device and a makeup material box thereof are provided. The material discharging device includes a plurality of makeup material boxes. Each makeup material box includes a shell, a pump, a first channel, a second channel, a material storage box, and a third channel. The pump is arranged in the shell. The first and second channels are connected to the pump, so that external gas enters the pump through the first channel and gas output from the pump is guided to the outside of the shell through the second channel. The third channel has a first end and a second end. The first end communicates with the material storage box, and the second end communicates with the first channel, the second channel, or the pump. The simple structure is used to reduce the size of the material discharging device and lower a manufacturing cost.

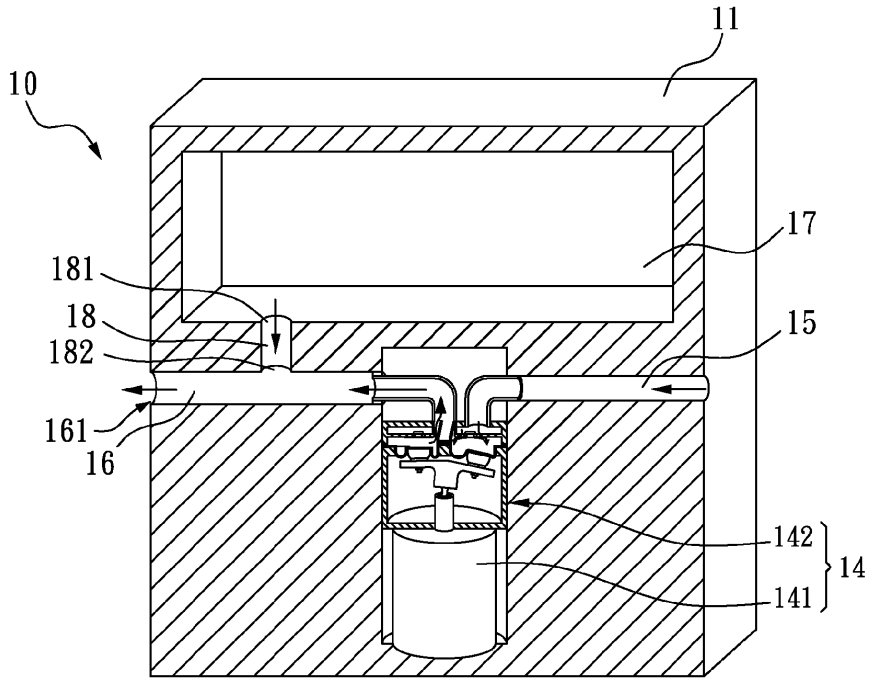

FIG. 1

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Description

Field of the Invention

[0001] The present invention relates to a material discharging device and a makeup material box.

Background of the Invention

[0002] Since the pursuit of beauty is a natural human desire, a majority of manufacturers launch a wide variety of cosmetics for the consumers to purchase in the market. However, to apply favorite and suitable facial makeup or eye makeup requires repeated practice of make-up skills, and purchase of various cosmetics and make-up tools, so as to draw different brow shapes, various eye outlines, eye shadows, and eye lines. Due to different proficiency of the make-up skills and a wide range of cosmetics, the make-up effect is usually inferior to the effect mentally expected by the consumer, to a certain extent.

[0003] As information technologies continue to develop, many simulation devices for a trial of colored facial cosmetics and skin care products have emerged. The simulation device may help a user by simulating an after-makeup effect of the user on a screen before purchase, thereby replacing an actual trial of colored cosmetic products. However, it is difficult for the consumer to reproduce a simulated makeup look by themselves and achieve the expected after-makeup effect. Currently, in view of this problem, some manufacturers are actively involved in the development of an automatic make-up device, so that a simulated and expected make-up result can be repeatedly realized, through an automatic making-up apparatus, on the face of the consumer as simulated and expected. To realize precisely the expected make-up result on the face of the user, a device that is able to accurately control a material discharging amount and discharging direction is demanded. However, an existing device is of a large size, a complex mechanism, and a high manufacturing cost, and is difficult to miniaturize.

Summary of the Invention

[0004] A makeup material box includes: a shell, a pump, a first channel, a second channel, a material storage box, and a third channel. The pump is provided in the shell. The pump may be a gas pump, a liquid pump, or another equivalent device, and the present invention is not limited thereto. The first channel is connected to the pump, so that external gas enters the pump through the first channel. The second channel is also connected to the pump and has an outlet end, so that gas output from the pump passes therethrough and the gas is guided to the outside of the shell through the outlet end of the second channel.

[0005] The third channel has a first end and a second end. The first end communicates with the material storage box, and the second end may communicate with one of the first channel, the second channel, and the pump.

