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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* ANDRE PRIEUR

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Appeal 2018-003694<sup>1</sup>  
Application 14/350,636  
Technology Center 3700

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Before ANTON W. FETTING, TARA L. HUTCHINGS, and  
ROBERT J. SILVERMAN, *Administrative Patent Judges*.

HUTCHINGS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>2</sup> appeals from the Examiner’s decision to reject claims 1, 3–5, 7, and 10–22. We have jurisdiction under § 6(b). We REVERSE.

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<sup>1</sup> Our Decision references Appellant’s Appeal Brief (“Appeal Br.,” filed May 30, 2017) and Reply Brief (“Reply Br.,” filed Jan. 25, 2018), and the Examiner’s Answer (“Ans.,” mailed Nov. 30, 2017) and Final Office Action (“Final Act.,” mailed Nov. 3, 2016).

<sup>2</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the inventor, Andre Prieur, as the real party in interest. Appeal Br. 2.

## CLAIMED INVENTION

Appellant's claimed invention "relates to an air centrifugation device, allowing to separate oxygen molecules from nitrogen molecules."

Spec. 1:5-6.

Claims 1, 12, 20, and 21 are the independent claims on appeal. Claim 1, reproduced below, is illustrative of the claimed subject matter.

1. Air centrifugation device, associated to an internal combustion engine (2) having an air inlet system (24) and an exhaust system (25), which comprises at least one cylinder (21), provided with air by an air intake (22), and rejecting combustion gases by an exhaust orifice (23), said air centrifugation device (1) comprising a wheel (11), mounted on an axle (12) and placed inside an envelope (13) containing said wheel (11), said envelope (13) having a circular shape, the whole system comprising at least one air intake orifice (14) and at least two distinct exhaust orifices (15, 16), provided to collect separately oxygen molecules from an oxygen exhaust orifice (15), and nitrogen molecules from a nitrogen exhaust orifice (16), while at least one connecting pipe (3) is provided between the oxygen exhaust orifice (15) and the air inlet system (24) of the internal combustion engine (2), wherein,

said wheel (11) comprises blades intended to accelerate the gases by a rotational movement, the axle (12) of said wheel (11) being driven in rotation, by a turbine (18) placed in line with some elements of the exhaust system (25) of the internal combustion engine (2), or by a motor and a transmission device adapted to transmit rotary movement of the motor to the axle, the blades having a forward edge and a rear edge, the wheel having an axial length extending from the forward edge of the blades to the rear edge of the blades, the axial length being smaller than an interior diameter of said envelope (13),

the air intake orifice (14) is placed near a central part of the envelope (13) of said air centrifugation device (1), while the oxygen exhaust orifice (15) provided to collect the oxygen is located on the envelope (13), at a position near a periphery of the wheel (11), whereas the nitrogen exhaust orifice (16) provided to

evacuate the nitrogen is also located on the envelope (13), but at an intermediate position between the axis of the wheel (11) and the periphery of said wheel (11), and

the shape of the envelope (13), for a part located near the periphery of wheel (11), comprises a cross section (131) that is locally wider than a part of the envelope that is nearer the axis of the wheel, wherein said part located radially closer [to] the periphery of wheel (11) provides a volume of space designed to generate a strip of gas through a thickness of which the oxygen is concentrated.

### REJECTIONS<sup>3</sup>

Claims 1, 3–5, 7, and 10–22 are rejected under 35 U.S.C. § 112, second paragraph, as indefinite.

Claims 1, 10, 12, 13, 15, and 20–22 are rejected under 35 U.S.C. § 102(b) as anticipated by Pletschacher (US 6,363,923 B1, iss. Apr. 2, 2002).

Claims 3–5, 7, and 16–19 are rejected under 35 U.S.C. § 103(a) as unpatentable over Pletschacher and Blandino (US 6,289,884 B1, iss. Sept.18, 2001).

Claims 11 and 14 are rejected under 35 U.S.C. § 103(a) as unpatentable over Pletschacher and Moon (US 2007/0101975 A1, pub. May 10, 2007).

