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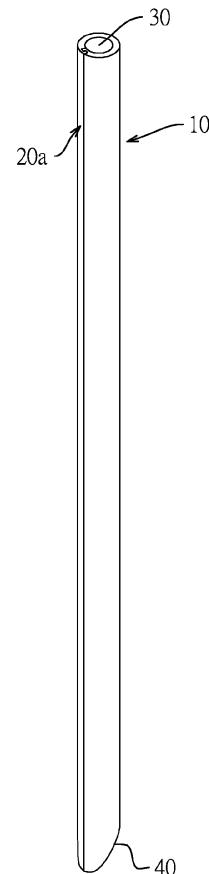
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### **(54) DRINKING STRAW**

(57) A drinking straw is integrally formed of a food-grade plastic material, is flexible and comprises a sheet body (10), a first engaging portion (20a), and a second engaging portion (20b). The first engaging portion (20a) and the second engaging portion (20b) are respectively formed on two side edges of the sheet body (10), and the sheet body (10) can be wound into a tubular shape to enable the first engaging portion (20a) to engage with the second engaging portion (20b) to form a suction channel (30) in the drinking straw. Consumers can clean an inner part of the drinking straw by disengaging the first engaging portion (20a) and the second engaging portion (20b). The drinking straw of the present invention can be cleaned easily, can reduce the cost of manufacture, and can improve suction efficiency.



**FIG.1**

## Description

### 1. Field of the Invention

**[0001]** The present invention relates to a drinking straw, and more particularly to a drinking straw that can be cleaned easily, can reduce the cost of manufacture, and can improve suction efficiency.

### 2. Description of Related Art

**[0002]** In a modern society with a tight pace of life, people usually buy beverages to drink when dining, working or even shopping to achieve the effects of quenching thirst, relieving heat or relieving stress, etc. In order to facilitate drinking beverages anytime and anywhere, people use drinking straws to suck the drink in a drink bottle. However, conventional drinking straws on the market are made of plastic and are disposable consumables, and it is easy to cause environmental pollution and environmental burden.

**[0003]** Therefore, there are washable, reusable, conventional eco-friendly drinking straws on the market today, wherein the conventional eco-friendly drinking straws are mainly made of tubular structures made of hard materials such as stainless steel and plastic, and consumers can clean an inner part of the conventional eco-friendly drinking straw by using a brush that can be inserted into the inner part of the conventional eco-friendly drinking straw after use, so that the conventional eco-friendly drinking straw can be reused. However, when cleaning the inner part of the conventional eco-friendly drinking straw with a brush, there are many gaps between bristles of the brush, and it is difficult to apply force when extending into the inside of the conventional eco-friendly drinking straw, which makes it difficult to clean the inner part of the conventional eco-friendly drinking straw, causing bacteria to easily breed in uncleared parts inside the conventional eco-friendly drinking straw, and this may derive health and safety issues.

**[0004]** Consequently, in order to clean the inner part of the conventional eco-friendly drinking straw, a conventional drinking straw is provided and has two arcuate walls engaged with each other and a connecting portion disposed between the two arcuate walls. The two arcuate walls are made of a hard material and the connecting portion is made of plastic. Consumers can clean the inner part of the conventional drinking straw by disengaging the two hard arcuate walls. However, during the manufacturing process of the conventional drinking straw, the two hard arcuate walls and the plastic connection portion are connected with each other of dissimilar materials. In the process of connecting, over-molding or injection molding is required, and the manufacturing method is more complicated and the equipment cost of the forming molds is also higher.

**[0005]** To overcome the shortcomings, the present invention provides a drinking straw to mitigate or obviate

the aforementioned problems.

**[0006]** The main objective of the present invention is to provide a drinking straw that can be cleaned easily, can reduce the cost of manufacture, and can improve suction efficiency.

**[0007]** The drinking straw in accordance with the present invention is integrally formed of a food-grade plastic material, is flexible and comprises a sheet body, a first engaging portion, and a second engaging portion.