[0006] Through the foregoing structure, by controlling the pump, the makeup material box of this embodiment is actuated, and enables the pump to control a flowing speed of gas in the makeup material box, thereby controlling the amount of a makeup material sprayed to a target position or a target object. In addition, since the makeup material box is of a simple structure, it is easy to reduce the size and manufacturing cost.

[0007] Based on another concept of the present invention, the foregoing makeup material box may include a valve, which is provided in the third channel and is used for controlling the amount of a makeup material entering the first channel, the second channel, or the pump.

[0008] Based on another concept of the present invention, the material storage box of the makeup material box may be provided in the shell. In addition, the material storage box may also be a detachable material storage box.

[0009] Based on another concept of the present invention, an adjustable nozzle may be provided on the outlet end of the second channel. The pump may be an inflating device that converts electrical energy into kinetic energy, for example, a miniature pump, which inflates in a rotating or piston manner, or is a device that inflates through a shape change of a memory alloy.

[0010] A material discharging device includes a plurality of makeup material boxes, and each makeup material box includes: a shell, a pump, a first channel, a second channel, a material storage box, and a third channel. The pump is provided in the shell. The first channel is connected to the pump, so that external gas enters the pump through the first channel. The second channel is also connected to the pump and has an outlet end, so that gas output from the pump passes therethrough and the gas is guided to the outside of the shell through the outlet end.

[0011] The third channel has a first end and a second end. The first end communicates with the material storage box, and the second end may communicate with one of the first channel, the second channel, and the pump. The plurality of makeup material boxes is provided in an adjacent manner, and the output ends of the second channels are positioned in the same direction.

[0012] Based on another concept of the present invention, the plurality of makeup material boxes may be provided in a parallel and adjacent manner. An adjustable nozzle is provided on the outlet end of the second channel of each of these makeup material boxes, so that the adjustable nozzles are adjusted in a manner of being provided toward the same target. The plurality of makeup material boxes may also be provided in an adjacent manner at a specific angle, so that the outlet ends of the second channels are oriented toward the same target.

[0013] Based on another concept of the present invention, each makeup material box may include a valve, which is provided in the third channel and is used for controlling the amount of a makeup material entering the

first channel, the second channel, or the pump.

[0014] The invention is defined in the appended claims.

Brief Description of the Drawings

[0015] The disclosure will become more fully understood from the detailed description given herein below for illustration only, and thus not limitative of the present invention, wherein:

FIG. 1 is a schematic view of a makeup material box in a first embodiment of the present invention;

FIG. 2 is a schematic view of a makeup material box in a second embodiment of the present invention;

FIG. 3 is a schematic view of a makeup material box in a third embodiment of the present invention;

FIG. 4 is a schematic view of a makeup material box in a fourth embodiment of the present invention;

FIG. 5 is a three-dimensional view of a material discharging device in a fifth embodiment of the present invention;

FIG. 6 is a three-dimensional view of a material discharging device in a sixth embodiment of the present invention; and

FIG. 7 is a three-dimensional view of a material discharging device in a seventh embodiment of the present invention.

Detailed Description

[0016] FIG. 1 is a schematic view of a makeup material box in a first embodiment of the present invention. Please refer to FIG. 1, in which embodiment the makeup material box 10 includes: a shell 11, a gas pump 14, a first channel 15, a second channel 16, a material storage box 17, and a third channel 18.

[0017] The gas pump 14 is provided in the shell 11. In this embodiment, the gas pump 14 is a miniature pump, which has a motor 141 and a piston device 142. The gas pump 14 inflates by driving the piston device 142 through the motor 141. An actuation speed of the gas pump 14 may also be controlled by controlling a rotation speed of the motor 141. In some embodiments, the gas pump 14 may also be a fan gas pump or a device that is actuated through a shape change of a memory alloy. The gas pump may also be an inflating device that may convert electrical energy into kinetic energy, for example, a liquid pump or another equivalent device. Pumps that can provide a thrust for spraying the makeup material to a demanded range may all be acceptable, and the present invention is not limited thereto.

[0018] The first channel 15 is connected to the gas pump 14, so that external gas may enter the gas pump 14 through the first channel 15. The second channel 16 is also connected to the pump 14 and has an outlet end 161. Gas sprayed out of the gas pump 14 may be conducted to the outside of the shell 11 through the outlet end 161 of the second channel 16.

[0019] The material storage box 17 is provided in the shell 11. In this embodiment, the material storage box 17 and the shell 11 are integrally formed. A makeup material of a demanded color or type is stored in the material storage box 17 in advance. The makeup material may be powder, foam, paste, or liquid, or a combination thereof, for example, various cosmetic materials such as loose powder, eyeliner, lip gloss, blusher, brow dye, and blemish balm (BB) cream.

