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(54) **FIREPLACE EXTRACTOR**

(57) Extractor for chimneys designed to function in general in any space, such as neighborhood communities, single-family homes or any other type of building in which there are chimneys that generate fumes produced by the combustion of coal, firewood or any other flammable producto,

Is characterized in that it comprises a support ring of 51 mm in height with a circular central socket supported by three conventional arms ; a lower turnin ring ; an upper turning ring ; a rotary axis in a circular shape ; 18 fins and a dome with six pivots in which the support ring incorporates three inserts or flanges in order to provide greater fixation to the chimney.

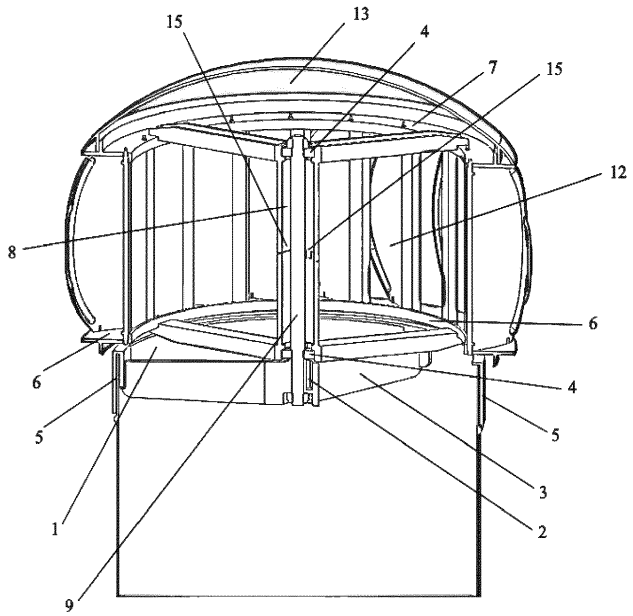


FIG. 1

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## Description

### OBJECT OF THE INVENTION

**[0001]** The present invention refers to an extractor for chimneys designed to function in general in any space, such as neighborhood communities, single-family homes or any other type of building in which there are chimneys that generate fumes produced by the combustion of coal, firewood or any other flammable product.

**[0002]** The object of the invention is, therefore, to provide a smoke extraction system that improves existing manufacturing techniques and incorporates different elements in order to improve efficiency, cleanliness and even aesthetics.

### BACKGROUND OF THE INVENTION

**[0003]** Different types of smoke extractors for closed spaces are known in the state of the art. Systems that have conventional bearing designs: shaft, support rings, fins and domes, have been manufactured and used routinely, but which present a series of drawbacks such as insufficient extraction capacity, their short duration due to the fixing systems of parts or the lack of protection of some of the basic parts with respect to soot and pollution, as well as the rapid wear generated by the fumes.

**[0004]** In the invention U200700217 a wind extractor is provided that incorporates in its upper part a double-deck Savonius turbine, located one on the other with a 90-degree offset in order to allow its rotation when receiving the outside wind, whatever its direction, remaining mounted the upper turbine of the Savonius type with two decks and with blades arranged one from the other with an offset of 90 degrees within a grate of any type through which It will allow the wind to be collected, becoming a motor turbine.

**[0005]** Inside the wind extractor itself and in its lower part, an extractor turbine is mounted connected by its shaft to the upper Savonius turbine, acting as a driving element on the lower turbine that will be driven, leaving the upper arid lower turbines separated from each other by means of a closing partition, so that the rotation of the motor is transmitted to the lower one so that this, in turn, produces the extraction of interior air or bad odors through a lower annular area carrying the lower cylindrical piece that supports the lower turbine some supports constituted by plates mounted diametrically and internally to the lower cylindrical body of the extractor provided with bearings that support the shaft between the driving turbine and the extractor turbine.

**[0006]** Said invention is novel and efficient but presents the drawback that the grid and the mechanism provided entail a higher manufacturing cost, as well as greater difficulty in cleaning, upkeep and maintenance. On the other hand, in conventional wind extraction systems that work through blades and swing bearings, the vertical shafts or tubular supports that support the rotating heads are often left unprotected and exposed to easy deterioration caused by fumes.

### DESCRIPTION OF THE INVENTION

**[0007]** The invention that is advocated solves a large part of the problems raised, since it provides a greater height to the support ring that is directly coupled to the chimney tube, providing it with a larger wall and simple additional fixing elements, which allows favor a greater firmness to the final complex, avoiding movements and displacements caused by the force of the wind or wear.