5      The first engaging portion and the second engaging portion are respectively formed on two side edges of the sheet body, and the sheet body can be wound into a tubular shape to enable the first engaging portion to engage with the second engaging portion to form a suction channel in the drinking straw. Consumers can clean an inner part of the drinking straw by disengaging the first engaging portion and the second engaging portion. The drinking straw of the present invention can be cleaned easily, can reduce the cost of manufacture, and can improve suction efficiency.

10     **[0008]** Other objectives, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

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### IN THE DRAWINGS:

#### **[0009]**

30     Fig. 1 is a perspective view of a drinking straw in accordance with the present invention;  
 Fig. 2 is an enlarged perspective view of the drinking straw in Fig. 1;  
 Fig. 3 is an enlarged top side view of the drinking straw in Fig. 1;  
 Fig. 4 is an enlarged and operational perspective view of the drinking straw in Fig. 1; and  
 Fig. 5 is an enlarged and operational top side view of the drinking straw in Fig. 1.

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**[0010]** With reference to Figs. 1 to 3, a drinking straw in accordance with the present invention is integrally formed of a food-grade plastic material, is flexible and comprises a sheet body 10, a first engaging portion 20a, and a second engaging portion 20b. The first engaging portion 20a and the second engaging portion 20b are respectively formed on two side edges of the sheet body 10, and the sheet body 10 can be wound into a tubular shape to enable the first engaging portion 20a to engage with the second engaging portion 20b to form a suction channel 30 in the drinking straw.

**[0011]** With reference to Figs. 2 to 5, the first engaging portion 20a has a first engaging rib 21a and a first engaging slot 22a formed on the drinking straw along an axial direction of the drinking straw. The first engaging slot 22a of the first engaging portion 20a is formed between the first engaging rib 21a and the sheet body 10. The second engaging portion 20b has a second engaging

rib 21b and a second engaging slot 22b formed on the drinking straw along the axial direction of the drinking straw. The second engaging slot 22b of the second engaging portion 20b is formed between the second engaging rib 21b and the sheet body 10. The first engaging rib 21a engages with the second engaging slot 22b, and the second engaging rib 21b engages with the first engaging slot 22a.

**[0012]** Furthermore, with reference to Figs. 2 to 5, the first engaging rib 21a of the first engaging portion 20a has a first limiting flange 211a formed on and protruded from the first engaging portion 20a toward the first engaging slot 22a. The second engaging rib 21b of the second engaging portion 20b has a second limiting flange 211b formed on and protruded from the second engaging portion 20b toward the second engaging slot 22b. The first limiting flange 211a engages with the second engaging slot 22b, and the second limiting flange 211b engages with the first engaging slot 22a.

**[0013]** In addition, with reference to Fig. 1, in the embodiment of the drinking straw of the present invention, the drinking straw has a piercing portion 40 formed on a bottom end of the drinking straw, and the drinking straw is integrally made of a silicone material.

**[0014]** With reference to Figs. 1 to 3, when a consumer wants to use the drinking straw of the present invention to drink a beverage, the consumer can engage the first limiting flange 211a of the first engaging rib 21a with the second engaging slot 22b of the second engaging portion 20b, and at the same time engage the second limiting flange 211b of the second engaging rib 21b with the first engaging slot 22a of the first engaging portion 20a, so that the drinking straw can be engaged to form a tubular structure and form the suction channel 30.

**[0015]** Then, the consumer can use the piercing portion 40 at the bottom end of the drinking straw to pierce a sealing film of the beverage cup and insert the piercing portion 40 into the beverage cup to suck the beverage. The consumer can suck the beverage in the beverage cup from an end of the suction channel 30 opposite to the piercing portion 40.

**[0016]** With reference to Figs. 4 and 5, after the consumer finishes drinking the beverage, the consumer can disengage the first engaging portion 20a and the second engaging portion 20b of the drinking straw, so that the first limiting flange 211a of the first engaging rib 21a is separated from the second engaging slot 22b of the second engaging portion 20b, and the second limiting flange 211b of the second engaging rib 21b is separated from the first engaging slot 22a at the same time. Then the consumer can unfold the sheet body 10 to clean the inner part of the drinking straw fully and easily to avoid health and safety issues.