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<sup>3</sup> The Examiner has withdrawn the rejection of claims 1, 3–5, 7 and 10–22 under 35 U.S.C. § 112, first paragraph. Ans. 3.

## ANALYSIS

### *Indefiniteness*

We are persuaded by Appellant’s argument that the Examiner erred in rejecting claims 1, 3–5, 7, and 10–22 under 35 U.S.C. § 112, second paragraph. Appeal Br. 20–23; *see also* Reply Br. 2–3. Claim 1 recites that

the shape of the envelope (13), for a part located near the periphery of wheel (11), comprises a cross section (131) that is locally wider than a part of the envelope that is nearer the axis of the wheel, wherein said part located radially closer [to] the periphery of wheel (11) provides a volume of space designed to generate a strip of gas through a thickness of which the oxygen is concentrated.

Focusing on phrases from this portion of claim 1 involving the word “part” (i.e., a part located near the periphery of the wheel; a part of the envelope that is nearer the axis; and the part located radially closer than the periphery of the wheel), the Examiner maintains that the terms “a part” and “the part” render the claim indefinite because it is not clear if the terms refer to the same elements. *See* Final Act. 3.

However, we agree with Appellant, that when the clause is read in its entirety, it is clear that the “part located radially closer [to] the periphery of wheel (11),” as recited in claim 1, refers to “a part located near the periphery of wheel (11),” not “a part of the envelope that is nearer the axis of the wheel.” *See* Appeal Br. 21; *see also* Reply Br. 3.

In view of the foregoing, we do not sustain the Examiner’s rejection of claims 1, 3–5, 7, and 10–22 under 35 U.S.C. § 112, second paragraph.

*Anticipation*

We also are persuaded by Appellant's argument that the Examiner erred in rejecting independent claims 1, 12, 20, and 21 under 35 U.S.C. § 102(b) as anticipated by Pletschacher, because Pletschacher does not teach that

the shape of the envelope (13), for a part located near the periphery of wheel (11), comprises a cross section (131) that is locally wider than a part of the envelope that is nearer the axis of the wheel, wherein said part located radially closer [to] the periphery of wheel (11) provides a volume of space designed to generate a strip of gas through a thickness of which the oxygen is concentrated[.]

as recited in claim 1, and similarly recited in claims 12, 20, and 21. *See* Reply Br. 15–17; *see also* Appeal Br. 25–29.

Pletschacher relates to a gas centrifuge for enriching oxygen in the combustion air of internal-combustion engines. Pletschacher, col. 1, ll. 5–7. Housing 6 of gas centrifuge 1 is flanged to exhaust pipe 4, and rotor 9 is pivotally mounted in cylinder interior 8 of gas centrifuge 1. *Id.* at col. 3, ll. 24–31. Rotor 9 has three blades 17 extending from rotation axis 7 to cylinder interior wall 18 so that only a gap receiving tolerances arises on interior wall 18. *Id.* at col. 3, ll. 38–40. Disposed on cylinder interior wall on the outlet side is annular receiving channel 22 for oxygen enriched combustion air. *Id.* at col. 3, ll. 61–64. Nitrogen-rich air is released into the atmosphere through outlet openings 25 in end wall 23 between receiving channel 22 and rotor axis 7. *Id.* at col. 3, l. 65–col. 4, l. 2.

The Examiner finds that Pletschacher's housing 6 constitutes the claimed "envelope." Ans. 14. The Examiner further finds that Pletschacher

at Figure 3, as annotated by the Examiner, describes the claimed shape of the envelope. In particular, the Examiner finds that it

is evident that the part located near the periphery of [the] wheel, comprises a cross section that is locally wider than a part of the envelope that is nearer the axis of the wheel because there are 2 concentric circles[:] One near the periphery of [the] wheel and envelope[,] and the other circle close to the axis of the wheel. Accordingly, because of the fact that both concentric circles have different radius [sic] (being the one near the periphery with larger radius)[, it] is evident that one will have a wider cross section than the other.