[0020] The third channel has a first end 181 and a second end 182. The first end 181 communicates with the material storage box 17, and the second end 182 communicates with the second channel 16. After being mixed in the second channel 16, the makeup material in the material storage box 17 and gas in the second channel 16 are conducted to the outlet end 161, and then the makeup material is sprayed to a target position or a target object through the outlet end 161.

[0021] Hereby, by controlling the gas pump 14, the makeup material box 10 is actuated and enables the gas pump 14 to control a flowing speed of gas in the makeup material box 10. Further, the amount of the makeup material sprayed out of the outlet end 161 may also be controlled. In addition, because of a simple structure, the size of the makeup material box 10 is easily reduced, and a manufacturing cost is lowered.

[0022] FIG. 2 is a schematic view of a makeup material box in a second embodiment of the present invention. Parts of this embodiment that are the same as those of the first embodiment are not described herein again. Please refer further to FIG. 2, in which embodiment the makeup material box 10 further includes a valve 19, and the valve 19 is provided in the third channel 18. The valve 19 is used for controlling the amount of the makeup material entering the second channel 16. In this way, the makeup material box 10 has a dual control mechanism, that is, the gas pump 14 is used for controlling a gas flow and the valve 19 is used for controlling the amount of the makeup material entering the second channel 16. Therefore, the makeup material box 10 may control, through the dual control mechanism, the amount of the makeup material sprayed out of the outlet end 161 of the second channel 16.

[0023] FIG. 3 is a schematic view of a makeup material box in a third embodiment of the present invention. Please refer to FIG. 3, in which the makeup material box 10 includes: a shell 11, a gas pump 14, a first channel 15, a second channel 16, a material storage box, and a third channel 18. Parts of this embodiment that are the same as those of the first embodiment are not described herein again. In this embodiment, the material storage box is a detachable material storage box 27, and can be

inserted into and withdrawn from the shell 11 in the manner of a cassette. The cassette inserting and withdrawing structure may be a structure shown in FIG. 3, in which the shell 11 includes an elastic component and a stop part 114. In this embodiment, the elastic component is a spring 113. In another embodiment, a spring strip and an equivalent structure thereof may also be used as the elastic component, and the present invention is not limited thereto. After pressing the detachable material storage box 27 into the shell 11, the user turns the stop part 114 to a position above the detachable material storage box 27, that is, the detachable material storage box 27 is fastened. When the user wants to detach the detachable material storage box 27, the user turns the stop part 114 away, and at this time, an elastic force of the spring 113 may shoot the detachable material storage box 27 out of the shell 11. At this time, the user may take the detachable material storage box 27 out for replacement. The cassette inserting and withdrawing structure is only used in one embodiment, and the present invention is not limited thereto. A makeup material of a demanded color or type is stored in the detachable material storage box 27 in advance. When the makeup material is used up or is to be replaced with a different makeup material for use, the user may only replace the detachable material storage box 27 and does not need to replace the entire makeup material box 10, so as to reduce a usage cost.

[0024] In addition, what is different from the first embodiment is that, in this embodiment, the second end 182 of the third channel 18 communicates with the first channel 15. At this time, gas conducted through the first channel 15 and the makeup material entering through the third channel 18 are mixed in the first channel 15; then enter the gas pump 14; then are conducted to the outlet end 161 through the second channel 16 communicating with the gas pump 14; and finally are guided to the outside of the shell 11.

[0025] FIG. 4 is a schematic view of a makeup material box in a fourth embodiment of the present invention. Please refer further to FIG. 4, in which the makeup material box 10 includes: a shell 11, a gas pump 14, a first channel 15, a second channel 16, a material storage box, and a third channel 18. Parts of this embodiment that are the same as those of the first embodiment are not described herein again. In this embodiment, the material storage box is also a detachable material storage box 37, but a structure thereof is different from that of the material storage box 27 in the third embodiment. In this embodiment, a box body of the detachable material storage box 37 includes a retaining tenon 371. A retaining groove 115 is provided at a position, which is corresponding to a position of the retaining tenon 371, on the shell 11. Shapes of the retaining tenon 371 and the retaining groove 115 are acceptable as long as they can be combined with each other. A dovetail tenon shape in FIG. 4 is only exemplary, and the present invention is not limited thereto. During combination, the retaining tenon 371 of the detachable material storage box 37 correspondingly fits into the retaining groove 115 on the shell 11, so as to be fixedly connected. It is possible that the material storage box does not have a retaining groove structure and locking parts such as a screw are directly used to lock the material storage box to the shell 11, and the present invention is not limited thereto. Likewise, a makeup material of a demanded color or type is stored in the detachable material storage box 37 in advance. When the makeup material is used up or is to be replaced with a different makeup material for use, the user may only replace the detachable material storage box 37, and does not need to replace the entire makeup material box 10, so as to reduce a usage cost.

