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(71) Applicant: **Gkiokas, G. Sotirios**
171 24 Nea Smyrni Attikis (GR)

(72) Inventor: **Gkiokas, G. Sotirios**
171 24 Nea Smyrni Attikis (GR)

(54) **DRAFT GENERATING APPARATUS FOR CHIMNEY TOP**

(57) Mechanism of artificial gas traction consists of a cylindrical or polygonal tube bearing ports/vents (C) spaced apart while it is closed at the top, the ports/vents being parallel to the axis (D) of the cylindrical or polygonal tube. The mechanism does not bear moving parts. Due to the shape of the mechanism, Bernulli-Venturi principle conditions are generated, resulting to traction or significant strengthening and stabilization of natural draft and air pumping or gas exhaust. The mechanism is used in particular to fireplaces, stoves and ventilation in places where ventilation is difficult (skylights, warehouses, etc.). During operation of the device constant draft occurs regardless of weather conditions.

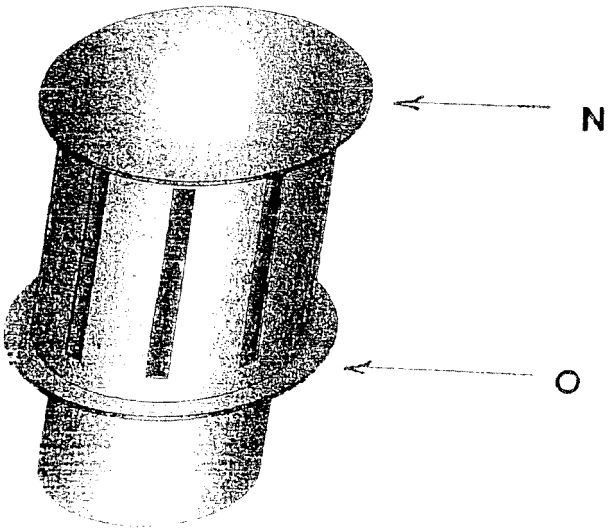

Figure 4

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Description

Technical field with reference to the invention

[0001] The industrial or household application of the invention refers to a stable mechanism with no moving parts (such as impeller, etc.). Due to its shape, taking advantage of the wind, the mechanism creates air draft or strengthens and stabilizes the natural air draft, using only the wind energy.

Concept and evaluation of the previous technique

[0002] Mechanisms of artificial gas traction are widely used in chimneys and vents.

[0003] These mechanisms have various forms: some have ball-bearings (bearings) with implellers, while in others the impellers are powered by electric motors. A common characteristic of the majority of the existing types of artificial traction mechanisms is that they bear moving parts for pumping air or exhaust gas. The fact that these mechanisms have moving parts makes them particularly vulnerable. For example, the ball bearings are exposed to high temperatures of a stack showing lesions (stickiness) and therefore suffer from very short lifetime. Moreover, rotating mechanisms bearing impellers frequently suffer from part detachments. Note that under very high wind speeds, breakage of the shaft of the impeller can occur, probably because balancing mechanism during manufacturing is not preceded, causing particularly dangerous consequences in case the device falls on the ground. Finally, the motorized mechanisms are energy-intensive.

Advantages of the invention

[0004] There are numerous advantages concerning this particular invention. To begin with, its mechanism does not hold moving parts, it does not consume energy and ensures traction (draft) regardless of the weather conditions. The absence of moving parts precludes wear and damage, which makes the lifetime of the mechanism unlimited. The fixed clamping of the mechanism precludes its detachment. Furthermore, the invention does not use any other form of energy other than aeolian. Finally, exhaust gases or air is constantly pumped in regardless of the weather conditions.

Revelation of the invention as disclosed in the claims, so that the problems and the solutions are understood

[0005] The mechanism of artificial gas traction (Figure 4) with suction capacity of pumping gas, stabilizing and strengthening natural traction is based on the principle of Bernulli-Venturi and it is characterized by its shape consisting of a fixed cylindrical or polygonal tube (Figure 1) positioned vertically of the uppermost chimney or vent pipe.

[0006] The diameter and height of the tube of the device may differ depending on the requirements at each case.

[0007] This tube carries vertical, longitudinal ports/vents (Figure 1) (C) at its periphery, which are parallel to the cylinder axis (Figure 8) (D). The number, size and spacing of the ports/vents vary depending on the requirements at each case.

[0008] This tube is firmly attached (welded) to the base of the device (Figure 3) and closed at the top with a cap (Figure 2), which is welded or fixed with screws.