Ans. 15. As an initial matter, we agree with Appellant (*see* Appeal Br. 24–25) that the annotated Figures provided by the Examiner are not legible.

The Examiner does not provide legible annotations in the Answer.

Moreover, the Examiner does not otherwise identify the structures in Pletschacher's Figure 3 referred to by the Examiner as "2 concentric circles." As a result, we cannot understand how the Examiner interprets Pletschacher's Figure 3 as teaching the argued claim limitation.

In any event, Figure 3 of Pletschacher shows a cross section of gas centrifuge 1 taken along line III–III of Pletschacher's Figure 2. This horizontal section, at best, depicts a shape of housing 6 for a part located near the periphery of the wheel — namely, housing 6 having a diameter that extends around blades 17 and other structures within the housing. But this view, which does not show a portion of housing 6 nearer the axis of the wheel, does not indicate that housing 6 has a cross section that is locally wider near the periphery of the wheel than a part located nearer the axis of the wheel. Here, the Examiner does not adequately support the finding that the shape of Pletschacher's envelope (i.e., housing 6) for a part located near the periphery of wheel, comprises a cross section that is locally wider than a

part of the envelope that is nearer the axis of the wheel, as recited by claim 1, and similarly recited by claims 12, 20, and 21.

We also are persuaded by Appellant's argument that the Examiner erred in rejecting independent claims 1, 12, and 20, and dependent claim 22 under 35 U.S.C. § 102(b) as anticipated by Pletschacher, because Pletschacher does not teach "the wheel having an axial length extending from the forward edge of the blades to the rear edge of the blades, the axial length being smaller than an interior diameter of said envelope (13)," as recited in claim 1, and similarly recited in claims 12, 20, and 22. *See Reply Br. 15–17.*

The Examiner reasons that Pletschacher's blades 17 inherently have an axial length smaller than the interior diameter of housing 6 (i.e., the claimed housing), because the blades are mounted within the interior of housing 6. *Id.* (citing Pletschacher, Fig. 3). The problem with the Examiner's analysis, as pointed out by Appellant (Reply Br. 15–16), is that the axial length of blades 17 is perpendicular to the interior diameter of housing 6. Figure 3 of Pletschacher does not show the axial length of blades 17. Contrary to the Examiner's finding, Pletschacher teaches that in the axial direction, blades 17 have "great length," preferably more than twice the rotor radius. *Id.* at col. 3, ll. 53–55; *see also id.* at col. 3, ll. 59–60 (describing that the axial length of blades 17 should be "at least greater than the greatest radius of rotor 9" even if another symmetrical interior shape is used) (emphasis omitted). For at least this additional reason, we do not sustain the rejection of independent claims 1, 12, and 20, and dependent claim 22, under 35 U.S.C. § 102(b) as anticipated by Pletschacher.

Therefore, we do not sustain the rejection of independent claims 1, 12, 20, and 21 and their dependent claims 10, 13, 15, and 22 under 35 U.S.C. § 102(b) as anticipated by Pletschacher.

*Obviousness*

The Examiner’s rejections of claims 3–5, 7, and 16–19 under 35 U.S.C. § 103(a) as obvious over Pletschacher and Blandino, and claims 11 and 14 under 35 U.S.C. § 103(a) as obvious over Pletschacher and Moon do not cure the deficiencies in the rejection of independent claims 1, 12, 20, and 21.

Therefore, we do not sustain the rejections of claims 3–5, 7, 11, 14, and 16–19 under 35 U.S.C. § 103(a).

CONCLUSION

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1, 3–5, 7, 10–22	112, second paragraph	Indefiniteness		1, 3–5, 7, 10–22
1, 10, 12, 13, 15, 20–22	102(b)	Pletschacher		1, 10, 12, 13, 15, 20–22
3–5, 7, 16–19	103(a)	Pletschacher, Blandino		3–5, 7, 16–19
11, 14	103(a)	Pletschacher, Moon		11, 14
<b>Overall Outcome</b>				1, 3–5, 7, 10–22

Appeal 2018-003694  
Application 14/350,636

REVERSED