[0026] In another embodiment, as shown in FIG. 4, an adjustable nozzle 12 may be provided on the outlet end 161 of the second channel 16. According to a usage requirement, the user may rotate the adjustable nozzle 12 to aim at a target to be colored. In addition, in this embodiment, the second end 182 of the third channel 18 communicates with the gas pump 14. The makeup material and gas are mixed in the gas pump 14 and are conducted to the adjustable nozzle 12 through the second channel 16.

[0027] FIG. 5 is a three-dimensional view of a material discharging device in a fifth embodiment of the present invention. Please refer to FIG. 5, in which a material discharging device 20 is formed by a plurality of makeup material boxes. That the material discharging device 20 is formed by three makeup material boxes is taken as an example in the following, but the present invention is not limited to this number. The makeup material box may be the makeup material box described in the first embodiment, the makeup material box described in the second embodiment, the makeup material box described in the third embodiment, the makeup material box described in the fourth embodiment, or a random combination thereof. The makeup material box of this embodiment is the makeup material box described in the first embodiment, and a detailed structure thereof is not described herein again. As shown in FIG. 5, the three makeup material boxes 10 are provided in an adjacent and parallel manner, and the outlet ends 161 of the makeup material boxes 10 are oriented toward the same direction.

[0028] FIG. 6 is a three-dimensional view of a material discharging device in a sixth embodiment of the present invention. Please refer further to FIG. 6, in which the material discharging device 20 is also formed by three makeup material boxes. The makeup material box may be the makeup material box described in the first embodiment, the makeup material box described in the second embodiment, the makeup material box described in the third embodiment, the makeup material box described in the fourth embodiment, or a random combination thereof. The makeup material box of this embodiment is the makeup material box described in the first embodiment, and a detailed structure thereof is not described herein again. In this embodiment, the three makeup material boxes 10 are provided in an adjacent manner at a specific

angle. In this way, as shown in FIG. 6, the outlet ends 161 of the three makeup material boxes 10 are oriented toward the same target.

[0029] FIG. 7 is a three-dimensional view of a material discharging device in a seventh embodiment of the present invention. Please refer further to FIG. 7, in which embodiment the material discharging device 20 is also formed by three makeup material boxes. The makeup material box may be the makeup material box described in the first embodiment, the makeup material box described in the second embodiment, the makeup material box described in the third embodiment, the makeup material box described in the fourth embodiment, or a random combination thereof. The makeup material box of this embodiment is the makeup material box described in the fourth embodiment, and a detailed structure thereof is not described herein again. Like the three makeup material boxes 10 in the fifth embodiment, the three makeup material boxes in this embodiment are provided in an adjacent and parallel manner. The user may adjust the adjustable nozzles 12 according to a usage requirement, so that the adjustable nozzles 12 are all oriented toward the same direction, or the adjustable nozzles 12 are rotated to aim at the same target.

[0030] While the present invention has been described by the way of example and in terms of the preferred embodiments, it is to be understood that the invention need not be limited to the disclosed embodiments. On the contrary, it is intended to cover various modifications and similar arrangements included within scope of the appended claims, the scope of which should be accorded the broadest interpretation so as to encompass all such modifications and similar structures.

Claims

1. A makeup material box, comprising:

a shell;
a pump, provided in the shell;
a first channel, connected to the pump, so that external gas enters the pump through the first channel;
a second channel, connected to the pump, having an outlet end, and used for passing through gas output from the pump and guiding the gas to the outside of the shell through the outlet end;
a material storage box; and
a third channel, having a first end and a second end, the first end communicating with the material storage box, and the second end communicating with one of the first channel, the second channel, and the pump.

2. The makeup material box according to claim 1, further comprising: a valve, provided in the third channel.

3. The makeup material box according to claim 1 or claim 2, wherein the material storage box is provided in the shell.

4. The makeup material box according to any preceding claim, wherein the material storage box is a detachable material storage box.

5. The makeup material box according to any preceding claim, wherein an adjustable nozzle is provided on the outlet end.

6. The makeup material box according to any preceding claim, wherein the pump is a miniature pump.

7. A material discharging device, comprising a plurality of makeup material boxes, each makeup material box being in accordance with any one of claims 1-6 wherein
the plurality of makeup material boxes is provided in an adjacent manner, and the outlet ends of the second channels are positioned in the same direction.

8. The material discharging device according to claim 7, wherein the plurality of makeup material boxes are provided in a parallel and adjacent manner.

9. The material discharging device according to claim 7 or claim 8, wherein an adjustable nozzle is provided on the outlet end of the second channel of each of these makeup material boxes, so that the adjustable nozzles of these makeup material boxes are adjusted in a manner of being provided toward the same target.

10. The material discharging device according to claim 7 or claim 9, wherein the plurality of makeup material boxes is provided in an adjacent manner at a specific angle, so that the output ends are oriented toward the same target.

