IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	Art Unit: 342
Willi Ernst SALZMANN	)	Examiner: N. P. Kamen
Serial No.: 07/302,234	)	Washington, D.C.
Filed: December 27, 1988	)	June 11, 1990
For: ROCKING-PISTON MACHINE	)	

AMENDMENT

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

This Amendment is responsive to the Office Action dated August 31, 1989.

Please amend this application as follows:

IN THE SPECIFICATION:

Applicant submits with this Amendment a substitute specification in compliance with 37 C.F.R. §1.52 (a) and (b) as required by the Examiner.

IN THE DRAWINGS:

Please amend the drawings as shown in red on the sheets attached hereto.

IN THE CLAIMS:

Please cancel claims 4, 6, 7, 8 and 9.

1. (Amended) Rocking-piston machine with a skirtless piston, rigidly secured to its connecting rod and sliding with its periphery up and down a cylinder, characterized by a connecting rod, the end of which extends beyond the [crankpin] crank pin

bearing and which is laid out as a counterweight wherein said machine is a two-stroke slide valve engine with quadrangular rocking piston, characterized by an exhaust slide running on a frontal cylinder wall and hinged on the piston edge and guided by spring forces.

Claim 3, line 1, delete "or 2".

Claim 5, line 1, delete "or 2 as a compressed".

Claim 10, line 1, delete "one of the claims 3, 4 and" and insert --claim 4,--;

line 2, delete "6 to 9,".

Please add the following new claims:

--11. A reciprocating piston machine comprising:

a housing;

a cylinder formed in said housing and having a cylinder axis, a wall and a cylinder cover;

a crankshaft rotatably supported in a crank casing of said housing, extending perpendicularly to said cylinder axis and containing a crank pin;

a piston rod with a piston rod bearing rotatably supported on said crank pin;

a disc shaped piston rigidly attached to a first end of said piston rod and slidably received in said cylinder;

said piston rod comprising a counterweight diametrically opposed to said first end beyond said piston rod bearing, said counterweight being dimensioned such that in operation said piston moves back and forth in said cylinder with negligible lateral forces between said piston and said cylinder wall.

12. A machine according to claim 11, wherein said cylinder chamber is a combustion chamber, said extension of said piston rod is spade shaped and has two side edges and an end edge, said edges forming a sealing fit with said crank casing through part of a revolution of said crank shaft, whereby in operation said extension acts as a scavenging pump for scavenging and charging said cylinder.

13. A machine according to claim 12, wherein said cylinder has a rectangular cross section forming four wall sections, and said piston has a corresponding rectangular face with four straight edges, wherein an exhaust slide plate is pivotably attached to said piston along one of said edges of said piston, said slide plate being in sliding engagement with one of said wall sections containing an exhaust opening which in operation is intermittently covered by said slide plate and intermittently open to said cylinder chamber.

14. A machine according to claim 11, wherein said cylinder cover contains a gas inlet valve with an actuating element extending into said cylinder chamber eccentrically to said cylinder axes, said actuating element being actuable by a rim portion of said piston.

15. A machine according to claim 11, wherein said cylinder has a rectangular cross-section forming two plain wall sections perpendicular to the rotating axis of said crank shaft ad two convex wall sections, said piston having a corresponding rectangular face with four straight edges, said piston rod having two plain parallel faces closely fitting between said parallel

wall sections and each containing a groove in the form of a circular ring segment, said grooves each housing a plane slide plate guided for parallel movement up and down along the respective plain wall section, said slide plates in operation intermittently covering inlet openings and outlet openings formed in said plain wall sections.

16. A machine according to claim 11, wherein said cylinder chamber is a combustion chamber, said cylinder cover containing a cavity communicating with said combustion chamber, said cavity containing a catalytic element for initiating catalytic combustion.

17. A machine according to claim 16, wherein said cavity is cylindrical, the longitudinal extension of said cavity extending substantially perpendicularly to said cylinder axis and to the axis of rotation of said crank shaft, the communication between said cavity and said combustion chamber being formed by at last two spaced apart openings.

18. A machine according to claim 17, wherein said cavity contains a glow plug.

19. Rocking-piston machine with at least one skirtless piston rigidly secured to its connecting rod and running in a cylinder, characterized by a counterweight arranged on a free end of said connecting rod, wherein said machine is a two-stroke slide valve engine with quadrangular rocking piston, characterized by an exhaust slide running on a frontal cylinder wall and hinged on the piston edge.