**[0008]** Likewise, the height of the fins is increased and the number of these is not increased or decreased depending on the size of the extractor, but rather a total set of 18 fins is provided for the system to function optimally in the different dimensions, which which increases the turning capacity.

**[0009]** Regarding the turning rings, they are mounted one on top of the other, constituting two separate pieces that are assembled and joined by means of a vertical bar that covers the shaft, and that is provided in its middle area with a fitting element to join both pieces, which once united form the skeleton of the set. This gives the system more robustness.

**[0010]** The axis of rotation, unlike conventional shafts that usually have a "U" shape, in addition to being fully covered and protected, is cylindrical, thus avoiding unwanted turbulence caused by air flows, in addition to being protected from smoke and soot as it is completely hidden

**[0011]** The dome or upper cover has a circular, but flattened shape, which allows incorporating six pivots that merge into the upper turning ring to create a more secure joint than traditional adhesives, which can degrade at certain temperatures and cause the system to dismount.

### DESCRIPTION OF THE FIGURES

**[0012]**

Figure 1 is a sectional view of the extractor assembly for chimneys.

Figure 2 is a side view of the chimney extractor assembly.

Figure 3 is a front view of the upper or lower turning ring.

Figure 4 is a detailed view of the complete part that make up the lower and upper turning rings.

Figure 5 is a new detailed view of the complete part that make up both the lower and upper turning rings.

Figure 6 is a detailed view of the support ring.

Figure 7 is a detailed view of the dome of the extractor with its six pivots.

PREFERRED PERFORMANCE OF THE INVENTION

**[0013]** As we can see in the referred figures, the extractor of the invention is constituted from a support ring (1) of 51 mm with a central circular neck or socket (2) supported by three conventional arms (3) designed to house by its lower part the axis of rotation (9) and the bearings (4). This support ring (1) is provided with three inserts or tabs (5) for correct fixing and coupling to the chimney pipe.

**[0014]** On the support ring (1) the system formed by the lower turning ring (6) and the upper turning ring (7) in which the shaft and the bearings fit is placed. Both turning rings are joined by the vertical bar (8) that covers the shaft (9), Each upper and lower turning ring is manufactured as an independent piece, so that both incorporate a section or half (10) of the vertical bar (8) that joins both rings and covers the shaft (9), so that once both sections (15) are fitted, the skeleton of the assembly (11) Is formed without the rotation axis (9) being exposed, avoiding the drawbacks described.

**[0015]** For its part, the axis of rotation (9) is circular.

**[0016]** Between the upper turning piece or ring (7) and the lower turning piece or ring (6) are located conventional fins (12), but which are provided with a height of 150 mm and in a number of 18 units.

**[0017]** Finally the dome (13) is assembled to the upper turning ring (7) through six pivots (14) that merge into the ring (7) to achieve a more secure connection.

**[0018]** It is not considered necessary to make the present specification more extensive so that a person skilled in the art can understand the scope of the invention and the advantages derived from its use. The sizes, shapes, mechanisms, and constituent materials of the invention may be varied to adapt them to the advantages that may be derived from its specific application, as long as this does not affect the essentiality of the invention. The terms used in this report should be taken as illustrative, not limiting.

**Claims**

1. Extractor for chimneys **characterized in that** it comprises a support ring (1) of 51 mm in height with a circular central socket (2) supported by three conventional arms (3); a lower turning ring (6); an upper turning ring (7); a rotary axis in a circular shape (9); 18 fins and a dome (13) with six pivots (14) in which the support ring (1) incorporates three inserts or flanges (5) in order to provide greater fixation to the chimney.

2. Extractor for chimneys according to the previous claim, **characterized in that** the lower turning ring (6) and the upper turning ring (7) constitute two different sections, each one comprising and in a single piece, a section or half of the vertical bar (8) that covers the shaft (9).

3. Extractor for chimneys according to the first and second claims **characterized in that** the vertical bar (8) is joined by means of a socket (15) to cover the shaft (9)

4. Extractor for chimneys according to the first claim, **characterized in that** the dome (13) incorporates six pivots (14) that fuse firmly to the upper turning ring (7).

