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(71) Applicant(s)
Carpyz SAS

(72) Inventor(s)
Carrouset, Pierre;Carrouset, Nicole;Carrouset, Gabrielle

(74) Agent / Attorney
Dennemeyer & Associates, L2 35 Cotham Rd, Kew, VIC, 3101

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(71) Déposant : CARPYZ SAS [FR/FR]; 215 rue Jean Jacques Rousseau, F-92136 Issy les Moulineaux (FR).

(72) Inventeurs : CARROUSET, Pierre; 22, Rue Emeriau, F-75015 Paris (FR). **CARROUSET, Nicole**; 22, Rue Emeriau, F-75015 Paris (FR). **CARROUSET, Gabrielle**; 22, Rue Emeriau, F-75015 Paris (FR).

(74) Mandataire : DENNEMEYER & ASSOCIATES S.A.; Bavariastrasse 7, 80336 München (DE).

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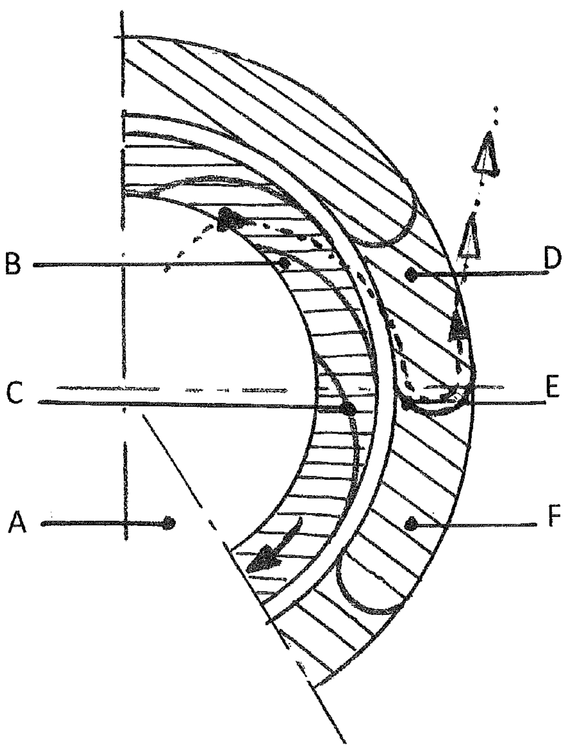
[Suite sur la page suivante]

(54) Title : TURBINE COMPRISING AT LEAST TWO HOLLOW 3D WHEELS NESTED INSIDE ONE ANOTHER

(54) Titre : TURBINE COMPORTANT AU MOINS DEUX ROUES 3D CREUSES EMBOÎTÉES L'UNE DANS L'AUTRE

Fig 2



(57) Abstract : Firstly, the turbines direct the fluid tangentially through channels provided around a stationary hollow wheel and the jets are received in buckets in a rotating wheel surrounding the stationary wheel, operating on the Pelton wheel principle. This novel method can be used to construct turbine assemblies that can recover energy from moving fluids, like wind turbines and marine turbines, using a minimum capture surface and obtaining a maximum yield.

(57) Abrégé : Ces turbines orientent d'abord le fluide de façon tangentielle, par des canaux tout autour d'une roue creuse qui est fixe, et les jets sont reçus dans une roue rotative qui enveloppe la roue fixe, dans des godets selon le principe des roues des turbines Pelton. Ce nouveau procédé permet de construire des ensembles turbines capables de récupérer l'énergie des fluides en mouvement comme les éoliennes ou les hydroliennes avec une surface de captation minimum et un rendement maximum.

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DESCRIPTION

Propellers have been used for some time to capture energy from fluids, for example wind turbines with reasonable dimensions are used in desert countries to extract water from wells and in Europe to provide drinking water for cows in fields or windmills for producing flour.

These propellers have stood the test of time because they have a large air exchange surface, called wetted surface, owing to the many large blades that cover almost the entire circle, thus capturing the maximum amount of energy contained in the wind with a minimal diameter.

The new, very large turbines that are ruining our landscapes do not have a large wetted surface and also have mean yields of approximately 20%.

