UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte ROBERT G. EVERTS and KATSUMI KURIHARA

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Appeal No. 2006-1644
Application No. 10/666,924

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ON BRIEF

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Before OWENS, NAPPI and FETTING, *Administrative Patent Judges.*

OWENS, *Administrative Patent Judge.*

DECISION ON APPEAL

This appeal is from a rejection of claims 8-19, which are all of the pending claims.

THE INVENTION

The appellants claim a hand held, portable power tool having a four stroke engine. Claim 14 is illustrative:

14. A hand-held, portable, power tool adapted to be carried by an operator while in use, comprising:
a frame, including a handle engageable by an operator;
an implement cooperating with the frame and having a rotary-driven input member,
a lightweight, four-stroke cycle, internal combustion, spark-ignition engine attached to said frame wherein said engine comprising:
a lightweight engine block defining a cam housing, a crank chamber and a cylindrical bore;
an intake valve and exhaust valve;
a piston slidably disposed in said cylindrical bore;

a crankshaft supported by at least one bearing in said crank chamber, said crankshaft being drivably connected to said piston, and having an output end cooperating with an input end of said implement;

a cam rotatably mounted in said cam housing and driven by said crankshaft at less than the full speed of said crankshaft.

THE REFERENCES

Kovacs[1]	DE 33 35 962 A1	Feb. 5, 1985
(German Offenlegungsschrift)		
Takada et al. (Takada)	61-39416	Mar. 12, 1986
(Japanese utility model application laid open)		

THE REJECTION

Claims 8-19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kovacs in view of Takada.

OPINION

We affirm the aforementioned rejection.

The appellants argue only independent claim 8. Consequently, we limit our discussion to that claim and the other, broader, independent claim (14). *See* 37 CFR 41.37(c)(1)(vii)(2004).

Takada discloses a four stroke, internal combustion, spark ignition engine comprising an engine block defining a cylinder head (6) assembly, a cam (19) housing, a crank chamber (1), a cylinder (4) bore, intake (10) and exhaust (11) valves in the cylinder head assembly, a piston (5) slidably disposed in the cylindrical bore, a crankshaft (2) drivably connected to the

[1] Citations herein to Kovacs and Takada are to the English translations thereof which are of record.

piston (figure 1), a cam (19) rotatably mounted in the cam housing and driven by the crankshaft at less than the full speed of the crankshaft (page 4, third paragraph), and a valve cover (15) on the cylinder head defining a valve chamber. The engine is simple and compact (page 7, third full paragraph).

Kovacs discloses a four stroke engine suitable for uses including chain saws (page 2).

The appellants argue that one of ordinary skill in the art would not have been motivated to combine the teachings of Kovacs and Takada because the combination would eliminate required features of one or both of the references (brief, page 5; reply brief, pages 2-4). The appellants argue that 1) Kovacs requires that the inlet and outlet valves are in the cylinder head, whereas Takada requires that those valves are above the cylinder head (brief, pages 5-6; reply brief, pages 3-4), 2) there is no need to combine Takada and Kovacs because Kovacs already has a lubrication system and, therefore, does not need Takada's lubrication system (brief, pages 8-9), and 3) even if Kovacs required a lubrication system, there is no teaching as to how Takada's lubrication system would be used in Kovacs' engine (brief, page 9). The appellants' arguments are directed toward motivation to bodily incorporate the features of the references.

As stated by a predecessor of our reviewing appellate court in *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981):

> The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.

The motivation for combining the teachings of Takada and Kovacs would have been to produce, using Takada's simple and compact structure (page 7), a small device such as a chain saw as taught by Kovacs (page 2).

The appellants argue that the Popular Science article "The Little Engine That Could", published in 1993, two years after the appellants' effective filing date, shows that reducing the size of a four stroke engine such that it is useful in hand held power tools requires components such as valves that are smaller than those of larger engines and have to be designed and manufactured specifically for the smaller engine (brief, page 10; reply brief, page 5). That argument is not persuasive because it would have been readily apparent to one of ordinary skill in the art that making Takada's engine small enough to be used on a chain saw as disclosed by Kovacs would require parts which are smaller than those of larger engines. The appellants argue that the Popular Science article shows that characterizing

the engine described therein as being obtained by just miniaturizing is an underestimate of the cleverness of the engine design (brief, page 10). The disclosure in the article that "a simplistic engine-shrinking could certainly have produced the low emissions levels and perhaps the necessary power output, but doubtfully could have done it at a competitive manufacturing cost" (page 92, third full paragraph) indicates that one of ordinary skill in the art could have made a four stroke engine for hand held power tools, the only issue being whether the manufacturing cost would have been competitive. The appellants' claims do not require a competitive manufacturing cost.

The appellants argue that there is no showing that the mere miniaturization of Takada's engine necessarily will result in a properly working engine for use on a portable, hand held power tool (brief, pages 10-11). For a prima facie case of obviousness to be established, all that is required is a reasonable expectation of success, not absolute certainty. *See In re O'Farrell*, 853 F.2d 894, 904, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988). Takada's disclosure that the engine is simple and compact (page 7) would have provided one of ordinary skill in the art with a reasonable expectation that its size could be

reduced sufficiently for use on a portable, hand held power tool.

For the above reasons we conclude that the appellants' claimed invention would have been obvious to one of ordinary skill in the art over the applied prior art.

DECISION

The rejection of claims 8-19 under 35 U.S.C. § 103 over Kovacs in view of Takada is affirmed.

AFFIRMED

TERRY J. OWENS Administrative Patent Judge	)
ROBERT E. NAPPI Administrative Patent Judge	) BOARD OF PATENT) APPEALS AND) INTERFERENCES
ANTON W. FETTING Administrative Patent Judge	)

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