UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* DENNIS A. KRAMER

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Appeal 2008-3623
Application 10/715,051
Technology Center 3600

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Decided: September 25, 2008

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*Before*: MURRIEL E. CRAWFORD, ANTON W. FETTING and STEVEN D.A. McCARTHY, *Administrative Patent Judges*.

CRAWFORD, *Administrative Patent Judge*.

## DECISION ON APPEAL

## STATEMENT OF CASE

Appellant appeals under 35 U.S.C. § 134 (2002) from a final rejection of claims 1-3, 7-14, and 21. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

Appellant invented a force sensor for a vehicle brake (Specification 1).

Claim 1 under appeal reads as follows:

> 1. A disc brake comprising:
> an actuation mechanism being movable to apply a braking force;
> a pair of pistons movable upon receipt of said braking force to force a brake pad into contact with an item to be braked;
> an adjustment mechanism for adjusting a location of said pair of pistons to take up clearance with wear in said brake pad; and
> a force sensor for sensing a reaction force to said braking force, and identifying a point of force application increase indicative of initial contact of said brake pad with the item to be braked, said force sensor sending a signal to an electric control for said adjustment mechanism.

The Examiner rejected claim 21 under 35 U.S.C. § 112, second paragraph for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention.

The Examiner rejected claims 1 and 21 under 35 U.S.C. § 102(b) as being anticipated by Carre.

The Examiner rejected claims 7 to 12 under 35 U.S.C. § 103(a) as being unpatentable over Carre in view of Oreper.

The Examiner rejected claims 1 to 3 under 35 U.S.C. § 103(a) as being unpatentable over Ward in view of Carre.

The Examiner rejected claims 10 to 14 under 35 U.S.C. § 103(a) as being unpatentable over Ward in view of Carre and Oreper.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

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| Carre | US 4,784,244 | Nov. 15, 1988 |
| Oreper | US 6,272,936 B1 | Aug. 14, 2001 |
| Ward | US 6,397,977 B1 | Jun. 04, 2002 |

Appellant contends that the recitations in claim 21 would have been understood and clear when read by a person of ordinary skill in the art.

Appellant contends that Carre does not disclose a force sensor that identifies a point of force application increase indicative of initial contact and sends a signal to the electric control for an adjustment mechanism.

## ISSUES

The first issue is whether the Appellant has shown that the Examiner erred in holding that the phrases "a braking force", "a clearance," and "components of the disc brake" recited in claim 21 are unclear and therefore indefinite.

The second issue is whether the Appellant has shown that the Examiner erred in finding that Carre discloses a force sensor that indentifies a point of force application increase indicative of initial contact and sends a signal to the electric control for an adjustment mechanism.

## FINDINGS OF FACT

Appellant's Specification discloses a disc brake 20 which includes brake pads 24 and 26 which are used to actuate braking by bringing the brake pads 24, 26 in contact with a rotor 22 [0017]. As shaft 40 is turned to rotate by an actuator, eccentric ends 42 and 44 drive the bearings 36 and 38. The bearings force tappet gears 28, 29 and pistons 34 downward, bringing brake pads 24, 26 in contact with rotor 22 and thereby exerting a braking force on rotor 22 [0020]. The position of the pistons 34 must be adjusted to account for the wear of the brake pads [0018]. The wear on the brake pads 24, 26 affects the distance or air gap between the brake pads 24, 26 and the rotor 22. A force sensor 46 measures the reaction force transmitted from bearing 36, 38 to cup 44 and identifies a point of force application indicative of initial contact of the brake pad and the rotor [0022-0023]. The sensor 46 sends a signal indicative of this point to a controller 31. A sensor 71 measures the rotational position of a shaft 40 at two times, once before the force indicates initial contact and one after initial contact and the difference between the two shaft rotational positions is related to the gap of the pads relative to the rotor [0029]. Based on this calculation a clearance is adjusted [0029].

Carre discloses a brake which includes a force sensor 23 which detects, by reaction, the force exerted by a piston 5 on friction members 4 (col. 3, ll. 13 to 20). The electrical signal from the force sensor 23 is sent to an electronic control unit 24. The electronic control unit 24 also receives signals from a position or force sensor 25 associated with a brake pedal 26 and provides a control signal for an electric motor 8 to actuate the brake (col.