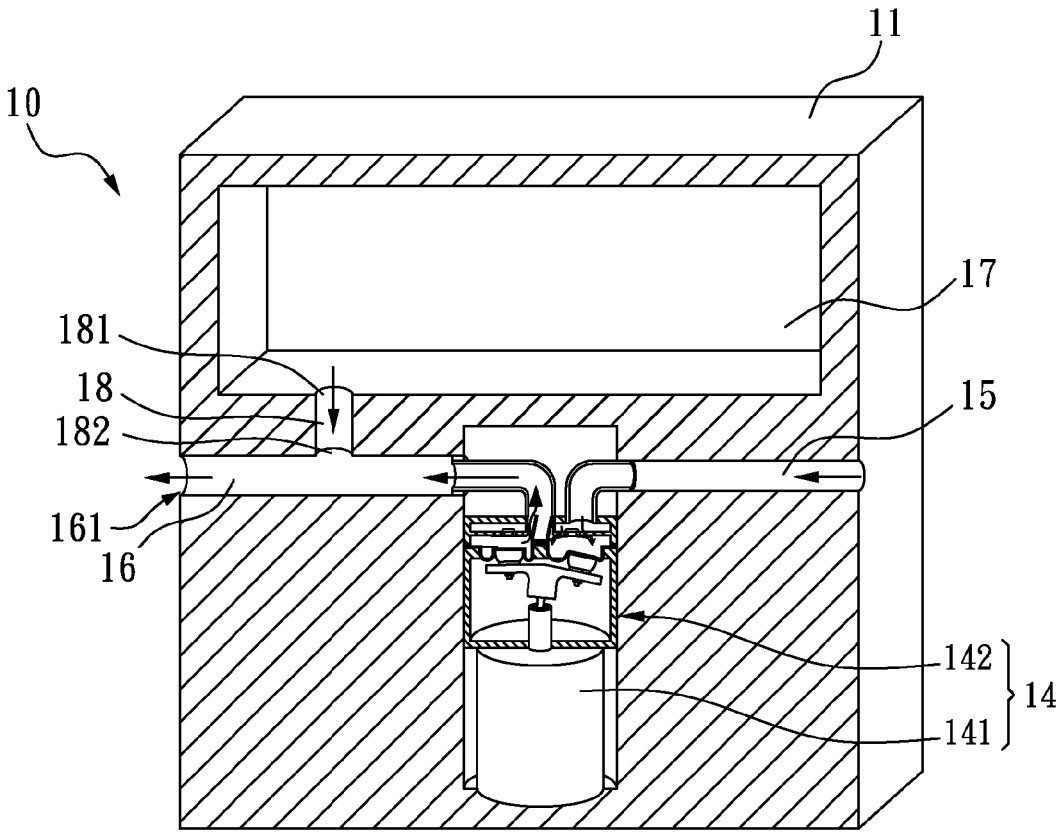

FIG. 1

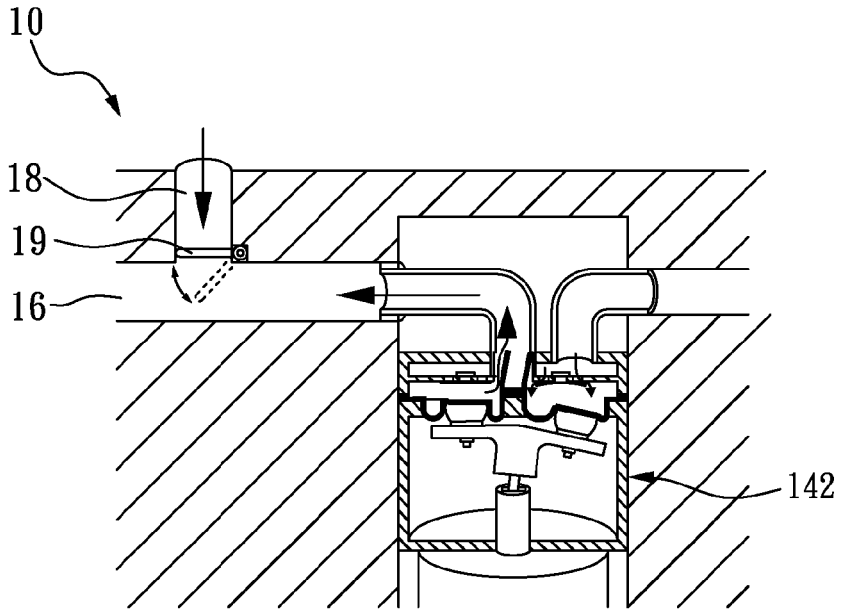

FIG. 2

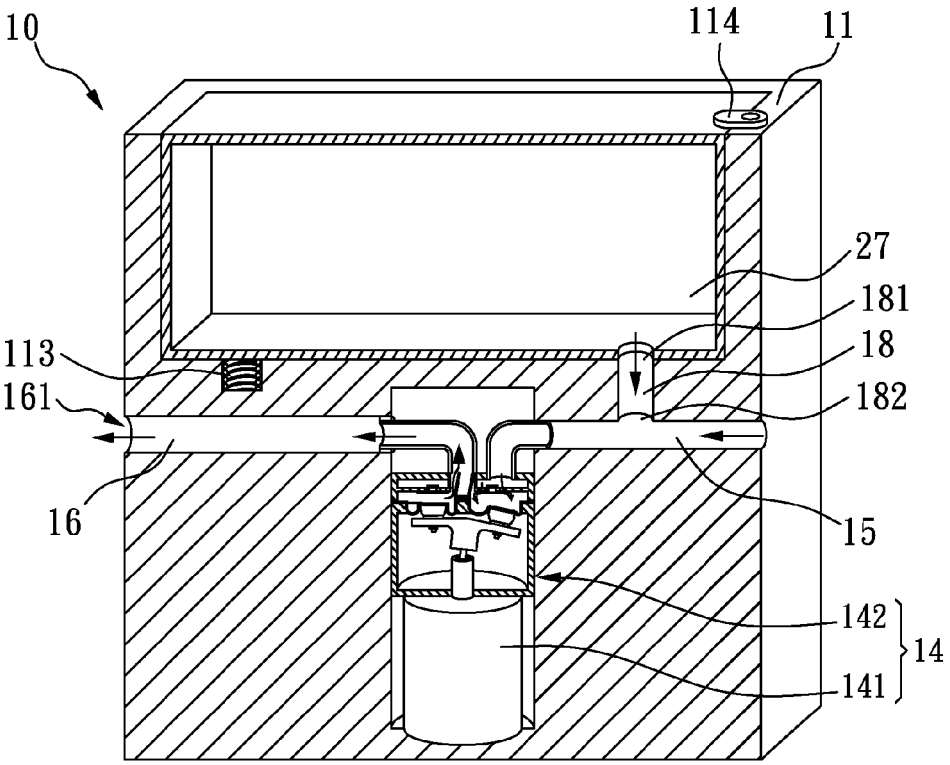
