UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREW W. PHILLIPS, DONALD L. DUSENBERRY,
and JAMES M. HART

Appeal 2008-0550
Application 10/650,208
Technology Center 3600

Decided: June 27, 2008

Before WILLIAM F. PATE, III, LINDA E. HORNER, and JOSEPH A. FISCHETTI, *Administrative Patent Judges*.

PATE, III, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal from the final rejection of claims 1, 3-10, and 12-26. These are the claims in the application. We have jurisdiction under 35 U.S.C. §§ 134 and 6 (2002).

The claimed invention is directed to a cooling system and method for cooling the friction devices found in an automatic transmission.

Claim 1, reproduced below, is further illustrative of the claimed subject matter:

> 1. A cooling system for cooling a friction device, comprising:
> a flow control device that controls a flow of cooling fluid through said friction device; and
> a controller that estimates a temperature state of said friction device based on an estimated heat rate of said friction device, calculates a flow command based on said temperature state and operates said flow control device based on said flow command.

The references of record relied upon by the Examiner as evidence of lack of novelty are:

Lentz	US 5,216,603	Jun. 1, 1993
Buchanan	US 6,715,597 B1	Apr. 6, 2004 (filed Oct. 25, 2002)

Claims 1, 3-10, and 12-26 stand rejected under 35 U.S.C. § 102 as anticipated by Lentz.

Claims 1, 3-10, and 12-26 stand rejected under 35 U.S.C. § 102 as anticipated by Buchanan.

FINDINGS OF FACT

Lentz is directed to a method and apparatus for determining the clutch fill times for an automatic transmission having multiple fluid operated transmission clutches. These clutches are labeled C1-C5 in Fig. 1A. The clutches are selectively engaged and disengaged by the computer-controlled operation of solenoid operated control valves 30, 32, 34, 36, 38, and 40. The

selective operation of these clutches as shown in the matrix, Fig. 1B, accounts for the six speeds of the transmission. (Lentz, col. 2, ll. 40-69.)

The clutches are hydraulically actuated by pistons, in cylinders, that compress the clutch plates. (Lentz, col. 4, ll. 45-46.) Since the rate of fill of the cylinders is governed by the temperature, viscosity, and fill volume along with the pump speed (Lentz, col. 1, ll. 50-54), Lentz's computer control was designed to accurately determine the fill times needed for each clutch actuation. (Lentz, col. 4, ll. 54-56.)

Turning to the actual construction of the Lentz transmission, we note that the Lentz disclosure is to a flow control device pump 82, a controller 42, and a friction device 14. (Fig. 1A.) The controller 42 receives input from temperature sensor 66 (CT_{sump} in Fig. 3B) so as to calibrate any of the cylinder fill times accurately. It appears that the primary cooling of the transmission of Lentz is via a transmission cooler 100 which operates on the converter 97 feed exhaust. (Lentz, col. 3, ll. 42-49 and Fig. 1B.)

Buchanan, on the other hand, is directed to a system and method for cooling a dual clutch automatic transmission. (Buchanan, col. 4, ll. 48-63.) The transmission comprises friction devices in the form of two coaxial clutches 32 and 34 which operate dual concentric input shafts 14 and 16. The method of Buchanan involves controlling the temperature of each clutch by determining temperature changes in the clutches by calculating a heat rate H_R which Buchanan terms the "bulk clutch temperature." The bulk clutch temperature or heat rate is calculated from the input torque and the clutch slip rate. This is represented in block 254 in Fig. 3A. (Buchanan, col. 5, ll. 16-35, Fig. 3A, and col. 11, ll. 44-56.) After further calculating steps, Buchanan routes cooling fluid to the clutches based on the calculated

cooling demands. (Steps 264, 266, 232, 234, and 236 in Fig. 3A.) The cooling fluid is routed via flow control devices including pump 94 and main regulator 110 along with two clutch cooling regulators 150, 152. (See schematic flow diagram, Fig. 2.) All of these flow controllers are controlled by the ECU (unnumbered). (Buchanan, col. 8, ll. 29-45; col. 10, ll. 13-16; col. 11, ll. 1-5, 44-56.)

PRINCIPLES OF LAW

The prior art may anticipate a claimed invention, and thereby render it non-novel, either expressly or inherently. *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349 (Fed. Cir. 2002). Express anticipation occurs when the prior art expressly discloses each limitation (i.e., each element) of a claim. *Id*. In addition, "[i]t is well settled that a prior art reference may anticipate when the claim limitations not expressly found in that reference are nonetheless inherent in it." *Id*.

ANALYSIS

We are in agreement with the Appellants that the Lentz patent does not anticipate the claims on appeal. It is apparent that the primary cooling regime of the transmission of Lentz is via the transmission cooler 100 which operates on the converter feed 97. Incidental cooling by spraying and splashing or the like is not seen to be involved with the calculation of torque and slip speed of the transmission.

On the other hand, the Examiner has sustained his burden of showing that the claimed subject matter of claims 1, 10 and 20 lacks novelty over the Buchanan patent. As noted above in our findings of fact, Buchanan clearly

teaches calculating a heat rate or bulk clutch temperature based not on any temperature sensing, but based merely on the input torque and the slip speed of the two clutches. That Buchanan calls this step a calculation and Appellants call it an estimation is of no moment, since, empirically, any calculation done by Buchanan is merely a close estimate of the bulk clutch temperature.

Appellants argue that "[t]he method of Buchanan is executed using a sensor-based, reactionary system that determines bulk clutch temperature change based on a **measured** fluid temperature." (Brief 14.) This is simply in error. Buchanan is clear that the bulk rate temperature is initially calculated or estimated based on input torque and slip speed.

Appellants argue that Buchanan teaches two temperature sensors and is more complicated and expensive than Appellants' disclosed device. The presence of two or more sensors, any perceived relative complexities, or the presence of expensive components are not precluded by Appellants' claims.

Finally Appellants argue that Buchanan fails to teach or suggest estimating a clutch temperature based on an estimated heat rate. This is simply erroneous. Buchanan clearly teaches estimating a heat rate for bulk clutch temperature based on input torque and slip speed. Appellants' arguments fail to convince us of any error in the Examiner's anticipation rejection based on Buchanan.

With regard to the dependent claims, Appellants only argue the claims insofar as they depend on independent claims 1, 10, and 20 and insofar as Appellants mention but do not specify that these claims contain further cooling apparatus and method steps. Therefore we hold that the dependent

claims fall with the independent claims on appeal, since the independent claims lack novelty over Buchanan.

ORDER

The rejection of claims 1, 3-10, and 12-26 under 35 U.S.C. § 102 as anticipated by Lentz is reversed.

The rejection of claims 1, 3-10, and 12-26 under 35 U.S.C. § 102 as anticipated by Buchanan is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED

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