Wind socks, which indicate the direction and strength of the wind at airports and on roadsides, are one example of the use of wind with a three-dimensional device.

The CARPYZ industrial computing tool makes it possible to generate helical blades with very complex shapes easily, on demand and infinitely, and provides the computer files necessary to build them.

Several decades of long and tedious research allowed the discovery of these new turbines with hollow 3D wheels nested inside one another that will make it possible to capture a same quantity of energy, with a diameter smaller than that of the large wind turbines currently known.

The turbine according to the present invention captures the fluid over nearly the entire surface of a circle in a stationary hollow wheel such as a wind sock, and by interlaced blades, they generate channels that direct the fluid not to the end, but tangentially to the periphery of the sock.

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What is new is that a rotating hollow wheel surrounds the stationary wheel that it receives, all around, via the inside, the fluid jets projected by the channels of the stationary wheel, in buckets placed concordantly that are pushed and withdraw, like those of the Pelton wheels that have been used for some time in hydroelectric power plants, and have the same known yields in the vicinity of 90%.

The shapes of the blades that make up these wheels are very complex and must be adapted for each wheel built based on the fluids and the desired characteristics.

The blades of the stationary and rotating wheels, which are interlaced, form a honeycomb structure and are mechanically very strong, and the moving wheel is also protected by the stationary wheel.

In one aspect, the invention provides a turbine including at least two hollow 3D wheels nested inside one another, characterized on the one hand in that a stationary hollow wheel (A) is open at the front to the entry of the fluid at its largest diameter and is made up of curved successive circular washers (B), the inner diameter of each of which decreases from the front toward the center and the inner edge of each of which is oriented toward the front, and are interlaced by blades that are preferably wound in a spiral (C) that go from the front toward the center and form, with the washers, channels oriented tangentially toward the periphery of the wheel, and on the other hand at least one rotating wheel (D) that surrounds the stationary wheel and is made up of blades preferably wound in a spiral that go from the large diameter toward the center and are curved in the form of hollow buckets, one of the spouts of which is oriented tangentially (E) to the inside of that wheel and said bucket blades are interlaced with circular washers (F) that go from the inside toward the outside and partition the buckets, and the inner edges of said washers are at best in continuity with the washers of the stationary wheel (G).

Consequently, the stationary wheel is provided, at the inside of its center, with a circular shield, the tip of which is oriented toward the front (H).

Likewise, the turbines are contained in an outer enclosure that covers the wheels and is secured at the front to a stationary wheel and is secured at the front to a stationary wheel and the surface of the opening of the enclosure is smaller at the front (I) than that situated at the rear of the moving wheel (J).

Mechanically speaking, the rotating wheel is kept at the center by a bearing (K) supported by the inside of the stationary wheel and by radial supports that join the stationary enclosure that surrounds the assembly.

Consequently, the large diameter of the plates of the stationary wheel is secured to the small diameter of the stationary enclosure by an extended front ring that increases from diameter to funnel and joins and becomes combined with the projection of the upper edge of the enclosure.

Geometrically speaking, the profile of the surfaces swept by the wheels inside and outside tends to be semi-spherical or ogival.

It is interesting to note that in front of the stationary wheel is a grate, the meshes of which have a section smaller than that of the channels, and on the other hand, that a filter is kept at the center by the tip of the shield.

It is remarkable that at its large diameter, the shield is followed by the last small washer of the stationary wheel.

To place the turbines, the stationary enclosure is provided with fastening tabs below it.

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The drawings

The drawings are diagrams, deliberately simplified partial views, that show the basic construction of this turbine.

The drawing in Figure 1 shows a half cross-section indicating that a stationary hollow wheel (A) is open at the front to the entry of fluid at its largest diameter and is made up of curved successive circular washers (B), the inner diameter of each of which decreases from the front toward the center and the inner edge of each of which is oriented toward the front, and they are interlaced by blades preferably wound in a spiral (C) that go from the front toward the center and form, with the washers, channels oriented tangentially toward the periphery of the wheel, and furthermore, at least one rotating wheel (D) that surrounds the stationary wheel is made up of blades preferably wound in a spiral that go from the large diameter toward the center and are curved in the form of hollow buckets, one of the spouts of which is oriented tangentially (E) to the inside of that wheel and said bucket spouts are interlaced with circular washers (F) that go from the inside toward the outside and partition the buckets, and the inner edges of said washers are at best in continuity with the washers of the fastening wheel (G).