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FIG. 3

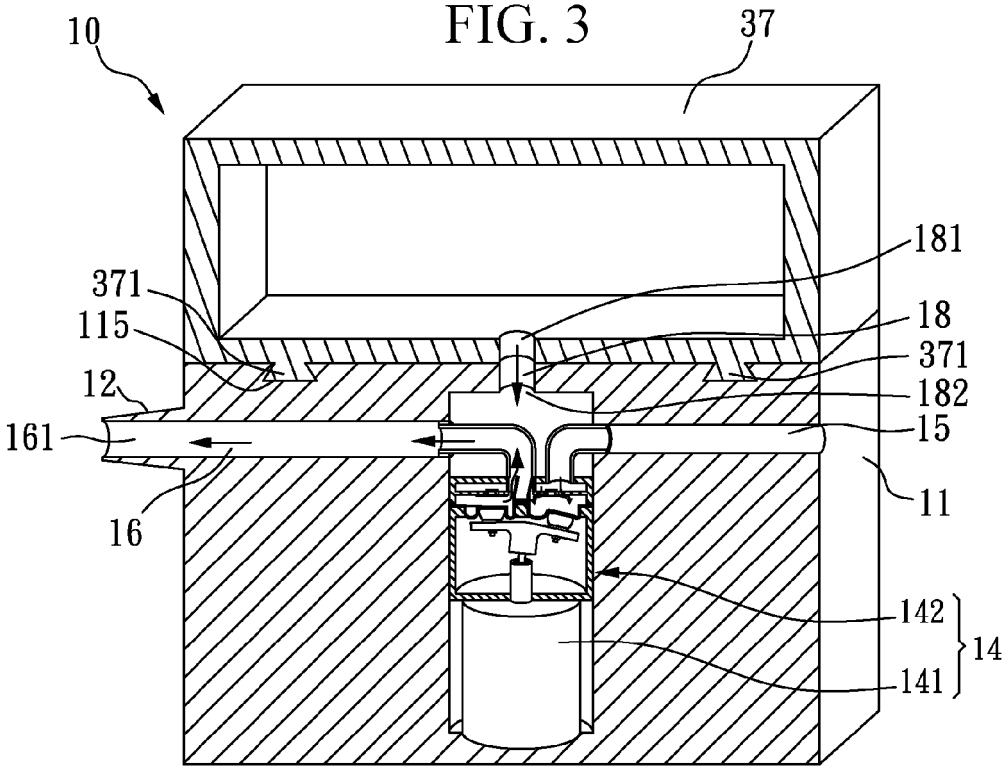
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FIG. 4