5. Extractor for chimneys according to the first claim **characterized in that** the 18 fins have a height of 150 mm.

6. Extractor for chimneys according to the first claim, **characterized in that** the rotation axis (9) is round.

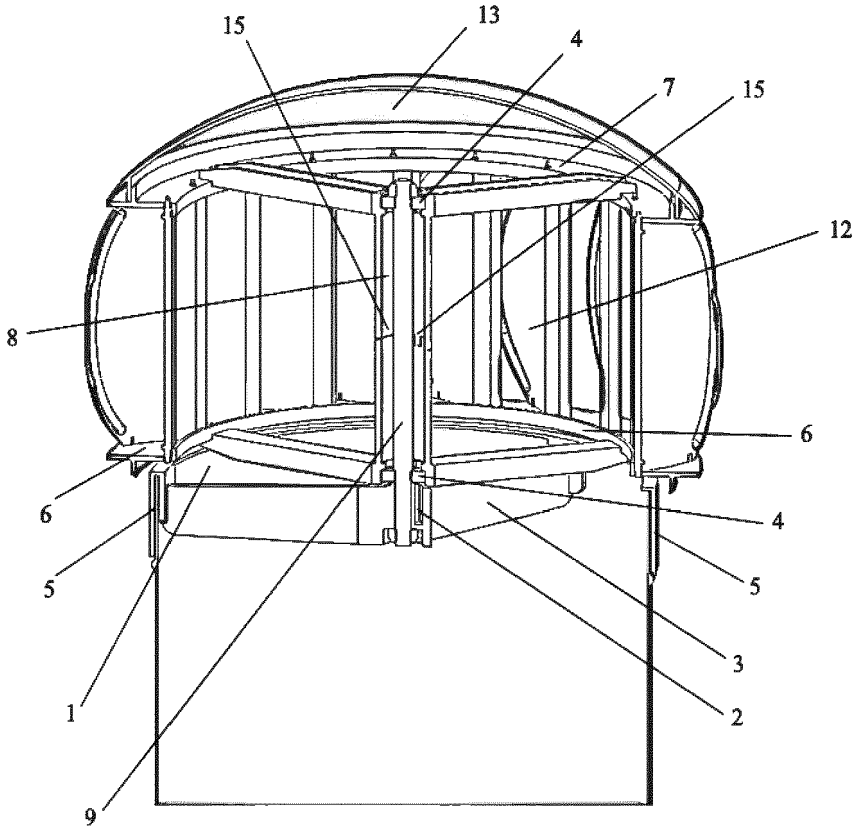


FIG. 1

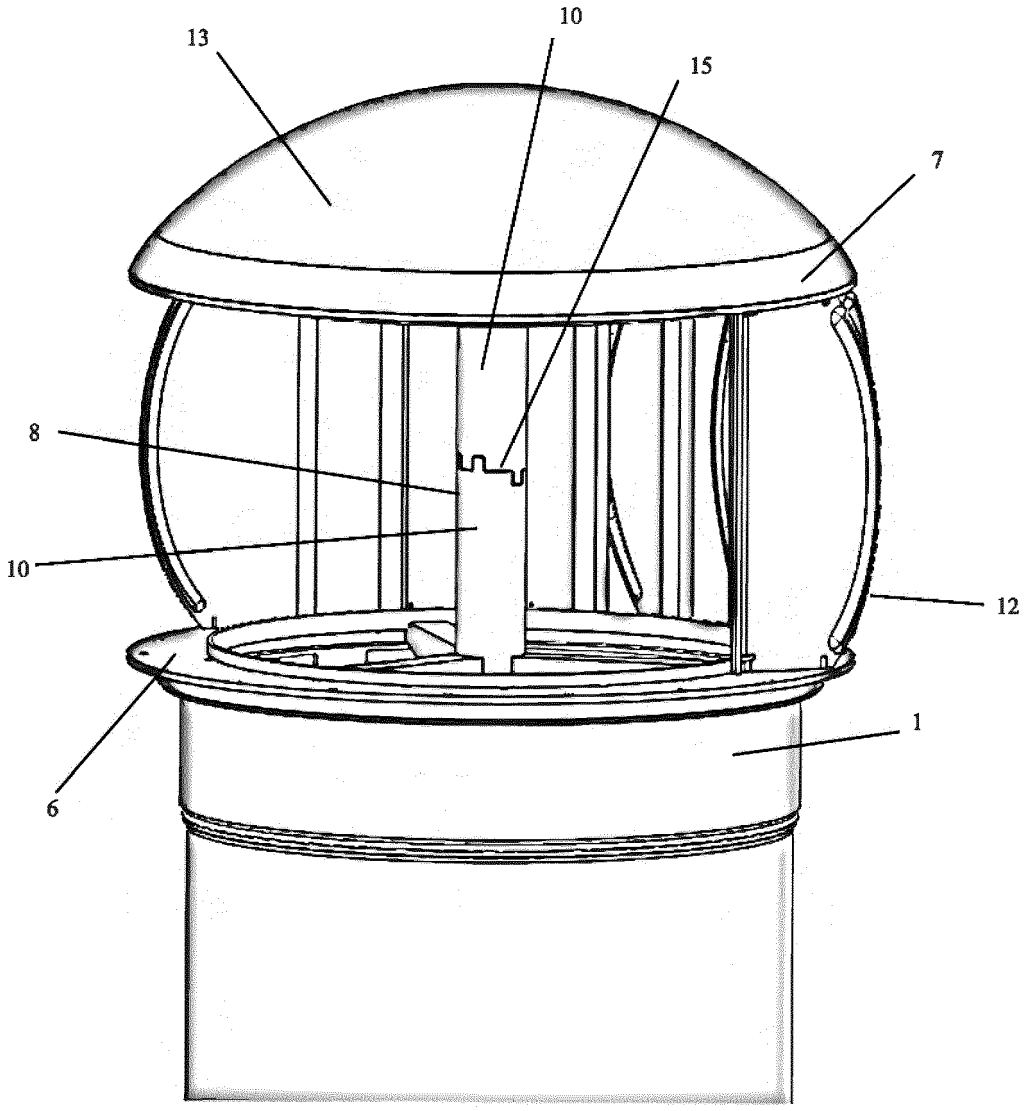


FIG. 2

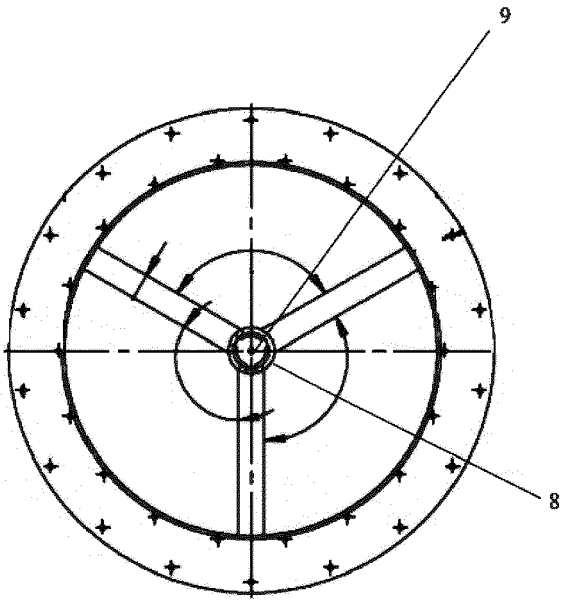


FIG. 3

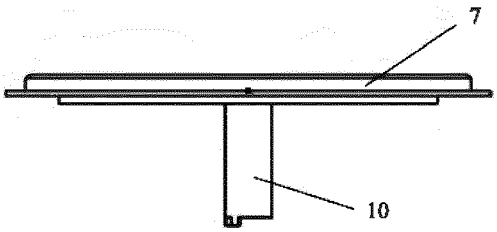


FIG. 4

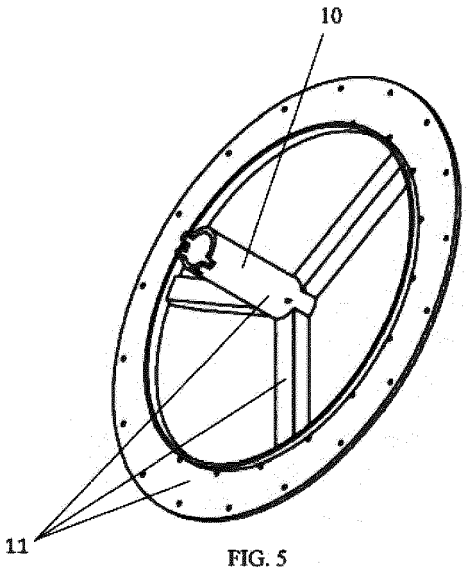


FIG. 5

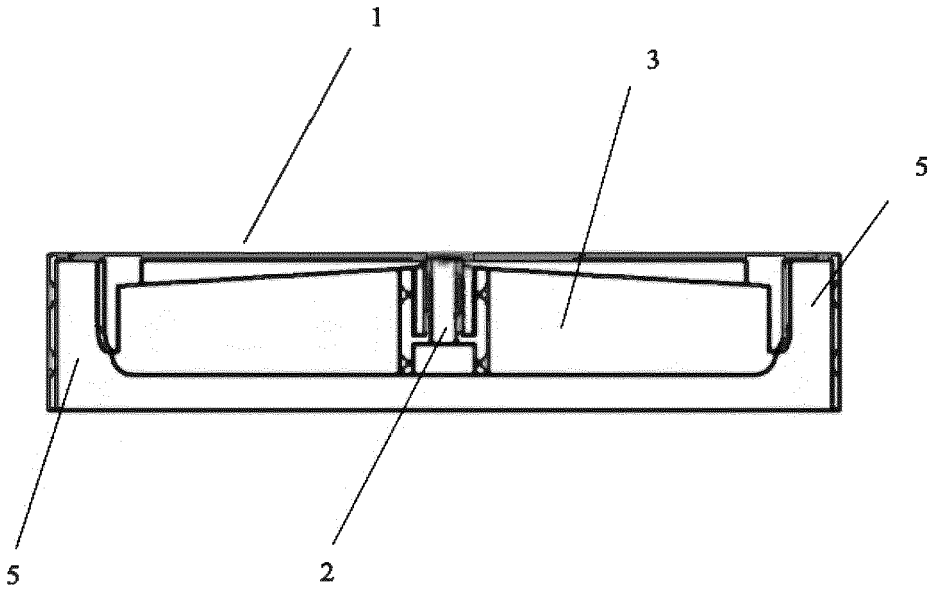


FIG. 6

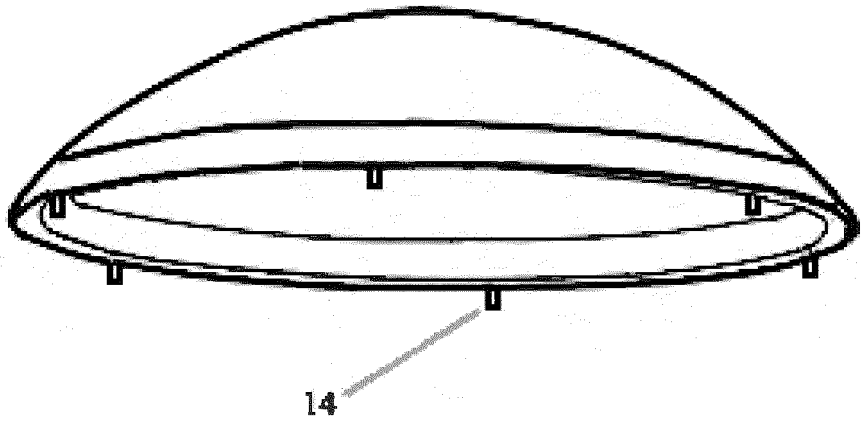


FIG. 7

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# EUROPEAN SEARCH REPORT

Application Number