It also shows that the stationary wheel is provided, inside its center, with a circular shield, the tip of which is oriented toward the front (H), and also that the turbines are contained in an outer enclosure that covers the wheels and that it is secured in the front to a stationary wheel, and that the surface of the opening of the enclosure is smaller at the front (I) than that situated toward the rear of the moving wheel (J).

Likewise, it shows that the rotating wheel is kept at the center by a bearing (K) supported by the inside of the stationary wheel and by radial supports (L) that join the stationary enclosure that surrounds the assembly.

It also shows that the large diameter of the blades of the stationary wheel is secured to the small diameter of the stationary enclosure by a ring (M) extended to the front that

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increases from diameter to funnel and joins and combines with the projection of the upper edge of the enclosure.

It for example shows that the profile of the surfaces swept by the wheels inside and outside tends to be semi-spherical or ogival (N).

It shows that on the one hand, a grate (O) is placed in front of the stationary wheel, the meshes of which have a section smaller than that of the channels, and that on the other hand, and on the other hand in that the grate forms a filter which is kept at the center by the tip of the shield.

It also shows that at its large diameter, the shield is followed by the last small washer of the stationary wheel (P).

The drawing of Figure 2 on the one hand shows a circular washer (B) of the stationary wheel (A) that supports a blade (C) that orients the fluid toward the periphery of the wheel, and on the other hand a circular washer (F) of the rotating wheel (D) that interlaces with the longitudinal strips in the form of a bucket whereof the inner edge is oriented tangentially (E).

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CLAIMS

1. A turbine including at least two hollow 3D wheels nested inside one another, characterized on the one hand in that a stationary hollow wheel is open at the front to the entry of fluid at its largest diameter and is made up of curved successive circular washers, the inner diameter of each of which decreases from the front toward the center and the inner edge of each of which is oriented toward the front, the washers being interlaced by blades that are preferably wound in a spiral that go from the front toward the center and form, with the washers, channels oriented tangentially toward the periphery of the wheel, and on the other hand in that at least one rotating wheel that surrounds the stationary wheel and is made up of blades preferably wound in a spiral that go from the large diameter toward the center and are curved in the form of hollow buckets, one of the spouts of which is oriented tangentially to the inside of that wheel and said bucket blades are interlaced with circular washers that go from the inside toward the outside and partition the buckets, and the inner edges of said washers are at best in continuity with the washers of the stationary wheel.

2. The turbine including at least two hollow 3D wheels nested inside one another according to claim 1, characterized in that the stationary wheel is provided, at the inside in its center, with a circular shield including a tip which is oriented upward.

3. The turbine including at least two hollow 3D wheels nested inside one another according to claim 1 or 2, characterized in that the turbines are contained in an outer enclosure that covers the wheels, and it is secured in the front with the stationary wheel and the surface of the opening of the enclosure is smaller in the front than that situated toward the rear of the moving wheel.

4. The turbine including at least two hollow 3D wheels nested inside one another according to any one of claims 1 to 3, characterized in that the rotating wheel is kept at the center by a bearing supported by the inside of the stationary wheel and by radial supports that join the stationary enclosure that surrounds the assembly.

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5. The turbine including at least two hollow 3D wheels nested inside one another according to any one of claims 1 to 4, characterized in that the large diameter of the blades of the stationary wheel is secured with the small diameter of the stationary enclosure by a ring extended in front that increases from diameter to funnel and joins and combines with the projection of the upper edge of the enclosure.

6. The turbine including at least two hollow 3D wheels nested inside one another according to any one of claims 1 to 5, characterized in that the profile of the surfaces swept by the wheels inside and outside tends to be semi-spherical or ogival.