[0009] The final shape of the device after bonding of the three segments is shown in Figure 4. In Figure 4 it is shown that the base of the device (Figure 3) and the cap (Figure 2) have a larger diameter than the diameter of the cylindrical tube, therefore two flaps are created (Figure 4) (N) and (0). At the top and bottom sections of the cylindrical tube these flaps partially prevent concentrated wind lines from defusing. The mechanism, depending on the requirements, can be made with or without fins. The construction material of the mechanism is metal, plastic, cement, etc.

Operation of the mechanism

[0010] The wind meets the cylindrical tube (Figure 5), and follows the outer surface thereof. While the wind moves from point (K) to point (L) as shown in Figure 5, gradual thickening of wind lines and equivalent increase of wind speed and, hence, vacuum occur, in line with the Bernulli-Venturi principle. Maximum vacuum occurs at point (L) as shown in Figure 5. The same amount of vacuum generated at point (L) (Figure 5) applies vertically over the entire height of the cylindrical tube (Figure 1). In order to take advantage of this vacuum, we place the ports/vents in a vertical position (Figure 1) (C). At point (L) (Figure 5), the wind lines meet port/vent (C) (Figure 1), through which the generated vacuum draws the gas exhausts from the interior of the cylindrical tube (Figure 5). More such ports/vents for the suction of exhausts are placed around the cylindrical tube so that they cover different points of convergence of the wind rheumatic lines at the cylindrical tube every time there is a change of the wind direction.

[0011] In this way we achieve continuous pumping of exhausts while avoiding any movement in/of the mechanism. The distance between the two ports/vents of the cylindrical tube (Figure 1) (M) requires to have large width, in order to sufficiently gather as many wind lines as possible.

[0012] The ports/vents (Figure 1) (C) should have a narrow width for the vacuum to maintain strong. The ports/vents (Figure 1) (C) may be one for the entire height of the cylindrical tube, or several ones with lower height each. In any case, the sum of the surface of all ports/vents must be sufficient enough to allow the exit of the exhausts without facing any obstacles, not only where artificial draft

is generated but also in cases of apnea, where the gas output is achieved through natural draft.

[0013] The increase or decrease of the total area of the ports/vents is achieved through the use of a cylindrical tube of greater or lesser length, which has corresponding ports/vents of larger or smaller height respectively.

[0014] The fact that moving parts of the mechanism are absent offers multiple benefits:

- excludes mechanic wear and damage,
- the operating time of the mechanism becomes unlimited, and
- no further energy is required other than the aeolian.

[0015] The fact that the operation of the mechanism of the presented invention is based on the Bernulli-Venturi principle has the following advantages:

- the gas exhausts raising is achieved regardless of the intensity of weather conditions, ie. at both low and high wind speeds,
- draft is achieved even during turbulence as well as during sudden changes in wind direction and
- prohibits any reverse direction of the exhaust.

the mechanisms of artificial gas traction occurs in the following designs:

Figure 1: cylindrical tube of the mechanism
Figure 2: cylindrical tube cap
Figure 3: cylindrical tube basis
Figure 4: final shape of the mechanism
Figure 5: plan view of the cylindrical tube during the operation of the mechanism
Figure 6: facade of the mechanism
Figure 7: aside view of the mechanism
Figure 8: atop view of the mechanism

Claims

1. The mechanisms of artificial gas traction with suction ability of pumping gas, stabilizing or enhancing natural draft is based on the Bernulli-Venturi principle and consists of a cylindrical or polygonal tube, which bears vertical elongated ports/vents (C) in its periphery, parallel to the axis of the cylindrical tube (D) and spaced apart. The tube is placed vertically on the top chimney or vent pipe, where it is fixed (welded) to the base, and closed with a lid. The lid is firmly fixed with screws or welded to the body of the device. During operation of the device there is no movement in any of its parts.

2. The mechanism of artificial gas traction according to claim 1 carries blades (N) and (O). The blades (N) and (O) are fixed (welded) as additional parts on the outer surface of the cylindrical tube or created when the diameter of the base and the lid is greater than the diameter of the cylindrical tube.