20. Rocking-piston machine with at least one skirtless piston rigidly secured to its connecting rod and running in a cylinder, wherein a counterweight is arranged on a free end of said connecting rod, wherein said machine is a two-stroke slide valve engine with quadrangular rocking piston, and wherein a connecting rod has on both sides a flat recess, and pivots with its circular rims about the piston center.

21. Rocking-piston machine according to claim 19 as a compressed gas motor, characterized by a piston that opens and closed with its trailing rim in the striking plane of the connecting rod and a valve arranged above whereby the gas flows asymmetrically to the piston top dead center.

22. Rocking-piston machine as per claim 20, having a connecting rod having together with its counterweight the same width as the quadrangular rocking piston and being hugged closely by the cylinder crankcase so as to serve as a volumetric charger.

23. Rocking-piston machine as per claim 1, characterized by lateral scavenging channels and scavenging ducts asymmetrically formed relative to each other, such as to generate a scavenging swirl.

24. Rocking-piston machine according to claim 19 wherein a counterweight extends from the middle of the crank pin bearing as a connecting rod cap.

25. Rocking-piston machine according to claim 19, further comprising a cylinder head having an elongated, cylindrical combustion chamber, lying at least approximatively in the

connecting rod striking plane and being connected to the cylinder volume by slots and having preferably at one end a glow plug coated with precious metal.

26. Rocking-piston machine comprising a two-stage compressor having at least one skirtless piston having the same width as its connecting rod and counterweight and being hugged closely by the cylinder crankcase, having large transfer channels/ducts between stages one and two and having a cylinder cover with at least one outlet reed-valve.

27. Rocking-piston machine having at least one skirtless piston integral with or rigidly secured to its connecting rod and running in a cylinder, having a counterweight arranged on the free end of said connecting rod and having the center of rotation of this moving assembly coinciding at least approximately with the center of the connecting rod bearing.--

IN THE ABSTRACT OF THE DISCLOSURE:

Please add the following Abstract of the Disclosure as a separate sheet after the claims:

--ABSTRACT OF THE DISCLOSURE

A reciprocating rocking-piston two-cycle engine wherein said piston is skirtless, rigidly mounted to its connecting rod, and sliding up and down in the cylinder is shown and described. The crank pin includes a bearing which is laid out as a counterweight. An exhaust slide runs on a frontal cylinder wall, is hinged on the piston edge, and guided by spring forces.

R E M A R K S

In response to the Office Action dated August 31, 1989, applicant has cancelled claims 4, 6, 7, 8 and 9, and amended claim 1 to include the limitations of former claim 4, and herein presents new claims 11-27. Amended claim 1 includes the limitations of claim 4 and the alternative expressions of claim 4 have been deleted.

35 U.S.C. §112

At page 2, beginning at line 2 of the Office Action, the Examiner has noted errors in the drawing. The reference lead for number 51 is shown in Figure 6. The lead for 93 is shown in Figure 6, and reference numeral 105 is shown in Figure 12.

In the drawings, numerals 93 and 115 have been provided with lead lines as required.

In the Office Action, page 2, line 7, the Examiner has objected to the drawings as not showing the subject matter of claim 6. In response, claim 6 has been cancelled.

At page 2, beginning at line 12, the Examiner has required that a substitute specification be submitted. A substitute specification is attached to this Amendment. The undersigned verifies that there is no new matter.

At the bottom of page 2, the Examiner has objected to the order of the specification. The specification as rewritten includes the proper headings to comply with U.S. practice.

35 U.S.C. 102(b)

The rejection of claims 1 and 2 under 35 U.S.C. §102(b) as being anticipated by Mahler et al. and the rejection of claims 1 and 3 under 35 U.S.C. §103(b) as being anticipated by Jackson has been rendered moot by applicant's amendment in claim 1. The limitations of original claim 4 have now been inserted into claim 1, and hence claim 1 includes all of the limitations of claim 4 which the Examiner indicated would be allowable at page 4, line 16 of the Office Action.

The Examiner's rejection of claims 5-10 is respectfully traversed. The Examiner has not specified what portions of the claims are indefinite or understandable. However, applicant has cancelled claims 6, 7, 8 and 9, leaving only claims 5 and 10 at issue. The Examiner's assistance in identifying these issues is respectfully requested.

It is therefore respectfully requested that this application be reexamined in light of the foregoing amendments, and submission of a new specification.

Should the Examiner have any further questions, it is respectfully requested that he telephone the undersigned.

Respectfully requested,

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