**[0017]** Further, the drinking straw of the present invention is integrally made of a silicone material, so during the manufacturing process, the drinking straw of the present invention can be manufactured only by an extruder and cutting equidistantly, which can simplify the

manufacturing method and reduce the manufacturing cost.

**[0018]** In addition, since the first engaging portion 20a and the second engaging portion 20b are both made of a flexible plastic material, when the first engaging portion 20a and the second engaging portion 20b are engaged with each other, the first engaging portion 20a and the second engaging portion 20b can be airtightly connected with each other. Then, when the consumer sucks a beverage, the suction channel 30 can generate negative pressure, thereby improving the suction efficiency of the drinking straw of the present invention.

**[0019]** According to the structural relationships and features of the drinking straw in accordance with the present invention, the drinking straw as described has the following advantages.

**[0020]** First, easy to clean: after consumers use the drinking straw of the present invention, they can clean the inner part of the drinking straw by disengaging the first engaging portion 20a and the second engaging portion 20b, and unfolding the sheet body 10, which can effectively and fully clean the inner part of the drinking straw, can reduce cleaning difficulty at the same time, and then improve hygiene and safety.

**[0021]** Second, low manufacturing cost: as mentioned above, the drinking straw of the present invention is integrally made of a silicone material. During the manufacturing process, it only needs to be extruded by an extruder and cut equidistantly. The manufacturing process of the drinking straw of the present invention can simplify the manufacturing method and reduce the manufacturing cost.

**[0022]** Third, improve the suction efficiency of the drinking straw: the drinking straw is integrally made of a silicone material. When the first engaging portion 20a and the second engaging portion 20b are engaged with each other, the first engaging portion 20a and the second engaging portion 20b can be airtightly connected with each other. Then, when the consumer sucks a beverage, the suction channel 30 can generate negative pressure, thereby improving the suction efficiency of the drinking straw of the present invention.

#### 45 **Claims**

1. A drinking straw, **characterized in that** the drinking straw is integrally formed of a food-grade plastic material, is flexible, and comprises:

50 a sheet body (10) having two side edges; a first engaging portion (20a) formed on one of the two side edges of the sheet body (10); and a second engaging portion (20b) formed on the other one of the two side edges of the sheet body (10);

55 wherein the sheet body (10) is wound into a tubular shape to enable the first engaging portion

(20a) to engage with the second engaging portion (20b) to form a suction channel (30) in the drinking straw.

2. The drinking straw as claimed in claim 1, wherein 5

the first engaging portion (20a) has a first engaging rib (21a) and a first engaging slot (22a) formed on the drinking straw along an axial direction of the drinking straw; 10  
 the first engaging slot (22a) of the first engaging portion (20a) is formed between the first engaging rib (21a) and the sheet body (10);  
 the second engaging portion (20b) has a second engaging rib (21b) and a second engaging slot (22b) formed on the drinking straw along the axial direction of the drinking straw; 15  
 the second engaging slot (22b) of the second engaging portion (20b) is formed between the second engaging rib (21b) and the sheet body (10); and  
 the first engaging rib (21a) engages with the second engaging slot (22b), and the second engaging rib (21b) engages with the first engaging slot (22a). 20 25

3. The drinking straw as claimed in claim 2, wherein

the first engaging rib (21a) of the first engaging portion (20a) has a first limiting flange (211a) 30 formed on and protruded from the first engaging portion (20a) toward the first engaging slot (22a);  
 the second engaging rib (21b) of the second engaging portion (20b) has a second limiting flange (211b) formed on and protruded from the second 35 engaging portion (20b) toward the second engaging slot (22b); and  
 the first limiting flange (211a) engages with the second engaging slot (22b), and the second limiting flange (211b) engages with the first engaging slot (22a). 40

4. The drinking straw as claimed in any one of claims 1 to 3, wherein the drinking straw is integrally made of a silicone material. 45

5. The drinking straw as claimed in any one of claims 1 to 3, wherein the drinking straw has a piercing portion (40) formed on a bottom end of the drinking straw. 50

6. The drinking straw as claimed in claim 4, wherein the drinking straw has a piercing portion (40) formed on a bottom end of the drinking straw.