EP 20 38 2461

## 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<br>A | US 4 303 375 A (FOGLESONG ROBERT M ET AL) 1 December 1981 (1981-12-01)<br>* column 2, line 33 - column 4, line 25; figures 1-6 * | 1,4-6<br>2,3 | INV.<br>F23L17/10 |
| A | US 3 392 659 A (ROUSEY DONALD L) 16 July 1968 (1968-07-16)<br>* column 1, line 43 - column 3, line 34; figures 1-3 * | 1-3 | |
| A | AU 2009 100 921 A4 (CSR BUILDING PRODUCTS LTD) 5 November 2009 (2009-11-05)<br>* page 6, line 18 - page 10, line 2; figures 1-6 * | 1-3 | |
| A | DE 10 2013 021001 B3 (VENTFAIR PRODUKTIONS UND VERTRIEBS GMBH [DE])<br>5 February 2015 (2015-02-05)<br>* paragraph [0024] - paragraph [0033]; figures 1-3 * | 1-3 | |
| | | | TECHNICAL FIELDS SEARCHED (IPC)<br>F23L |

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| Munich | 26 January 2021 | Theis, Gilbert |

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
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EPO FORM 1503 03.82 (P04C01)

## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 20 38 2461

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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26-01-2021

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| AU 2009100921 A4 | 05-11-2009 | NONE | |
| DE 102013021001 B3 | 05-02-2015 | NONE | |

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