3, ll. 23 to 27). Carre also discloses that there is an adjustment mechanism termed a play compensation system 28 which directly actuates the adjacent friction member 4a and which is axially adjustable (col. 3, ll. 28 to 41). Carre does not disclose that the electronic control unit 24 is connected to the play compensation system. Carre does not disclose that the force sensor 23 identifies a point of force application increase indicative of initial contact of the brake pad with the item braked or sending a signal to an electric control for an adjustment mechanism.

Ward discloses a vehicle brake. However, Ward does not disclose that a force sensor identifies a point of force application increase indicative of initial contact of the brake pad with the item braked or sending a signal to an electric control for an adjustment mechanism.

Oreper discloses a force sensor. However, Oreper does not disclose that the force sensor identifies a point of force application increase indicative of initial contact of the brake pad with the item braked or sending a signal to an electric control for an adjustment mechanism.

## ANALYSIS

We will not sustain the Examiner's rejection of claim 21 under 35 U.S.C. § 112, second paragraph. We initially note that the second paragraph of 35 U.S.C. § 112 requires claims to set out and circumscribe a particular area with a reasonable degree of precision and particularity. *In re Johnson*, 558 F.2d 1008, 1015(CCPA 1977). In making this determination, the definiteness of the language employed in the claims must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and of the

particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. *Id.*

The Examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. § 112, second paragraph, is whether the claims meet the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available. Some latitude in the manner of expression and the aptness of terms is permitted even though the claim language is not as precise as the examiner might desire. If the scope of the invention sought to be patented cannot be determined from the language of the claims with a reasonable degree of certainty, a rejection of the claims under 35 U.S.C. § 112, second paragraph, is appropriate.

With this as background, we analyze the specific rejection of claim 21 under 35 U.S.C. § 112, second paragraph, made by the Examiner of the claims on appeal.

We do not agree with the Examiner that the recitation of "braking force" in claim 21 is unclear. In our view, when claim 21 is read in light of the Specification, it is clear that the braking force is the force used to bring the pads 24, 26 in contact with the rotor 22. In regard to the recitation of a gap between components of the disc brake, we agree with the Examiner that the recitation of "components of the disc brake" can be read as including the brake pads, the rotor, and other components of the brake system. The Examiner's position that this renders the claim unclear is not well taken. First, merely that a claim is broad does not mean that it is indefinite. *See In*

*re Johnson*, 558 F.2d 1008, 1016 n.17 (CCPA 1977); *In re Miller*, 441 F.2d 689, 693 (CCPA 1971); and *In re Gardner*, 427 F.2d 786, 788 (CCPA 1970). In any event, in light of the disclosure in paragraph [0029] of Appellant's Specification, a person of ordinary skill in the art would readily appreciate that the components referred to as having a gap are the brake pads. In addition, in our view it is also clear from paragraph [0029] that the clearance recited in claim 21 is the amount of adjustment made after the gap is identified.

In view of the foregoing, we will not sustain the Examiner's rejection of claim 21 under 35 U.S.C. § 112, second paragraph.

We will also not sustain the Examiner's rejection of claim 1 under 35 U.S.C. § 102(b) because Carre does not disclose a force sensor that indentifies a point of force application increase indicative of initial contact of the brake pad with the item to be braked or that a signal from the force sensor is sent to the electric control for the adjustment mechanism. In this regard, while we agree with the Examiner that force sensor 23 senses the reaction force to a braking force, there is no disclosure that the sensor identifies a point of force application increase indicative of an initial contact of the pads to the rotor or that the force sensor or the electric control for that matter is any way I connected to the adjustment mechanism. Therefore, we will not sustain this rejection as it is directed to claim 1 or claim 21 dependent thereon.

We will not sustain the remaining Examiner's rejections made pursuant to 35 U.S.C. § 103. Claim 10 recites the same language regarding

the force sensor as claim 1 and Carre does not suggest a force sensor as recited in claim 1. Ward and Oreper do not cure the deficiencies of Carre.

The decision of the Examiner is reversed.

REVERSED

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