The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ERIC N. ANDERFAAS

Appeal 2006-2483
Application 10/371,785
Technology Center 3600

Decided: March 16, 2007

Before TERRY J. OWENS, MURRIEL E. CRAWFORD, and JENNIFER D. BAHR, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

The Appellant appeals from a rejection of claims 1-52, which are all of the pending claims.

THE INVENTION

The Appellant claims a rotary damper and a method for damping rotary movement. Claim 1 is illustrative:

1. A rotary damper, comprising:

a housing;

a first plurality of plates disposed within the housing;

a second plurality of plates disposed within the housing and interleaved with the first plurality of plates, the second plurality of plates capable of moving relative to the first plurality of plates;

a magnetorheological fluid contained within the housing and residing in the interleave of the first and second plurality of plates; and

a magnetic flux generator capable of driving a magnetic flux through the magnetorheological fluid in the interleave in a direction transverse to the orientation of the plates and capable of varying the strength of the driven magnetic flux.

THE REFERENCES

Drutchas	US 4,790,522	Dec. 13, 1988
Daniels	US 5,573,088	Nov. 12, 1996
Nakanishi (JP '220)[1](as translated)	JP 62-251220	Nov. 2, 1987
Duchovskou (WO '181) (as translated)	WO 94/01181	Jan. 20, 1994

THE REJECTIONS

The claims stand rejected as follows: claims 1, 3-8, 11, 13-19, 22, 24-29, 32, 34-39, 42, 44-49 and 52 under 35 U.S.C. § 102(b) as anticipated by Daniels; claims 1, 3-11, 14-22 and 24-31 under 35 U.S.C. § 102(b) as anticipated by WO '181; claims 32, 34-42 and 44-51 under 35 U.S.C. § 102(b) as anticipated by JP '220; and claims 2, 12, 23, 33 and

[1] Copies of the English translations of JP '220 and WO '181 are provided to the Appellant with this decision.

43 under 35 U.S.C. § 103 as obvious over WO '181 in view of Daniels or Drutchas.

OPINION

We affirm the aforementioned rejections.

Rejection over Daniels

Daniels discloses "a variable resistance device utilizing a variable viscosity material for use as a brake and/or clutch" (Daniels, col. 1, ll. 7-9). In the embodiment shown in figure 1 the variable viscosity material is an electro-rheological (ER) material or a magneto-rheological (MR) material and is disposed in gaps between rotating electrode plates (10) and their respective facing opposing electrode plates (12) in a containing tube (28) (Daniels, col. 19, ll. 42-47). The rotating electrode plates can rotate relative to the opposing electrode plates (Daniels, col. 22, l. 66 – col. 23, l. 20). A means (52) for applying a field to the variable viscosity material "may be a high-voltage power source for creating an electrical field for energizing an ER fluid, or a low voltage power source for creating a magnetic field for energizing an MR fluid" (Daniels, col. 21, ll. 7-10). "In the case of an MR fluid, a magnetic field generating coil can be used in place of the confining electrode **105"** shown in figure 5(a) (Daniels, col. 24, ll. 8-10).

The Appellant argues that Daniels' ER embodiments and MR embodiments are separate embodiments, and that interchangeability of fluids does not extend to the machines that use the fluids (Br. 6; Reply Br. 1-2). That argument is not persuasive in view of the above-discussed indication that an MR fluid can be used in Daniels' figure 1 embodiment, the above-discussed indication of the interchangeability of the ER and MR systems, and Daniels' disclosure that "most of the features described herein with

reference to the use of an ER fluid are, by analogy, applicable to the use of an MR fluid" (Daniels, col. 29, ll. 45-47).

The Appellant argues, in reliance upon a Declaration by the inventor, Eric N. Anderfaas (filed Aug. 3, 2004), that Daniels' MR embodiment is inoperative (Br. 7-8). Anderfaas argues that in the embodiment in Daniels' figures 25(a)-28(d) the MR fluid is not energized (Declaration 3). The embodiment in those figures does not include plates 10 and 12 that rotate relative to each other and, therefore, is irrelevant. Regarding the relevant embodiment in Daniels' figure 1, Anderfaas argues that Daniels does not show magnetic insulation that is needed between the critical elements to prevent the flux from short circuiting through those elements, bypassing the MR fluid and preventing direct MR fluid energization (Declaration 3-4). That argument is not persuasive because Anderfaas has not shown, or even asserted, that one of ordinary skill in the art would not have interpreted Daniels as including the non-disclosed components required to render the device operative, such as the screws and bolts needed to hold the device together and the magnetic insulation needed to prevent elements from short circuiting.

For the above reasons we are not convinced of reversible error in the rejection over Daniels.