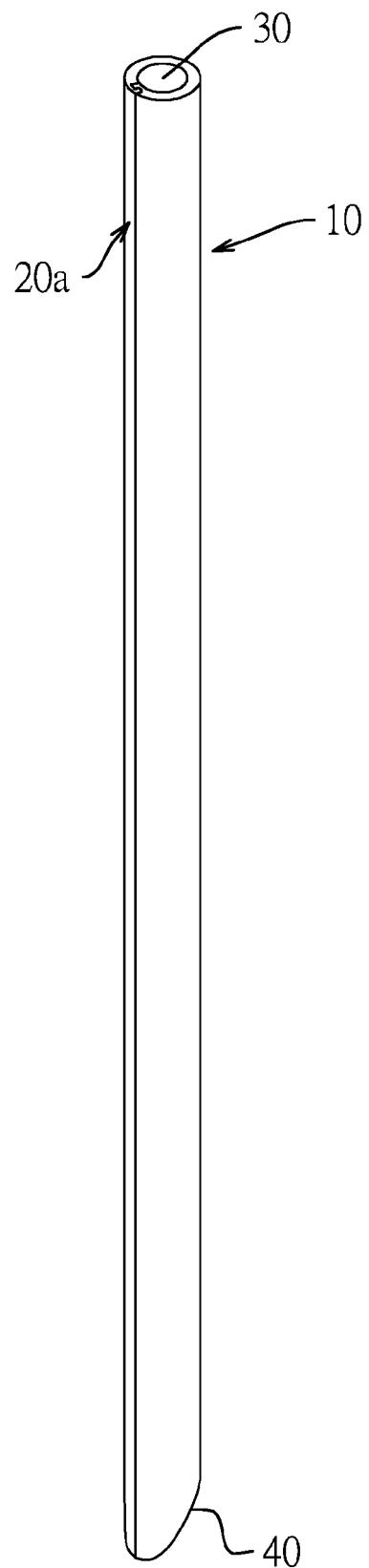


FIG.1

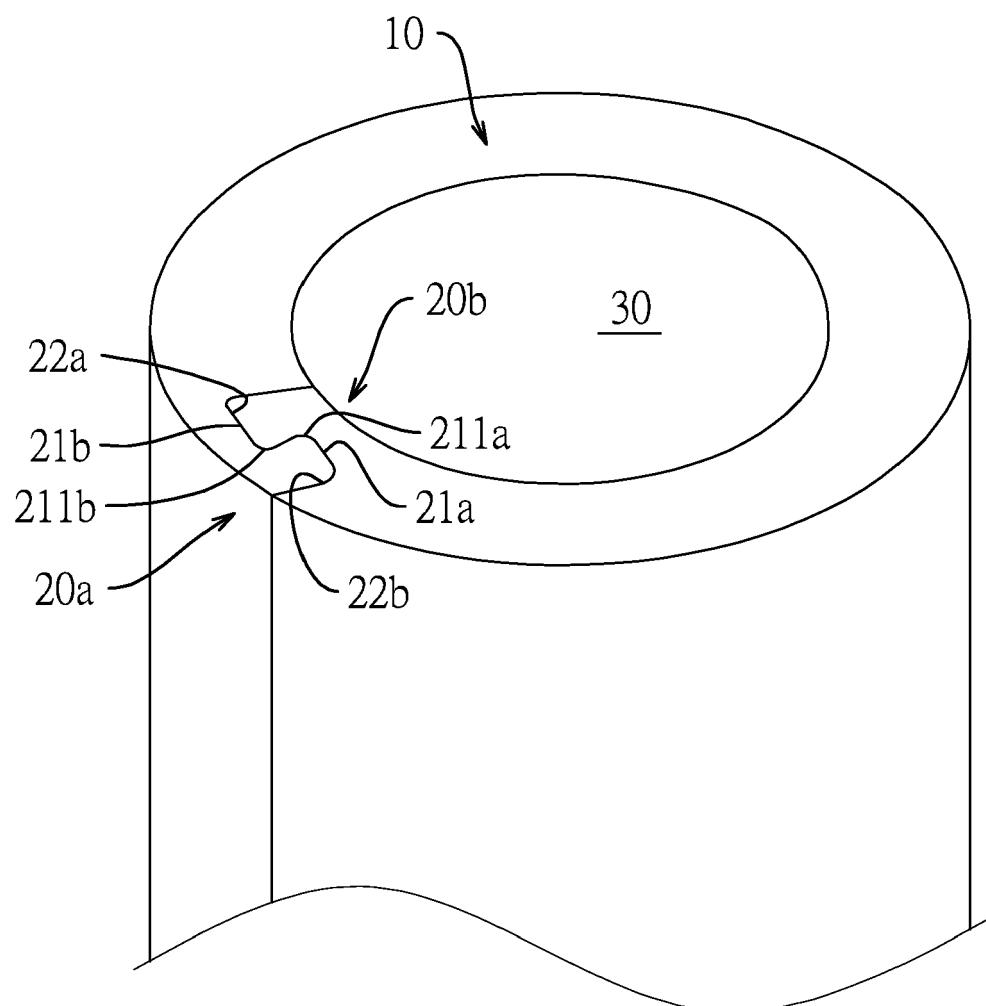


FIG.2

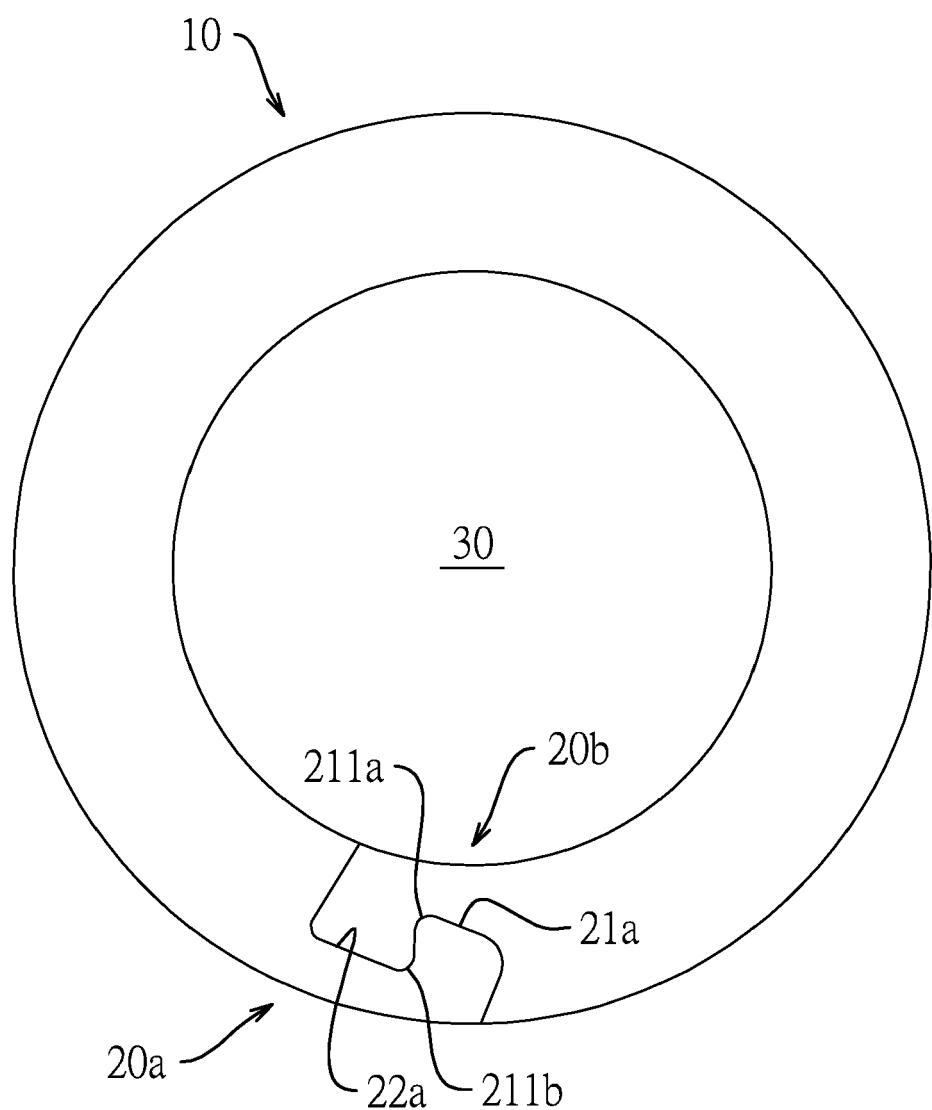


FIG.3

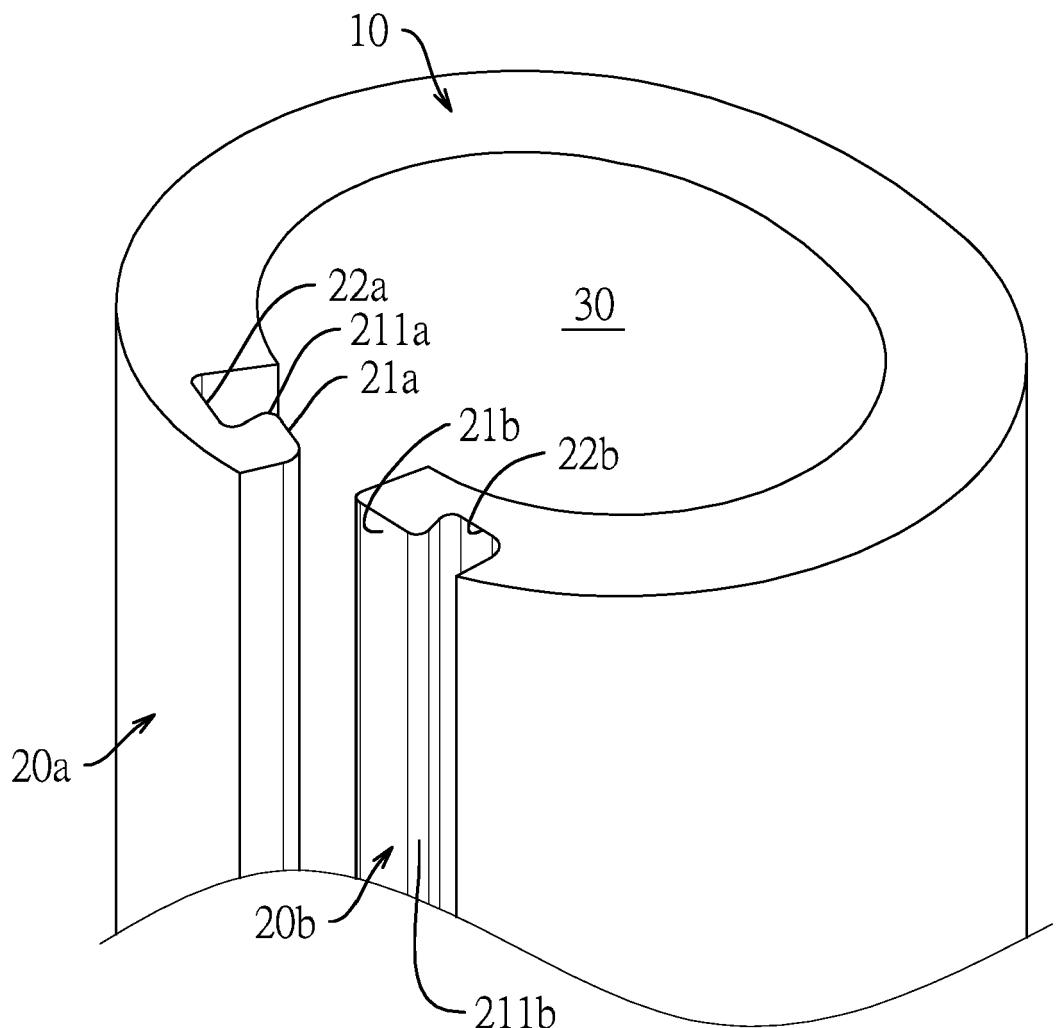


FIG.4

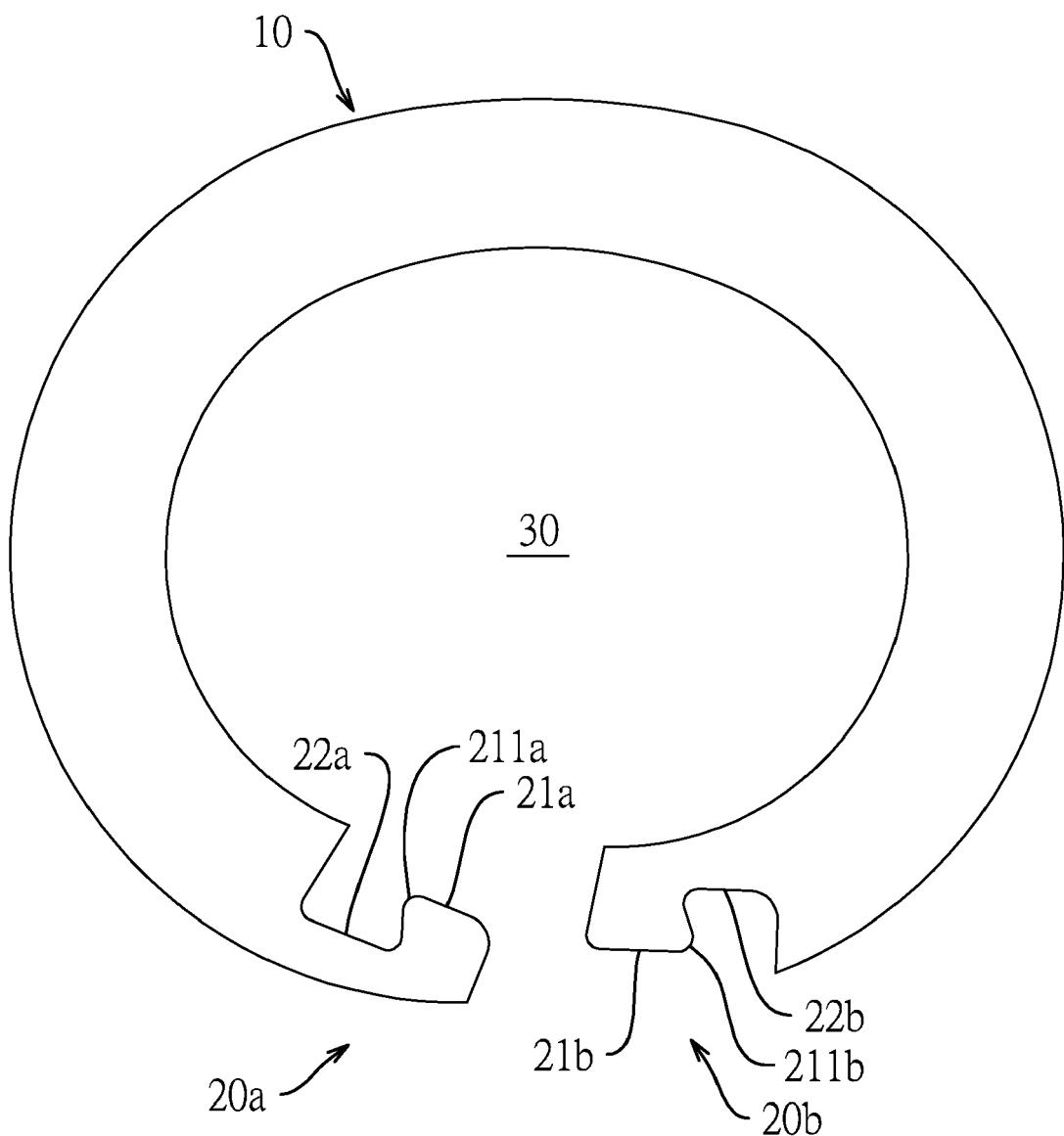


FIG.5



## EUROPEAN SEARCH REPORT

Application Number

EP 23 15 6538

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DOCUMENTS CONSIDERED TO BE RELEVANT			
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35			A47G F16L
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50	The present search report has been drawn up for all claims		
55	2 Place of search The Hague	Date of completion of the search 9 June 2023	Examiner Vistisen, Lars
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X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
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EP 23 15 6538

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