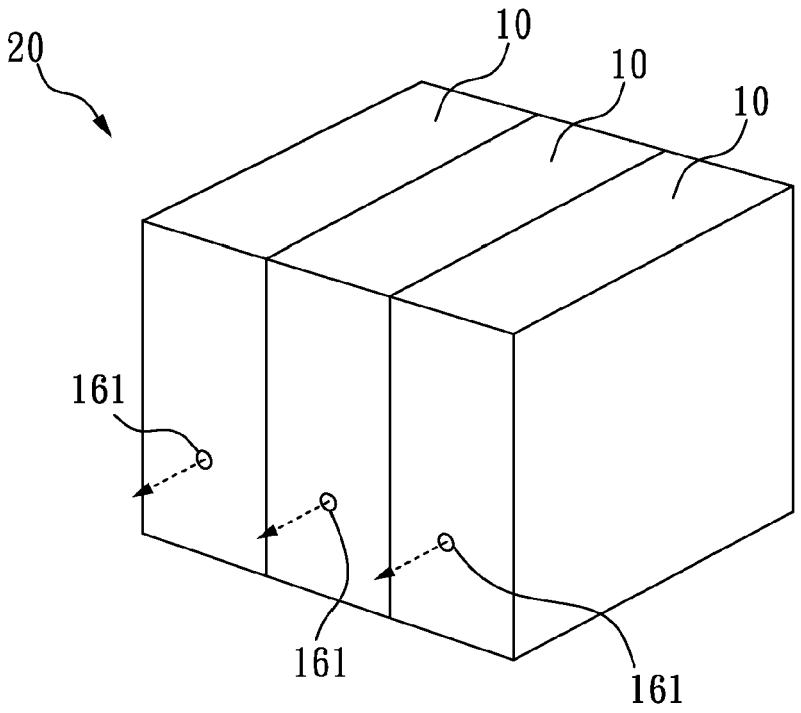

FIG. 5

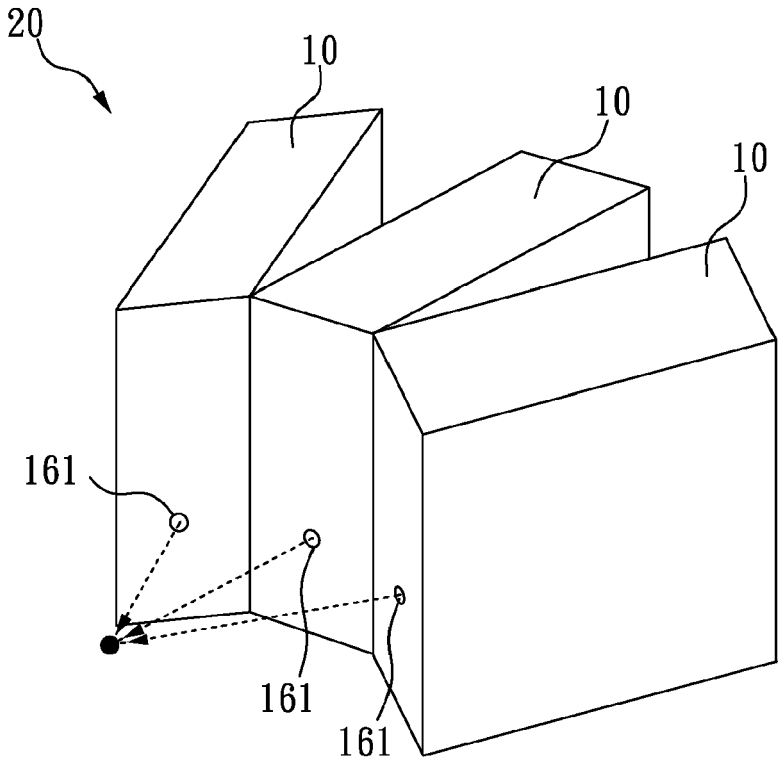

FIG. 6

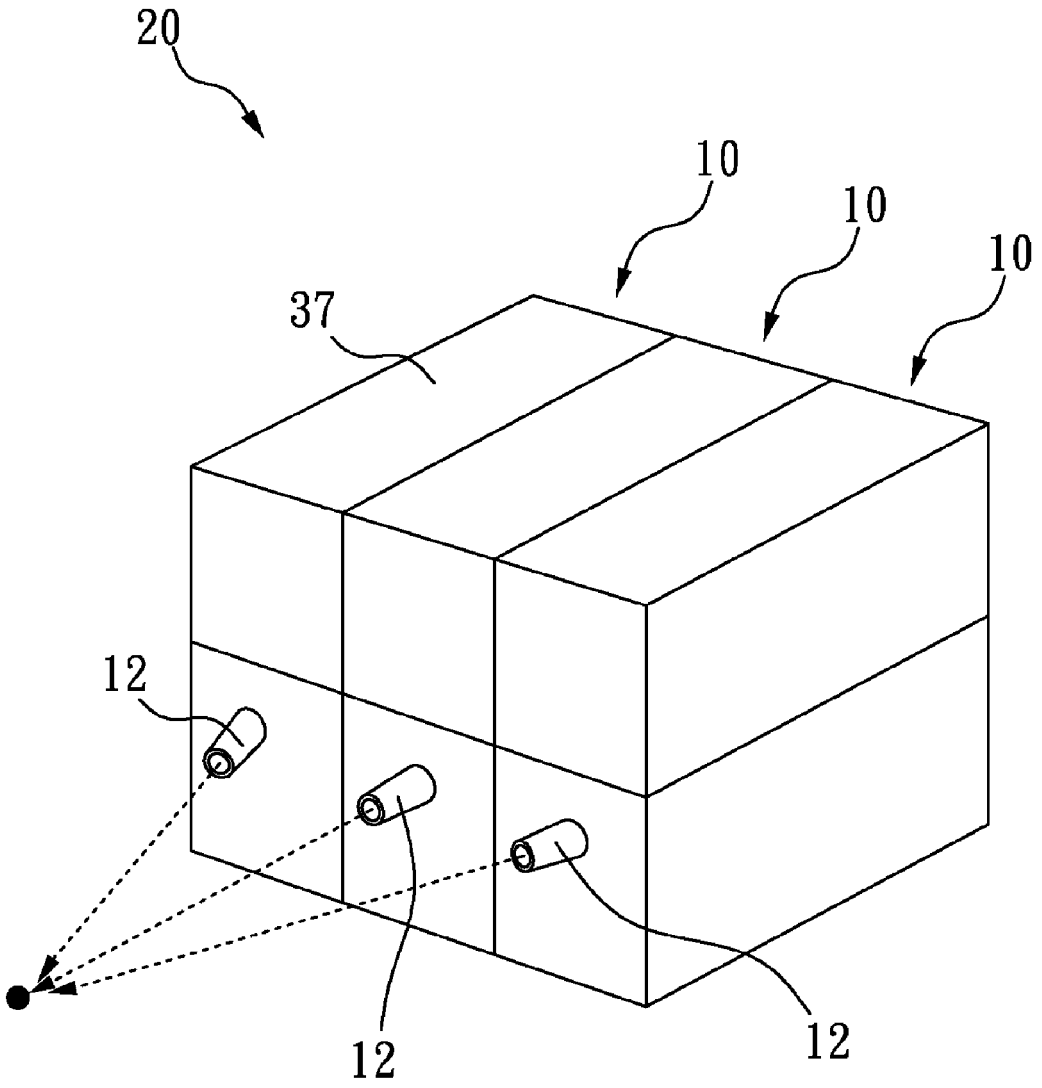

FIG. 7

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EUROPEAN SEARCH REPORT

Application Number
EP 13 17 6801

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 Y	WO 03/106043 A1 (UNILEVER PLC [GB]; UNILEVER NV [NL]; LEVER HINDUSTAN LTD [IN]; KUTAY S) 24 December 2003 (2003-12-24) * page 3, line 28 - page 12, line 25; figure 2 *	1-3,5,6 7-10	INV. B05B7/24 A45D34/02 A45D34/00
Y	US 6 189 810 B1 (NERUSHAI SERGEI ALEXEEVICH [RU] ET AL) 20 February 2001 (2001-02-20) * column 1, line 44 - column 5, line 53; figures 1-7 *	7-10	
X	US 3 696 973 A (COTTELL ERIC C) 10 October 1972 (1972-10-10) * column 3, line 25 - column 4, line 53; figures 1-5 *	1-6	
			TECHNICAL FIELDS SEARCHED (IPC) B05B A45D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	13 February 2014	Ionescu, C

CATEGORY OF CITED DOCUMENTS

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13-02-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 03106043 A1	24-12-2003	AT 318182 T	15-03-2006
		AU 2003236724 A1	31-12-2003
		DE 60303670 T2	24-08-2006
		EP 1513616 A1	16-03-2005
		ES 2258720 T3	01-09-2006
		US 2006091238 A1	04-05-2006
		WO 03106043 A1	24-12-2003
US 6189810 B1	20-02-2001	AT 299346 T	15-07-2005
		AU 6012699 A	26-04-2000
		CN 1326323 A	12-12-2001
		DE 69926134 D1	18-08-2005
		DE 69926134 T2	06-07-2006
		EP 1120058 A1	01-08-2001
		JP 2002526131 A	20-08-2002
		RU 2134052 C1	10-08-1999
		US 6189810 B1	20-02-2001
		WO 0019859 A1	13-04-2000
US 3696973 A	10-10-1972	NONE	

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