Rejections over WO '181 and over WO'181
in view of Daniels or Drutchas

WO '181 discloses a training device having a housing (1) containing nonmoving braking plates (7) with slots therebetween (fig. 1), basic (4) and additional (9) braking elements mounted on a shaft (3) and interleaved with the nonmoving braking plates, an electromagnet (6), and a magnetic fluid (8)

in a hollow area (2) surrounding the braking plates and the braking elements (WO '181, pp. 3-4; fig. 1). "When electrical current flows through the electromagnet (6), the magnetic field develops that permeates the housing (1), the braking elements (4, 7, 9) and magnetic fluid (8) that is located in the hollow area (2). In this process the fluid (8) changes its viscosity, which is proportional to the voltage and current strength. As a result, forces develop between the plates (7) and elements (4 and 9), as well as between elements (4) and side walls of housing (1), which prevent the shaft from turning, which is actually necessary for the formation of load on the drive element of the training device" (WO '181, pp. 4-5).

The Appellant argues that the English abstract of WO '181 does not disclose a magnetic fluid or identify element 6 as a magnetic flux generator (Br. 9-10). The English abstract does not identify elements 6 or 8. The original German, "der magnetischen Flüssigkeit (8)" (WO '181, p. 3) and "den Electromagnet (6) entsteht das Magnetfeld" (WO 94/01181, p. 4) is not an English statement that element 8 is a magnetic fluid or that an electromagnet (6) develops a magnetic field, but is very close. Regardless, the English translation of WO '181 indicates that element 8 is a magnetic fluid ("magnetic fluid (8)"; WO '181, pp. 3-4) and element 6 is a magnetic flux generator ("[w]hen electrical current flows through the electromagnet (6), the magnetic field develops…"; WO '181, p. 4).

We therefore are not convinced of reversible error in the rejection over WO '181 or the rejection over WO '181 in view of Daniels or Drutchas that is not separately argued (Br. 11-12).[2]

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[2] *See* 37 C.F.R. § 41.37(c)(1)(vii)(2004).

Rejection over JP ‘220

JP ’220 discloses a buffer that functions as a suspension system of a vehicle (JP ’220, p. 3). The device includes an electrical coil (13) and a housing (10) having an inner chamber (10a) containing a magnetic fluid, magnetic pole plates (15) attached to the housing, and magnetic pole plates (18) attached to a shaft (11) and interleaved with the magnetic pole plates attached to the housing (JP ’220, pp. 6-8). The magnetic pole plates attached to the shaft rotate relative to the magnetic pole plates attached to the housing (JP ’220, p. 9). “[W]hen an appropriate amount of current is transmitted to the electric coil **13** at the time of above-mentioned rotation, a magnetic field is generated between both magnetic pole plates **15, 18**. Then, the viscosity of the magnetic fluid filled in the inner chamber 10a of the housing **10** (i.e., magnetic fluid provided between the magnetic pole plates **15**, **18**) increases to create a phenomenon of preventing the relative rotation of both magnetic pole plates **15**, **18**” (JP ’220, p. 9).

The Appellant argues that the Examiner has not established that JP ‘220 discloses an MR fluid or a magnetic flux generator capable of 1) driving a magnetic flux through the MR fluid in a direction transverse to the orientation of the plates, and 2) varying the strength of the driven magnetic flux (Br. 11). Even the English abstract of JP ‘220 discloses an MR fluid and teaches that energizing coil 13 increases the viscosity of the MR fluid, thereby suppressing relative rotation of magnetic pole boards 15 and 18. That disclosure also appears at pages 7-9 of the English translation of JP ‘220. The English translation also indicates that the strength of the magnetic flux is variable (JP ’220, p. 9). As indicated by the Appellant’s Specification (p. 7, ll. 25-30), the JP ‘220 magnetic field necessarily must be

in the direction transverse to the magnetic pole boards to orient the magnetic particles in that direction such that the viscosity increase suppresses the relative rotation of the magnetic pole boards.

Hence, we are not convinced of reversible error in the rejection over JP ‘220.

DECISION

The rejections of claims 1, 3-8, 11, 13-19, 22, 24-29, 32, 34-39, 42, 44-49 and 52 under 35 U.S.C. § 102(b) over Daniels, claims 1, 3-11, 14-22 and 24-31 under 35 U.S.C. § 102(b) over WO ‘181, claims 32, 34-42 and 44-51 under 35 U.S.C. § 102(b) over JP ‘220, and claims 2, 12, 23, 33 and 43 under 35 U.S.C. § 103 over WO ‘181 in view of Daniels or Drutchas, are 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)(2006).

AFFIRMED

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WILLIAMS, MORGAN & AMERSON
10333 RICHMOND, SUITE 1100
HOUSTON, TX 77042