3. The mechanism of artificial gas traction according to claim 1 bears blades (N) and (O).

4. The mechanism of artificial gas traction according to claim 1. is made of metal, plastic, cement etc.

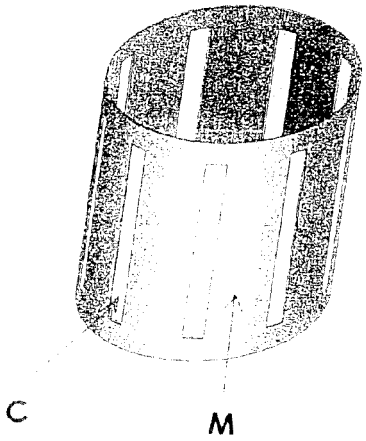

Figure 1

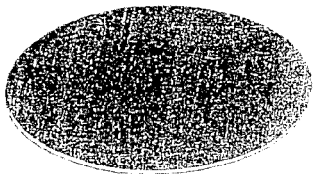

Figure 2

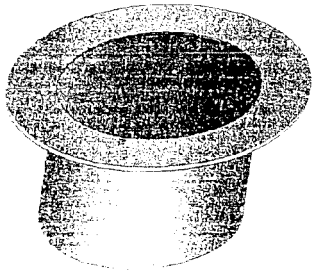

Figure 3

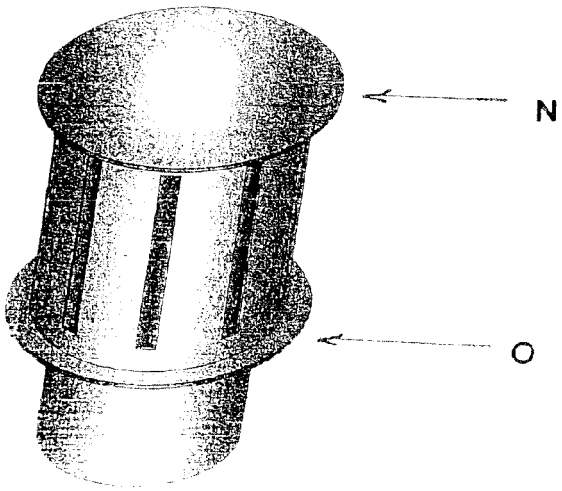

Figure 4

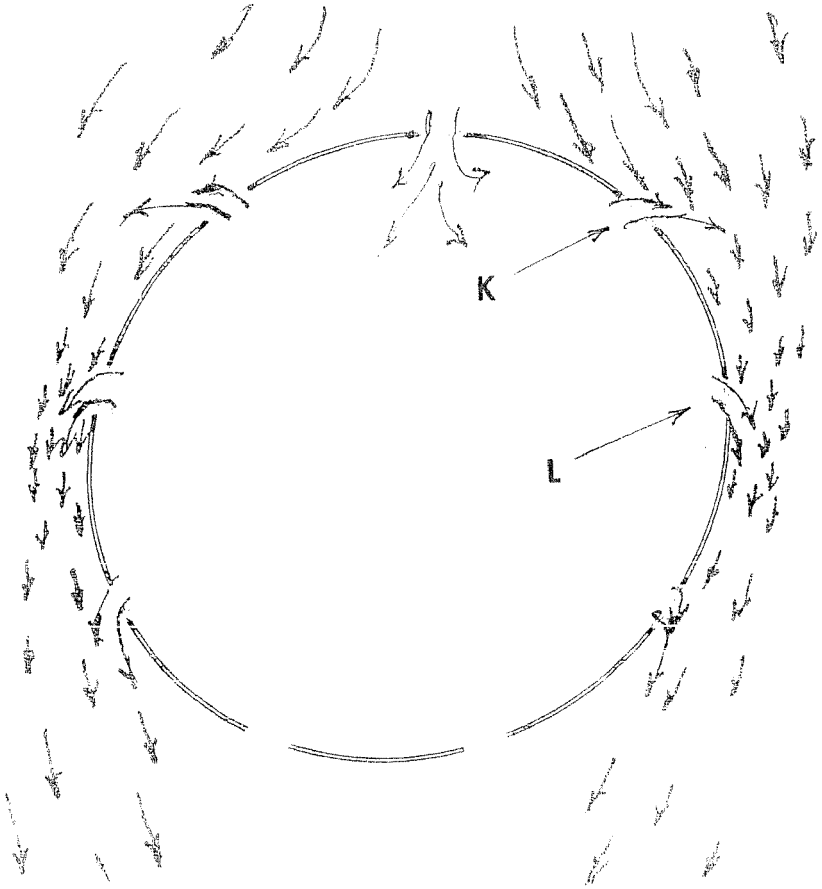

Figure 5

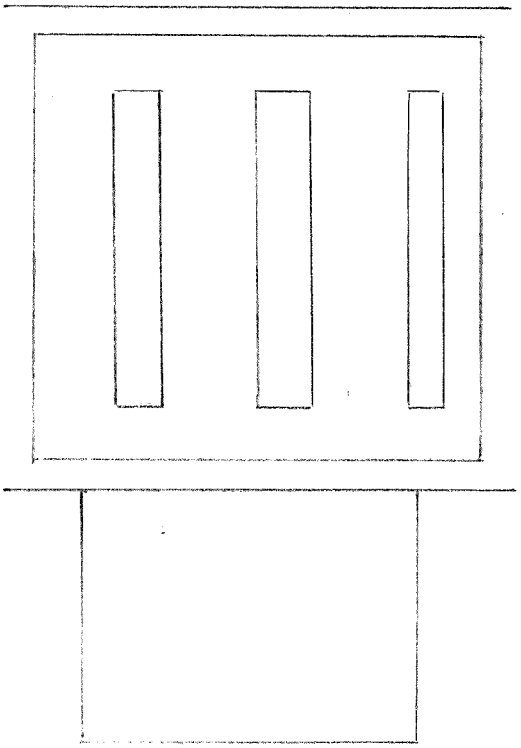

Figure 6

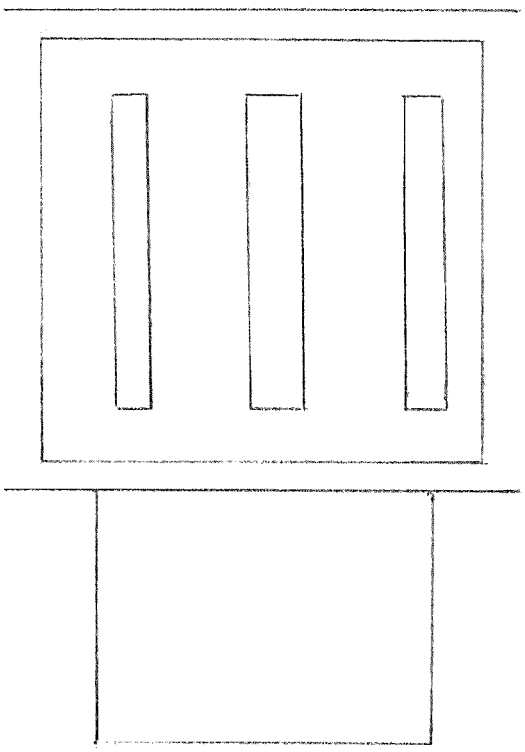

Figure 7

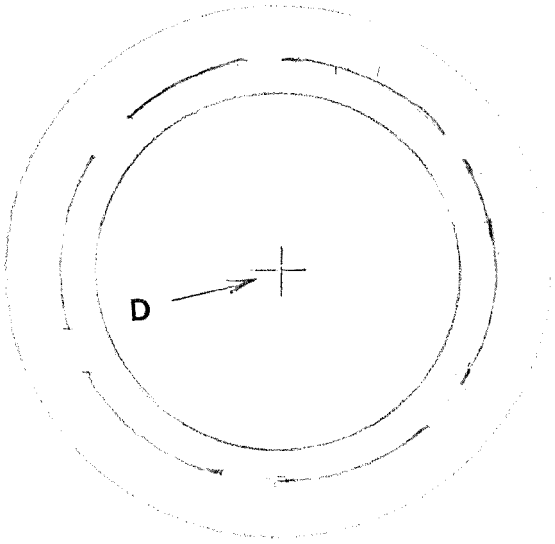

Figure 8

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EUROPEAN SEARCH REPORT

Application Number
EP 15 38 6015

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	US 2 717 547 A (LEE GRENZEBACH EDGAR ET AL) 13 September 1955 (1955-09-13) * figures 1-8 * * column 2, line 42 - column 3, line 30 * * column 3, line 54 - line 65 *	1-4	INV. F23L17/02 F23L17/16
X	US 2 396 746 A (O'DAY CORTLAND N) 19 March 1946 (1946-03-19) * column 1, line 34 - column 2, line 29; figures 1,2 *	1-4	
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X	FR 381 480 A (LUCIEN PELLETIER [FR]; GASTON MONIER [FR]; LOUIS ROULEAU [FR]) 13 January 1908 (1908-01-13) * page 1, line 20 - line 62; figures 1,2 *	1,4	
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X	GB 07383 A A.D. 1913 (VASSEUR JEAN-MARIE-GUSTAVE [FR]) 22 January 1914 (1914-01-22) * page 1, line 14 - page 2, line 8; figures 1-4 *	1-4	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	7 October 2015	Mougey, Maurice

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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07-10-2015

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