7. The turbine including at least two hollow 3D wheels nested inside one another according to any one of claims 2 to 6, characterized on the one hand in that a grate is placed in front of the stationary wheel, the grate including meshes which have a section smaller than that of the channels, and on the other hand in that the grate, including the meshes, forms a filter which is kept at the center by the tip of the shield.

8. The turbine including at least two hollow 3D wheels nested inside one another according to any one of claims 1 to 7, characterized in that at its large diameter, the shield is followed by the last small washer of the stationary wheel.

9. The turbine including at least two hollow 3D wheels nested inside one another according to any one of claims 1 to 8, characterized in that the stationary enclosure is provided with fastening tabs below it.

Fig 1

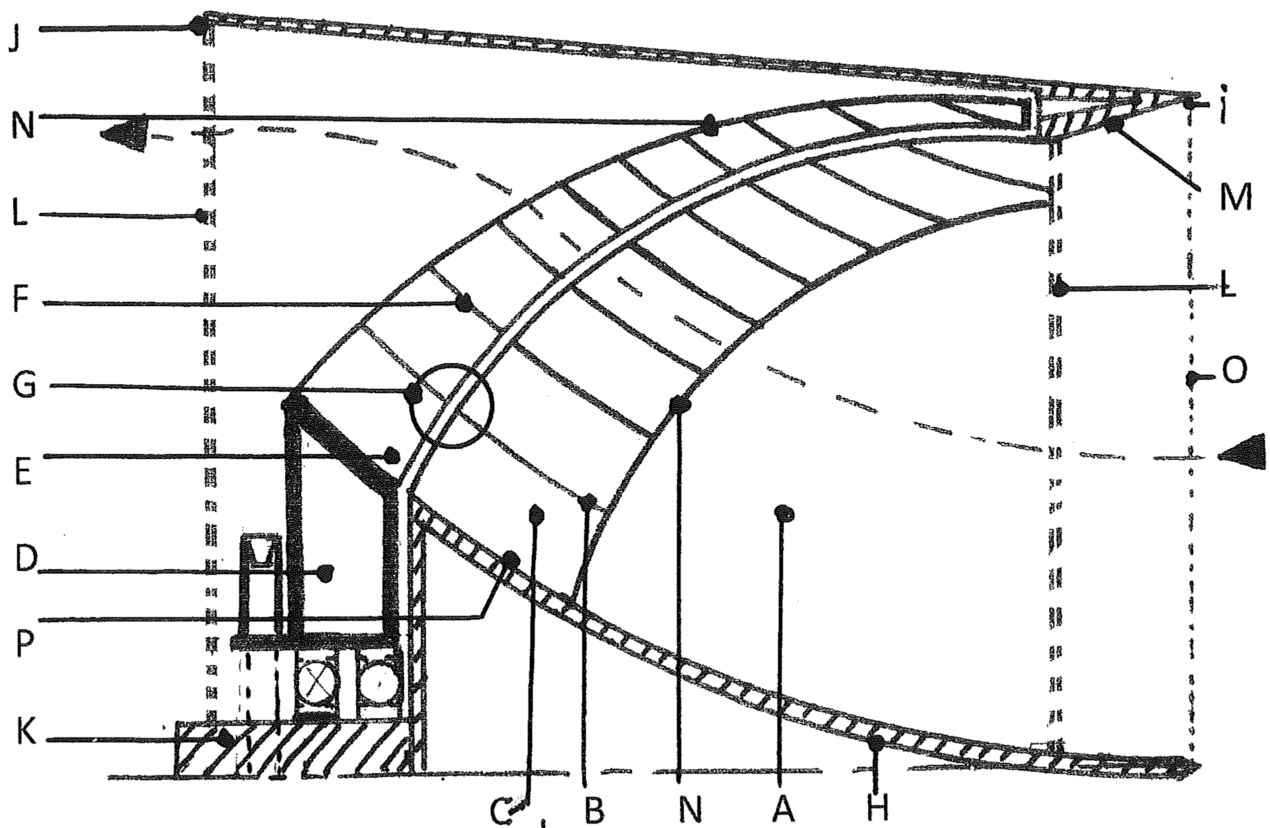

Fig 2